



ISSN 2365-6885  
SPRING, 2016

# OUTLIERS & OUTSIDERS

(Part Six)

In-Sight: Independent Interview-Based Journal

In-Sight Publishing



Interviewer: Scott Douglas Jacobsen  
 Title: In-Sight: Independent Interview-Based Journal  
 Place of Publication: Langley, British Columbia, Canada  
 Name of Publisher: In-Sight Publishing  
 Numbering: Issue 10.A, Idea: Outliers & Outsiders (Part Six)  
 Issue Publication Date: May 1, 2016 (2016-05-01)  
 Frequency: Three Times Per Year  
 Web Domain: [www.in-sightjournal.com](http://www.in-sightjournal.com)  
**ISSN 2369-6885**

## IN-SIGHT PUBLISHING

Published by In-Sight Publishing  
 In-Sight Publishing  
 Langley, British Columbia, Canada

[In-Sightjournal.com](http://In-Sightjournal.com)

First published in parts by In-Sight: Independent Interview-Based Journal,  
 a member of In-Sight Publishing, 2016  
 This edition published in 2016

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Published in Canada by In-Sight Publishing, British Columbia, Canada, 2016  
 Distributed by In-Sight Publishing, Langley, British Columbia, Canada

In-Sight Publishing was established in 2014 as a not-for-profit alternative to the large, commercial publishing houses currently dominating the publishing industry.

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### *Cataloguing-in-Publication Data*

Official catalogue record in EBSCOHost for this issue and at In-Sight Publishing, [www.in-sightjournal.com/issues](http://www.in-sightjournal.com/issues)  
 Jacobsen, Scott Douglas, Author  
 Issue 10.A, Idea: Outliers & Outsiders (Part Six)/Scott Douglas Jacobsen  
 pages cm  
 Includes bibliographic references, footnotes, and reference style listing.  
 In-Sight Publishing, Langley, British Columbia, Canada

Published electronically from In-Sight Publishing in Langley, British Columbia, Canada

10 9 8 7 6 5 4 3 2 1  
*Designed by Scott Douglas Jacobsen*

# Issue 10.A, Idea: Outliers and Outsiders (Part Six)

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## Acknowledgement and Appreciation

To Dr. Steven Critchley; Michael Staley; Frater Iskandar; Sam Webster; Pastor James Paton; Lawrence Hill; Professor Veronica Thompson; Megan Hall; Dr. Ruth Kastner; Erin Simmons; Vesta Recovery Nicole Reid-Naziel; Deborah Maddock; Program for Women Inc.; Nicole Boucher; Barbara Lehtiniemi; Insp. Baltej Singh Dhillon; Jeff Vircoe; Patrick Zierten; Satoshi Kanazawa; Karyn Mathewson; The Canadian Council of Muslim Women; Sahar Zaidi; Ryan Kiedrowski; Rayhana Sultan; Bays Blackhall; Thomas Wolf; Andreas Gunnarsson; The Honorable Minister Amarjeet Sohi and Brook Simpson; Professor Nikola Poljak; Leslie McQuade; mr. Stacey Petersen and Lisa Simone; Andrea Sanabria; Paul Taylor; Chantal Denis; Amanda Tabert; Stephanie Shulhan; Matt Schroeter; Dr. Jason Betts (Emerald Alchemist); Morgan Wienberg and Karen Wienberg at Little Footprints, Big Steps (LFBS); Professor Stavroula Kousteni at Columbia University; Jenny Arrington; Lead Pastor Matt Chandler and Coleman Wagner; Morgan and Karen Wienberg; Natasha Taneka; Paul M. Taylor; Kay Johnson; Jennifer Arrington; Rayhana Sultan; Professor Nicola Clayton, FRS; Honorable Minister Patty Hajdu and Kirsten Strom; Professor Albert Bandura and Christine Cordone; Lisa Simone at Fresh Start Recovery; Pardes Seleh; Dr. David H. Turpin and Kiann McNeill; Dr. Mamdouh Shoukri and Tessa G. Barclay; Deborah Gillis, Dr. Prime, and Tia Gordon; Dr. Allan Rock and Némome Duval; Executive Pastors and Pamela Arambaru at Centre Street Church; Pastor Shantz and Stephanie Warne-Lange; Teaching Pastor Bruxy Cavey, Keturah Knapp, and Zulema; Madeleine Gross; Anissa Helou; Lee Maracle; Professor Lorelei Hanson; Lois Volk; Dr. Lowitja O'Donoghue AB CBE DSG, Kylie Simmons, and Cristina Lochert at the Lowitja Institute; John O'Brien and Gail Brennan for assistance in intermediary and editing work for the interview with the university president; Dr. Reineke Lengelle for the reading and the interview; Janice Swayze for the work; Monique Gray Smith; Professor Eric Topol and Corrine Yarbrough; Mike Hess; Professor Veronica Thompson; Karen Wienberg and Morgan Wienberg; Professor Michael Graetzel; Professor Patrick M. O'Shea; Sayuri Yano; Profesor Trevow W. 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Baltej Singh Dhillon; Professor Gordon Guyatt and Laurel Grainger; Elaine Fabbro and Peggy Lynn MacIsaac; Farouk A. Peru; Elizabeth Mwanga; Professor Dougkas Richard Hofstadter; Maria Konovalenko; Professor Saul Kripke and Oliver Marshall; Pastor Mark and Erin Harrison; Deb Stone and Victoria Liguez; American Mensa; Cathy Freeman and James; Rt. Hon. Kim Campbell and Sheila Graves; Dr. Richard Lynn; George Saunders and Dhara Parikh; Amy Smith and Tasleem Nawar; Tanya Tagak and Kate Price; Eric Mah; Amanda Panaanen; John Cleese and Pat; Dr. Shirley Cheechoo and Erin Medakovic; Sarah Cornett; Sarika Rao; Gail Brennan; Peter MacKinnon; Kany Nuwukurata; Lucie Idlout; Susan Aglukark; Kate Price and Tanya Tagak; Cathy Freeman and James; Kevin Davey; Kevin Davey; George Saunders; Edith Krause, Sam Pimentel, Elizabeth Ingram, Peter von Tiesenhausen, Lorraine Brown, A. Hurt, Pamela MacKenzie, Celeste Snowber, Daniela, Doris Auxier, M. Abma, Helma Sawatsky, Kirsten A., Carl Tracie, K. Bubel, Sharon Fish Mooney, Tim Lilburn, Leah Kostamo, Mary O'Connor, Harley, Roy Mulder, Tracie, Lyndal Osborne, Katharine Bubel, R. Wong, M. Parolin, B Zeigler, Brandon Gabriel, Eddie Gardner, B. Holling, Karen Steensma, Beth Carruthers, David Clements, Brunella Battista, Lynn Fels, Patricia Victor at S.A.M.C.; Lois Volk (President) at CAWEE; Serena Henderson; Dr. Patrick J. Fahy (Professor; Centre for Distance Education), Dr. Martha Cleveland-Innes (Professor; Program Director, Centre for Distance Education) at Athabasca University; Victoria Liguez and Deb Stone at American Mensa; Grand Secretary Jerry W. Kopp; Hermetic Order of the Golden Dawn; Suzanne Northcott; Dr. Jason Betts; Rukshana Hassanali; Priya Bangar; Dr. Priscilla Uppal for the opportunity to conduct an extensive interview with one of Canada's leading young author, poet, and novelist, especially in the light of a very rare health scare through persistence and resilience to complete the interview during "r and r" time; Kathryn, Lisa, Gail Maurer, Lorie Marchinkow, Audrey Hiebert at the Fraser Valley Healthcare Foundation; Ed Roche (VP Sales, US & Canada) and Jill Denio (Key Account Manager, Publisher Relations) at EBSCO; Lance Richlin; J.D. Mata; Ray Oldhafer; John; Thea Zerbe; Alexandra Harper; David Squire; Michael Palin and Paul Bird; Dr. Kirsten Johnson, M.D.; Daniel Derksen; Samantha Clark; Oana Salcescu; Dr. Paul Russell; Nuhyn and Oakwhyndhr at Pagan Federation International Canada; Karina Albert (Member Services Coordinator) at Canadian Counselling and Psychotherapy Association/Association canadienne de counseling et de psychothérapie; Dr. Katie Gibbs and Alana Westwood at Evidence4Democracy; Dr. Guang Chen, Shawna Wasylshyn, Donette Kingyens, Dr. Kinshuk, Isabelle Guillot, Pearl McGhee, Dr. Tracey Lindberg, Dr. Junye Wang, Dr. Vivekanandan Kumar, and Morgan Newton at Athabasca University; Athelia Nihtscada (Founder and Arch Druid, Awen Grove; Member of the Third Order of the Reformed Druids of North America; Member, Order of Bards Ovates and Druids; Member, The British Druid Order; Member, Henge of Keltria; Member and Past Regional Coordinator, Druid Network; Member and Past Regional Druid of Western Canada, Ár nDraíocht Féin: A Druid Fellowship (ADF) at Awen Grove; Moorish Science Temple; Dr. Paul Bloom at Yale University; Jean-Louis de Biasi; Dr. Marjorie Robbins at University of British Columbia; Landon Bennett; Dr. Pei Wang (Associate Professor) at Temple University; Marco Ripa at sPIQr Society; Dale LaVerne; J.C. Hughes and Stephen; Dr. Cristina Atance (Associate Professor, School of Psychology, University of Ottawa; Principal Investigator, Childhood Cognition and Learning Laboratory; Editorial Board Member, Canadian Journal of Experimental Psychology) at University of Ottawa; BC Psychological Association; Paul Cooijmans (Administrator) at the Giga Society, the Glia Society, GliaWebNews, Young and intelligent?, Order of Thoth, the Glia Society, Order of Imhotep, and the Grail Society; Richard G. Rosner at the Giga Society and the Mega Society for months of intensive, daily, collaboration and wonderful thought experiments tied to calculations, and Carole Rosner and Isabella Rosner for husband and father rental, respectively – means a lot for the effort, patience, and time with me; Adam de la Cruz, Morgan Deters, Cynthia Park, Charlie Walentiny, Samantha Winn, Rebekah Traficante, and Sameer Kanal, Sasha Sleiman, and Neil Rotta for the low-income grant, at Northwest Model United Nations; Dr. Xavier Jouve at Cogn-IQ.org and Cerebrals Society; Dr. Vijay Jain and Anand Jain at Jain Centre of British Columbia; Dr. Susan Hughson (past president) at British Columbia Humanist Association; Dr. Danielle Polage at Central Washington University; Dr. Stephen Lindsay; Dr. Don Read; Terry Lopez; Dr. Paige H aber-Curran; Dr. Bruno Colmant (Professor, Vlerick Business School, Solvay Business School (ULB), Louvain School of Management (UCL), and Roland Berger Strategy Consultants (Partner)) at University of Luxembourg and Institut Catholique des Hautes Etudes Commerciales; Aaron Quinn for an insightful parse of ethics involved in journalism; Dr. Howard Earl Gardner (John H. and Elisabeth A. Hobbs Professor, Cognition and Education, Harvard Graduate School of Education) for the interesting thesis the set of many distinct intelligences, and David Mucinskas, at Harvard University; Dr. Richard Dawkins and Edwina Rogers at Richard Dawkins Foundation for broaching important questions; Dr. James Flynn (Emeritus Professor, Political Studies) at University of Otago in Dunedin, New Zealand for a challenging interview and important research into apparent intelligence increases over time; Cognitive Science Society; Eyal Kalanthroff at Israeli Society for Cognitive Psychology; Dr. Alvin Plantinga (John A. O'Brien Professor, Philosophy (Emeritus)) at University of Notre Dame and (Inaugural Holder, Jellema Chair, Philosophy) at Calvin College; Zuade Kaufman

(Publisher), Christopher Hedges (Journalist), and Katherine at Truthdig; Fr. & Dr. George V. Coyne, S.J. (McDevitt Chair, Religious Philosophy; Vatican Observatory Foundation) and Le Moyne College for opportunities, support, and setting an example of the ability to hold controversial convictions and intellectual opinion; Father Robert Barron and Nanette at Word on Fire; Dr. Manahel Thabet at World IQ Foundation, Smart Tips Consultants, World Intelligence Network, The Gifted Academy, IQquestion, The Brain Trust, and Synapsia for encouragement, positivity, and concrete additions to independent work, and mentorship; Dr. William Dembski of Discovery Institute; Maryam Namazie at Iran Solidarity, One Law for All and the Council of Ex-Muslims of Britain; Karl Low (Managing Editor, The Voice Magazine) at Athabasca University; Dr. Wanda Cassidy (Associate Professor, Education; Director, Centre for Education, Law and Society), Dr. Chantal Faucher (Postdoctoral Fellow, Education; Center for Education, Law and Society), Dr. Sarah Lubik (Lecturer, Beedie School of Business), Jade Andersen, Madeleine Thien (Writer-in-Residence, 2013/14), Patricia Coburn, Conrad Locke, Ovid Durbalau, Rosaline Baik (Explorations, Arts & Sciences), Madhav Goyal, Erin Westwood (Secretary to the Dean), Ed Deeks (Surrey Coordinator, SFSS), Tracey Anbinder (Manager, Academic & Administrative Services, Arts & Social Sciences), Blossom Malhan, Heather Corbett, Jessica Leung, Satwinder Gill, Dr. Zabrina Brumme (Assistant Professor, Health Sciences) for the coffee, Anika Shahid, Dr. Rolf Mathewes (Professor, Paleocology & Palynology) for the opportunity of an interesting interview, Leah Bjornson and Melissa Roach (News, The Peak), Alison Roach (Coordinator, The Peak), Max Hill (Features, The Peak), David Proctor (Business/Advertising, The Peak), Brandon Hillier (Multimedia, The Peak), Tessa Perkins (Arts, The Peak), Joel Mackenzie (Opinions, The Peak), Freya Olson (Promotions, The Peak), April Alayon (Production & Design, The Peak), Anderson Wang (Photos, The Peak), Natasha Wahid (Copy, The Peak), Dustin Simmonds (Copy, The Peak), Rachelle Tjahyana (Production and Design, The Peak), Jacey Gibb (Humour, The Peak), Katherine Gillard (Promotions, The Peak), Adam van der Zwan (Opinions, The Peak), Paige Smith (Multimedia, The Peak), Kelsey Wilson and Cheyenne Bergenhenegouwen (The Lyre), Dr. Rachel Fouladi (Associate Professor, History, Quantitative & Theoretical Area Coordinator; Principal Investigator, Fouladi Psychometric Lab; Elected Member, Society of Multivariate Experimental Psychology) for the time to meet and discuss research, and Alexis (Fouladi Psychometric Lab), Kevin Rey, Martin Lee (Let's Talk Science), and Nicole Bance (Let's Talk Science) at Simon Fraser University; Dr. Nannerl Keohane at (Laurance S. Rockefeller Distinguished Visiting Professor, Woodrow Wilson School, and the Center for Human Values) Princeton University; Dr. Athene Donald (Professor, Experimental Physics, Soft Matter and Biological Physics) at Cambridge University for the piercing interview on the topic of gender and sex in relation to STEM; Dr. Steven Weinberg (Jack S. Josey-Welch Foundation Chair in Science and Regental Professor; Director, Theory Research Group; Nobel Prize (Physics), 1979) at The University of Texas at Austin; Dr. Lee Smolin (Professor, Theoretical Physics) at The Perimeter Institute for Theoretical Physics, University of Waterloo, and University of Toronto; Dr. Norman G. Finkelstein for an example of integrity; Dr. Noam Chomsky (Institute Professor & Professor (Emeritus), Linguistics) at the Massachusetts Institute of Technology; Myrna and Doug Pfeifer; Arielle Friedman; Dr. Evangelos Katsioulis, M.D. at World Intelligence Network (WIN), Academy of Abilities Assessment (Anadeixi), IQI, GRIQ, CIVIQ, HELLIQ, OLYMPIQ, IQID, and The Giga Society for an example of quality correspondence and writing – and patience with me; Risa Simon at TransplantFirstAcademy and ProActive Path; Dr. Daniel Dennett (Austin B. Fletcher Professor, Philosophy; Co-Director, Center for Cognitive Studies) at Tufts University; Dr. Aubrey de Grey (Methusaleh Foundation, Strategies for Engineered Negligible Senescence Research Foundation, and the journal Rejuvenation Research) for support and an interviewee recommendation with a fascinating fellow; Imam Rahman, Pastor Mackenzie, and Rabbi Falcon of the Three Amigos; Paul Krassner (Founder, Editor, & Contributor) of The Realist for inspiration in pursuit of honest discourse; Dr. Kirsten Johnson, M.D. (CEO, Humanitarian U; Program Director, Humanitarian Studies Initiative (HSI), McGill University; Assistant Faculty member, Harvard Humanitarian Initiative, Harvard University; Director, Canadian Consortium for Humanitarian Training (CCHT); Emergency Medicine Physician, McGill University; Assistant Professor, Family Medicine, McGill University; Board Member, International Humanitarian Studies Association) at McGill University for taking the time from an extraordinarily busy schedule for an interview in addition to setting an example of tacit humanist principles; Elizabeth Johnson and Paul Johnson of GraceRwanda; Elina Halonen (Ph.D. Candidate; Editor, InDecisionBlog;) at University of Turku for the opportunity to collaborate; Diana Phan at California State University, Long Beach; Dr. Douglas Rushkoff at Maybe Logic Academy; Dr. Amy Wax (Robert Mundheim Professor, Law, University of Pennsylvania Law School) at University of Pennsylvania for an important lesson in research; Ragav Kumar at University of Victoria; Dr. Hawa Abdi (Founder, Hawa Abdi Foundation; Physician & Human Rights Activist) for inspiration, and Jasmine Lam, at the Hawa Abdi Foundation; Rotary International; Rotary Club; Langley Kinsmen Rotary Club; Dr. Baba Ram Dass and Raghu Markus; Dr. Diana T. Sanchez (Associate Professor, Social Psychology/Intradisciplinary Health; Principal Investigator, Stigma, Health, and Close Relationships Lab) and Dr. Laurie Rudman (Professor, Social Psychology; Director, Rutgers University Social Cognition Laboratory) at Rutgers University; Dr. Sally Satel, M.D. (Lecturer; W.H. Brady Scholar, American Enterprise Institute) at Yale University for work opportunities, recommendations, and encouraging remarks; Judy Mayka of American Enterprise Institute; Dr. Neda Kerimi (Postdoctoral Fellow; Editor, InDecisionBlog;); Dr. Mahzarin Banaji (Professor, Psychology; Head Tutor) at Harvard University; Kwantlen Student Association; Dr. Gira Bhatt (Instructor, Psychology; Director, AT-CURA) for research opportunities, but more importantly kindness, Dr. Wayne Podrouzek (Chair, Psychology; Instructor) for the consistent presence in my life, for working overtime, serving beyond the call of educator duty, and mentoring through difficult circumstances continued support with recommendations, academic tough love, and setting an example of the pursuit of academic freedom, Dr. Andre Asfal (Postdoctoral Fellow, Psychology) for lunch and minor mentorship, Dr. Roger Tweed (Instructor, Psychology; Co-Investigator and Lead Research, Quantitative Studies, AT-CURA) for the opportunity to collaborate, research opportunities, but more importantly kindness, Sandra Alfonso (AT-CURA), Dr. Betty Rideout (Instructor, Psychology) for continual thoughtful answers to random questions and genuine care for my wellbeing encouragement, positivity, and concrete additions to independent work mentoring, consistent presence in my life, and thoughtful correspondence, Dr. Amir Mirfakhraie (Instructor, Sociology), Dr. Dada Adebayo (Instructor, Psychology) for his large heart, Harry McNeil, Joseph Watson-Mackay, Gail Suderman (Instructor, Music), Nishan Perera (Instructor), Marketing, Management & Education), Thor Frohn-Nielsen (Instructor, History), Dr. Diane Purvey (Dean, Arts) for at-a-distance support consistent support, Dr. Farhad Dastur (Associate Dean, Arts; Instructor, Psychology) for coffee, three of them – even one in the little hometown, and early inspiration; Dr. Kyle Matsuba (Instructor, Psychology), Dr. Balbir Gurm (Instructor, Nursing), Chris Burns (Librarian), Linda Woodcock (Librarian), Elaine Samwald (Librarian), Dr. Daniel Bernstein (Instructor, Psychology; Tier 2 Canada Research Chair in Lifespan Cognition) for good cheer, honing my research abilities through asking good questions, and compassion in difficult circumstances, research opportunities, mentoring, consistent stances of support and constructive critique, mentoring, consistent stances of support and constructive critique, mentoring, research opportunities, thoughtful feedback, and patience with an at times guarded-heart individual; Martin Vane-Hunt at Lifespan Cognition Lab; Aaron, Sana, Saed, and Kurt for a lesson in clear communication and representation; Ezra S. Shanken (Chief Executive Officer) and Becky Saegert at Jewish Federation of Greater Vancouver; Edie Bijdemast at Netherlands Association and Greater Vancouver Dutch Network; Dr. Randall Engle (Professor, School of Philosophy, Psychology, and Language Sciences; Principal Investigator, Attention & Working Memory Lab) at Georgia Institute of Technology; Vijay Jain (President) and Anand Jain (Co-Founder) at Jain Centre of British Columbia; Trina and Reverend Susan Thompson at Evangelical Lutheran Church in Canada; Jimmy de la Torre (Professor, Graduate School of Education) at Rutgers University; Chris Cole (Member & Internet Officer) at The Mega Society; Dr. Susan Hughson (Past President) at British Columbia Humanist Association; Eric Adriaans at Center for Inquiry Canada for the direct and honest



responses to complex questions, and prompt correspondence; Safwan Choudry at Ahmadiyya Muslim Jama'at or Ahmadiyya Muslim Community; Count Grand Master Raymond Keene Officer of the Most Excellent Order of the British Empire (Knight of the Order of the White Swan, conferred by ) Prince Marek Kasperski Chevalier of the Order of Champagne; Chair, Outside in Pathways; Director, Brain Trust Charity; Former British Chess Champion; Bronze Medal, World Team Championship; Right to Arms, Royal College of Arms; Freeman, City of London; Winner (Two Times), Global Chess Oscar; Ex-Head (1994-2000), Mind Sports Faculty; Ex-Chess Tutor, Imperial Court of Iran; Gold Medal, Chinese Olympic Association; Gold Medalist, European Championship; Honorary Board Member, World Intelligence Network (WIN); The Global Media and PR Director, World Memory Sports Council; Ex-Head (2013/2014), Leadership Academies Prince Philipp of Liechtenstein and President of Mexico, Vicente Fox, in Leon; Britain's Senior International Chess Grandmaster; International Arbitrator, Fédération Internationale des Échecs (FIDE) or World Chess Federation; Co-Founder, World Memory Championships; Count of the Order of Torres Madras, Portugal) at The Brain Trust; Leighann Lord for the positive example; British Columbia Psychological Association; Dr. Danielle Polage at Central Washington University; Dr. Stephen Lindsay; Dr. Don Read; Terry Lopez; Erica Grimm; Dr. Arleigh Reichl for research opportunities, but more importantly kindness; David Hamilton; Erica; Gerry Mares Azules; Karen; Krystina; Leslie Westgate; Surindar Athawal; Wendy Palen; Dr. Bruce Whittlesea for the mentorship and training of instructors of eventual influence and inspiration to me; Dr. Michael Shermer at Skeptic Magazine; Mallory Galant; Michael Ringland; Michelle Hunt; Mike & Shelly; Church of Jesus Christ of Latter-Day Saints Brothers, Sisters, and Elders including Crowell, Sharp, Spencer, Cardno (for an example of character), and others; Russell Ogden; Shauna Steger; Taylor Hamilton; Tim Shieh; Varun Jain; Victoria Thieu for assistance in piano and an example of character; Vikram Khandpur for pursuit of education in spite of difficulties; William Broverman; Sofia & Vera for examples of happiness in times of struggle; Nancy Chea; Paul Hillsdon; Richard LeGrand; Ross Halliday for encouragement at coffee; Kyle Latchford for singular assistance in professional appearance; Lenee Son; Madison; Matt & Jan, and Angela, for examples of hard work; Jason McBain; Jason; Jesse Devlin; Kendrick Ultra; James Busser for overcoming personal difficulties; Geoff Cleeve; Dr. Susan Hughson at British Columbia Humanist Association for an important lesson in work; Gloria Larsen for an example of a calm demeanor; Gourav Shah; Cameron Hitchcock; Lison Daubigeon for the kind heart; Iraqlee for an example of charity; Ivy Ng; Chanel Kwong for an example of positivity; Cheryl Lee; Chris Tubb; Elaine and Darryl; Ann Rhi; Andrew Littler for an example of persistence in spite of personal difficulties with reduced physical capabilities; Anca; Aaron Pang for honesty; Elisa Hunter; Alfred Zhang for an example of aesthetic appreciation; Ali (Mohammed) Abdullah for the positivity; Ben Best (Director, Research Oversight) at Life Extension Foundation for the comprehensive lifetime of research to undergird the complete interview, and for permission to transform the interview into one book, an academic ebook, for the purpose of cultural, educational, and social value; Alexandra Lipskaia for the example of self-starting; Fr. & Dr. Paul Gabor (Vice Director) at Vatican Observatory Research Group for the example of precise commentary, edits in written work, and patient consideration; Dr. John Marasigan for the opportunity to meet, collaborate, and the sincere interest in me; Sherry Wilson; Serena Eliza; Marie Pierre Raymond; Dale for an absolute kind heart and being a blessing in personal life; Jacy & Stephen for positivity; Ian & Soleil; Britany; John Crossen for long-term thoughtful and kind consideration; Dani; Dominique; Genevieve; Ashley for a lesson in life; Tabitha; Terrie for a lesson in priorities; Samantha; Cameron Johnston; Timothy Goertzen; John; Allen; Conrad; Neil; Ed & Nicole; Jonathan Rempel at Trinity Western University for being a savior; Rukshana Hassanali at British Columbia Psychological Association; Chris Cole (Member) at The Mega Society for the opportunity interview on giftedness; Dr. Arthur Brooks and Paige Tenkhoff at American Enterprise Institute (AEI); Dr. Ray Kurzweil and Nanda Barker-Hook (Communications Manager) at Kurzweil Technologies; Garry Kasparov and Sergey Risko at Kasparov International Management Inc.; Dr. Tracy Lindbergh (Associate Professor, Indigenous Studies; Director, Indigenous Education; Tier 2 Canada Research Chair in Indigenous Traditional Knowledge, Legal Orders and Laws) at Athabasca University; World Sikh Organization of Canada; Matin Ryan Eshaghi at University High School; Liana Gheorma at the Interdisciplinary Center for the Scientific Study for Ethics and Morality; David Squires; Bo; Samantha; Morgan Newington (Dream Saver) at BC Student Loan; Aqsa Malik; Andrea Eckelman (Survey Research Institute Assistant) at University of Houston; Tracy Osborn (Associate Professor) at The University of Iowa; Elsa Favila (Associate Director) at Western Political Science Association; Bob and Andrea; Matt and Jan; Dr. Jill Gatfield at (Tutor, Philosophy) at Athabasca University; Judith Butler; Mr. Fatkin for acceptance, interest, and inspiration, Mrs. Fatkin, and Cameron Fatkin; Cora Marrett; Laura Stubbs; Trish Millines Dziko; Lezli Baskerville; Anna Maria Chavez; Lisa P. Jackson; Ann Graybiel; Irena Heim; Sabine Iatridou; Susanne Siegel; James Nickason for the care, compassion, and consideration in personal and professional life; Patricia Kuhl; Gisela Striker; Raine Dozier; Bays Blackhall (for the shared wisdom in spurts over a few years); Annie Easley; Barbara McClintock; Diane Fossey; Helen Flanders Dunbars; Feldman Barret; Lannie Kanevsky for setting an example, and setting me straight; Susan T. Fiske; Charles Randy Gallistel; Sarah Shuttleworth; Shep Siegel; Giorgione; Shavan; Ara Norenzayan; Jim Enns; Todd C. Handy; Teryn Tsang for the enjoyable company; Nicole Poole; Gurpreet Hothi; Ragav Kumar; Vandana Shiva; Andre Abfal; Lecia Desjarlais; Zoe Dennison; David Froc; Lynda Hutchinson; Jamie Cellier; Arzo Ansary; Kyle Matsuba; Samantha Whelen; Sid Haeri; Cory Pedersen; Elizabeth Kreykenbohm; Arthur Bailey; Abbey Ratcliff John Rayray Dema-ala; Elaine Bridger for the kind times in psychology with Ashiq; Arielle Friedman and Amy Winter for wonderful work in collaboration; Genni Gunn; Oana Salcescu; Jill Denio; Thea Zerbe; Steven Pinker (Johnstone Family Professor, Psychology) at Harvard University; Nuhyn and Oakwhyndhr at Pagan Federation International Canada; Karina Albert (Member Services Coordinator) at Canadian Counselling and Psychotherapy Association/Association canadienne de counseling et de psychothérapie; Dr. Jimmy de la Torre (Educational Psychology, Professor) Rutgers, The State University of New Jersey; Philip Carr-Gomm, Adrian Rooke, JJ Middleway, and Maria at Order of Bards, Ovates & Druids; Chris Cole (Internet Officer and Member) at The Mega Society; Pat O'Brien (Board Vice-Cahir) at Center for Inquiry Canada; Dara Parker (Executive Director) at Qmunity; Shayna Leenstra (Assistant to the Dean, School of the Arts, Media + Culture) at Trinity Western University; Rabbi Miriam Jerris, Ph.D. and Lisa Ferrari at Society for Humanistic Judaism; Frater Ogmern of the Magical Pact of the Illuminates of Thanateros and Illuminates of Thanateros North America; Professor Aziza T. Shad (Professor, SOM Clinician Scholar Track; Amey Distinguished Professor of Neuro-Oncology and Childhood Cancer, Lombardi Comprehensive Cancer Center, Medstar Georgetown University Hospital; Director, Division of Pediatric Hematology/Oncology, Blood and Marrow Transplantation; Director, Leukemia Lymphoma Program; Director, Cancer Survivorship Program) and Todd Hyacinth at Georgetown University; Elana Scharf (Vendor Coordinator) at University of California, Irvine; Ivo Martinich (Continuing Studies) at The University of British Columbia; Dr. Rajiv Jhangiani; Lecia Desjarlais, Bertrand Sager, Dr. Kevin Hamilton, Dr. Arleigh Reichl, Dr. Carla MacLean, Nicole Pernat, Louise Meilleur, Ivy, and Rand; Richard Loren (Former Manager, Grateful Dead); Dr. Jonathan Schooler (Professor, Psychological & Brain Sciences) and Blaire C. Schembari (Lab Manager & Researcher, META Lab) at University of California, Santa Barbara; Dr. Rajiv Jhangiani (for early inspiration); Dr. Mazen Guirguis (Instructor, Philosophy), Dr. David Froc (Instructor, Psychology), Dr. Cory Pedersen (Instructor, Psychology), Dr. Romy Kozak (Associate Dean, Arts), Dr. Tracey Kinney (Instructor, History), Dr. Robert MacDonald (Instructor, Psychology) for the recommendation and for a hard-nosed example, Dr. Diane Naugler (Associate Dean, Arts), Christina Fung (Administrative Assistant, Dean's Office), Dr. Charles Quist-Adade (Instructor, Sociology) for the research and work opportunities, Kyle Mitchell (Instructor, Sociology), Vic Herr, Candace McKill (Administrative Assistant, Arts), Melody Mercado (Administrative Assistant, Sociology), Kwantlen Psychology Society, Women Organizing Opportunities for Women, Kwantlen Student Association, Dr. Kevin Hamilton (Instructor, Psychology), Dr. Faith Auton-Cuff (Instructor, Educational Studies), Dr. David Burns (Instructor,

Educational Studies), Dr. Sarah Hickinbottom-Brawn (Instructor, Educational Studies), Dr. Ann-Marie Mclellan (Instructor, Educational Studies), Adriana Spyker (for collaboration), Kachine Bige, Leneè Tai, Desiree Yu, Sophia Veale (for patience and kindness in hard times), Chanel Kwong (for setting an example), Iman Ghahremani (for setting an example), Ehssan Khodemooni (Previously KPU and UBC), Sheridan Taylor, Dr. Larissa Petrillo (Instructor, Anthropology), Alicia Poon, Kwantlen Counselling and Education Student Club, Dr. Carla MacLean (Instructor, Psychology), Dr. Betty Anne Buirs (Instructor, English), Kari Michaels, Dr. Ashiq Shah (Instructor, Psychology) for an example of moving quietly and honorably through life, Center for Global and Multi-Centric Education, Dr. Wayne Fenske (Instructor, Philosophy), The Centre for Interdisciplinary Research: Community Learning & Engagement, Bradley Anderson (Instructor, Business), Shauna McAuley-Bax (Instructor, Business), Dr. Patrick Findler (Instructor, Philosophy), Dr. Colin Ruloff (Instructor, Philosophy) for subtle, consistent inspiration, Dr. Jean McKendry (Librarian) for concern, Fatima Zaidi, Jan Penhorwood (Librarian), Lisa Hubick (Librarian), Kwantlen Polytechnic University Student Life and Development, Sue Shu-Hsien Lee (Instructor, English), Dr. Steve Charlton (Instructor, Psychology), Leslee Birch (Executive Assistant, Office of Research and Scholarship), Jason Dyer (Associate Vice President, Research), Catherine Parlee (Research Services Coordinator, Office of Research and Scholarship), Kurt Penner (Instructor, Psychology) for compassion, Dr. Jonathan Katz (Instructor, Philosophy), Dr. Melinda Hogan (Instructor, Philosophy), Brendan Fernandes for an example of work ethic, Daniel Derksen, Amy Yiu (Program Assistant, Student Life & Development), Theresa Voorsluys (Acting Coordinator, Student Life; Coordinator, Service Learning), Office of Research and Scholarship, Dr. Jocelyn Lymburner (Instructor, Psychology) for the recommendation of Man's Search for Meaning by Viktor Frankl, and Natalie Walker (Confidential Assistant to the Provost, Office of the Provost & Vice President, Academic) at Kwantlen Polytechnic University; Ya-Chun Bonnie Chi at Trinity Western University; Leo Jung (Vancouver Area Proctor) of Vancouver Mensa Speaker's Group; Dr. Seema A. Khan, M.D. (Bluhm Family Professor, Cancer Research and Professor, Surgery-Breast Surgery, School of Medicine) and Yolanda Thomas-Jones (School of Medicine) at Northwestern University; Dr. Rakefet Ackerman (Assistant Professor, Industrial Engineering and Management) for a positive attitude and example of prompt, polite, and upbeat business correspondence, and Dr. Miriam Erez (Professor (Emeritus), Faculty of Industrial Engineering & Management) at Technion: Israel Institute of Technology; Dr. Shere Hite of Hite Research Foundation; Dr. Barbara Forrest (Professor, Philosophy; Member, NCSE Board of Directors) at Southeastern Louisiana University; Dr. Mahtab Jafari (Associate Professor, Pharmaceutical Sciences; Director, Pharmaceutical Sciences Undergraduate Program; Vice Chair, Pharmaceutical Sciences; Joint Appointments, Pharmacology and Ecology/Evolutionary Biology) for suggesting to introduce more questions relating to personal emotional struggles mentoring, lunches, advising, critical inquiry, collaboration for women in leadership, and setting an example of seeing the wonder in life regardless of circumstance introducing me to Matin, the mentorship, the meals and coffees, the kind-hearted conversation, and the interview, Dr. Elizabeth Loftus (Distinguished Professor, Social Ecology; Professor, Law, and Cognitive Science) for the time to meet, discuss, and provide personal resources, Dr. Francisco Ayala (Donald Bren Professor, Biological Sciences; Professor, Philosophy; Professor, Logic and the Philosophy of Science, Logic & Philosophy of Science) for setting an example of one's duties to others, especially the young, and that work never ends – and that it's a good thing, and the time to meet, discuss, and provide personal resources, Dr. Kristen Monroe (Chancellor's Professor; Director, University of California, Irvine Interdisciplinary Center for the Scientific Study of Ethics and Morality; Book Review Editor, Political Psychology) for mentoring, research opportunities, the publishing opportunity, absolute kindness, complete support, and faith, Marilu Daum (Administrative Assistant, University of California, Irvine), Sylvia Lotito (Administrative Assistant, Physics and Astronomy), Edna Mejia (Administrative Assistant, Economics), Mohammed (Ali) Abdullah, Matin Eshaghi, Massil Adnani, Archer, Silvia Avestisian, Eric Baldwin, Daniel Driscoll, Gabriel Forthal, Liana Gheorma, Jennifer Jones, Sabrina Liang, Gina Park, Kyle Pham, and Alex Raleigh at the University of California, Irvine; Sue Kelly of the Postgraduate Students' Association at Victoria University of Victoria-Wellington; Dr. Maryanne Garry (Professor, Faculty of Graduate Research, Psychology) for support, Gregory Franco for the short chance to converse on collaboration, Nicola Panapa (From me to you: Kia Ora), Matt Crawford, and Gina Grimshaw at University of Victoria-Wellington; S. Abbas Raza (Founder; Editor) at 3QuarksDaily for the opportunity to an unknown young person, for support, and his compassionate and insightful letter consistent, long-term support, and an acute sensitivity to personal plight with a kind letter at the right time in the right way; Dr. & Fr. Paul Gabor, S.J. (Vice Director) at Vatican Research Observatory Group; Dr. Azra Raza, M.D. (Director, Myelodysplastic Syndrome Center; Editor, 3QuarksDaily) at Columbia University for consistent support and a sense of values rooted in a common humanity, a lesson through poetry about solidarity and sympathy, a distance and wisdom in observing life's movements, and consistent, long-term support and select dissemination; Dr. Glen Bodner (Professor, Psychology) for last-minute support, Dr. Susan Graham (Professor, Psychology; Tier 2 Canada Research Chair in Language/Cognitive Development), Katy Macklan, and the Psychology Society at the University of Calgary; Shane Seger at Yale University; Dr. Sadrollah Alborzi (Professor) Dr. Sadrollah Alborzi for generosity of spirit – best of blessings in these continued difficult times for your wife, and for you too this time – and setting an example of a sense of hope in dire circumstances, and Dr. Anthony Greenwald (Professor, Psychology; Adjunct Professor, Marketing and International Business) at University of Washington for the coffee with Sven, Danny, Alex, and myself – as a first-year student; Dr. Rachel Gelman (Professor; Co-Director, Center for Cognitive Science) for the patience with me – and apology for the mistake – and Jo'Ann Meli at Rutgers University; Samantha Paige Whelen previously at University of Toronto; Bo Lee; Dr. Adele Diamond (Professor, Developmental Cognitive Neuroscience and Psychiatry; Fellow, Royal Society of Canada; Founding Member, Center for Interdisciplinary Research and Collaboration in Autism; Founding Fellow, Institute of Mental Health; Tier 1 Canada Research Chair in Developmental Cognitive Neuroscience), James Nickason, Sabrina Chang for the opportunity learn about human sexual psychology, Dr. Boris Gorzalka (Professor, Psychology), Dr. Andrew Martindale (Assistant Professor, Anthropology), Lecia Desjarlais, Shauna Steger, Victoria Thieu, Claire O'Grady, Conchita Suarez, Deb Pickman (Marketing & Communications Mgr., Theatre & Film; Co-Founder & Ensemble Member, shameless hussy productions), Veronika Bondarenko and Jovana Vranic (News, The Ubyyssey), Jenica Montgomery (Culture, The Ubyyssey), Will McDonald (Coordinator, The Ubyyssey), Nick Adams (Design, The Ubyyssey), Steven Richards (Web Developer, The Ubyyssey), Mackenzie Walker (Photo, The Ubyyssey), Jack Hauen (Sports, The Ubyyssey), Austen Earhardt (Opinions and Blog, The Ubyyssey), Lu Zhang (Video Producer, The Ubyyssey), and Lily Cai (Promotions and Distribution Coordinator, The Ubyyssey) at The University of British Columbia; Dr. Zoe Dennison (Instructor, Psychology), Dr. Sven van de Wetering (Chair, Psychology) for setting an example of making appropriate priorities in life and lessons in critical inquiry to even apparently 'obvious' subject matter for research, an example of consistent adherence to principled living, and serious consideration of corybantic and cockamamie proposals, and an intellectual challenge, consistent presence, and acceptance of ridiculous concepts, even setting an example of principled living for intrinsic values amongst the shifting sands of life, Linda Dahl (Administrative Assistant, Access and Continuing Education), and Brenda Philips (Librarian) at University of the Fraser Valley; Louise Meilleur and Dr. Ellen Peters (Professor, Psychology; Director, Behavioral Decision Making Initiative) at Ohio State University; Reverend Ivan Stang (Co-Founder; Author) of Church of the SubGenius and Church of the SubGenius Foundation for the one rule about taking a joke; Voytek Stradomski, Christine, Audrey; Dr. Leda Cosmides and Dr. Joel Thurston at University of California, Santa Barbara; Dr. Kenneth Miller (Professor, Biology) at Brown University for the honest and true-to-his-Catholicism message, and for generous and respectful correspondence on a topic with known political charge, and not self-censoring; Scott Sleek and Sandra Brookhart at Association for Psychological Science; Aislinn Hunter (Instructor, Creative Writing, Kwantlen Polytechnic University) at University of Edinburgh; PSI CHI; Ayaan Hirsi Ali and Elizabeth of the Ayaan Hirsi Ali Foundation; Melissa Hartman of the John

Hopkins Center for Talented Youth; Dr. Lawrence Krauss (Foundation Professor, Earth and Space Exploration; Director, Origins Project) and Jessica Strycker at Arizona State University; Dr. Jonathan Wai (Research Scientist, Talent Identification Program) Duke University & Case Western Reserve University; Dr. Jill Tarter (Outgoing Director) of Search for Extraterrestrial Intelligence (SETI); Dr. Carol Tavris (Social Psychologist, Writer, Lecturer) for an important lesson in appropriate and proper referencing; Sarah Brookhart of American Psychological Association; Esther Cho and Salman Khan of Khan Academy; Dr. Susan Blackmore (Visiting Professor) for a great lesson in appropriate scheduling and recommendations for internet links and Alison Seldon at University of Plymouth; Dr. Nannerl E. Keohane (Laurance S. Rockefeller Distinguished Visiting Professor, Woodrow Wilson School and Center for Human Values) at Princeton University; Dr. Richard Dawkins and Edwina Rogers at Richard Dawkins Foundation; Dr. Michael Behe (Discovery Institute) at Lehigh University for generous and respectful correspondence on a topic with known political charge, and not self-censoring; Pippa Sloane of MarilynvosSavant.com; Marilyn vos Savant of Parade Magazine and MarilynvosSavant.com for select, thoughtful discernment for publications, and apology for the mistake, and thank you for the opportunities; Derren Brown and Greg Day; Craig Cantlie (Principal, Caulfeild iDEC/Eagle Harbour Montessori, West Vancouver School District), Cari Wilson (Elementary District Innovation Support Leader in SD45 - West Vancouver), Brooke Moore (Vice Principal and teacher at West Bay Elementary), and Garth Thomson at TEDWestVancouverEd; Dr. Janet Metcalfe (Professor, Psychology, Neurobiology and Behavior) at Columbia University; Dr. Massimo Pigliucci (Professor, Philosophy; co-host, Rationally Speaking Podcast; Editor-in-Chief, Scientia Salon) at City University of New York: Lehman College; Dr. Wendy Suzuki (Professor, Neural Science and Psychology, Center for Neural Science) at New York University; Michael Chaoui at Laverne College; Luisa Kregel and Dr. Lupita Hernandez; Jeri Barrett at SENS; Shawn Brouwer and Natalie Anturri at Trinity Western University; and others unstated, i.e. unknown to me, but involved - and to those assisting in innumerable ways, but unbeknownst to them - in direct coordination or assistance in coordination, support and personal encouragement, and suggestions for advertising and contacts.



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# In-Sight People

## Editor-in-Chief



**Scott Douglas Jacobsen**

*Athabasca University; University of California, Irvine; The University of British Columbia; Simon Fraser University; Kwantlen Polytechnic University*

**Scott Douglas Jacobsen** researches and presents independent panels, papers, and posters, and with varied research labs and groups, and part-time in landscaping (lifting, mowing, and raking) and gardening (digging, planting, and weeding). He founded *In-Sight: Independent Interview-Based Journal* and *In-Sight Publishing*. He authored/co-authored some books available in **E-books** – free or low-cost.

He researches in the **Lifespan Cognition Psychology Lab**, researches in the **IMAGE Psychology Lab**, researches in the **Learning Analytics Research Group**, works for and represents undergraduate students as a Councillor for the largest online university in Canada through the **Athabasca University Student Union**, works as an interviewer, writer, editor, Board Member, and Foundation Volunteer Committee Member for the **Fraser Valley Health Care Foundation**, freelance contributor for **The Voice Magazine**, works with Dr. Farhad Dastur in creation of the CriticalThinkingWiki, collaborates, interviews, and writes with **Little Footprints, Big Steps**, writes as a **Featured Author** for **Trusted Clothes**, writes and interviews for **The PIPE UP Network**, writes for **Monarch Recovery Services**, writes for **Gordon Neighbourhood House**, writes for **Fresh Start Recovery Centre**, writes for **La Petite Mort**, and writes for **Karma Trik**.

He works on seven books with **Richard G. Rosner** entitled *Tweets to the Universe: Volume III, Cognitive Thrift: Volume I, Cognitive Thrift: Volume II, A Short Guide to the Future, Advice to Gifted and Talented Youth, The Long Road to Science, and How to Think Like a Genius*, another with Professor Sven van de Wetering and Richard G. Rosner called *Evidence-Based Social Organization: A Plague of Evidence*, another book with Professors Wayne Podrouzek and Sven van de Wetering entitled *On Academic Freedom*, another entitled *Women of the Academy* with the UCI Ethics Center, and three books entitled *Female Academics: Volume II, Conversations on Cognitive Science, and On Belief and Work* alone.

University of California, Irvine's (UCI) **Interdisciplinary Center for the Scientific Study of Ethics and Morality** (Ethics Center) awarded him with the distinction of **Francisco Ayala Scholar** (2014) for mentoring, presenting, researching, and writing. He worked as a Member of the **Psychometric Society** Graduate Student Committee, **Special Advisor** and **contributing writer** for the Economic and Social Council (ECOSOC) for **Northwest Model United Nations** (NWMUN), wrote and edited for **TransplantFirstAcademy** and **ProActive Path**, sung bass in a university choir, researched and presented for **AT-CURA Psychology Lab**, contributed to a student policy review, collaborated with Dr. Manahel Thabet through numerous initiatives and productions,

student/non-councillor member for the ad-hoc Executive Compensation Review Committee for the **Athabasca University Student Union**, volunteered and wrote for the **British Columbia Psychological Association**, performed with the Vancouver Symphony Orchestra, competes in Model United Nations (MUN) conferences including **Harvard World MUN**.

He published numerous articles in **American Enterprise Institute** (AEI), **In-Sight: Independent Interview-Based Journal**, **Noesis: The Journal of the Mega Society**, **Piece of Mind** (BCPA), Synapse, TeenFinancial, **The Peak**(SFU), **The Ubyssy** (UBC), **The Voice Magazine** (AU), **Trusted Clothes**, and **La Petite Mort**. If you want to contact Scott, you may inquire or comment through e-mail: [Scott.D.Jacobsen@Gmail.com](mailto:Scott.D.Jacobsen@Gmail.com).

### Advisory Board

*\*Interview views do not equate to positions of Advisory Board members.\**

*\*Advisory Board listing alphabetized by first name and relevant hyperlinks active.\**



**Professor Adele Diamond, PhD, FRSC**

*Tier 1 Canada Research Chair Professor, Developmental Cognitive Neuroscience, University of British Columbia; Fellow, Royal Society of Canada; Fellow, Society of Experimental Psychologists*

Adele Diamond is the Canada Research Chair Professor of Developmental Cognitive Neuroscience at the **University of British Columbia** in Vancouver. She is a member of the **Royal Society of Canada** and was recently recognized as one the 15 most influential neuroscientists in the world today.

Prof. Diamond is at the forefront of research on ‘executive functions’ and on the brain’s prefrontal cortex on which they depend. Executive functions include ‘thinking outside the box’ (cognitive flexibility), mentally relating ideas and facts (working memory), and giving considered responses rather than impulsive ones, resisting temptations and staying focused (inhibitory control, including selective attention).

Prof. Diamond has made discoveries that have improved treatment for two different medical disorders and discoveries that have impacted education, improving the lives of millions of children. Her work has shown that executive functions can be improved at any age, even in the very young. Recently she has turned her attention to the possible roles of traditional activities, such as music and dance, in improving executive functions, academic outcomes, and mental health.

In looking for practical ways to help children develop healthy executive functions, and thus help more children thrive, Prof. Diamond takes a markedly different perspective from mainstream education in hypothesizing that focusing exclusively on training cognitive skills is less efficient, and ultimately less successful, than also addressing students' social, emotional, and physical needs. She hypothesizes that besides training the skills of interest, it's important to support those skills by lessening things that impair them (like stress or loneliness) and enhancing things that support them (such as joy and good health).

Adele Diamond was educated at **Swarthmore** (B.A., Phi Beta Kappa), **Harvard** (Ph.D.), and **Yale Medical School** (postdoc). Her many awards include an honorary doctorate (Honoris Causa) from **Ben-Gurion University**, the Bronfenbrenner Award for Lifetime Contributions to Developmental Psychology in the Service of Science and Society, named a "Woman of Distinction" by the YWCA, and named one of the "2000 Outstanding Women of the 20th Century."



**Dr. Aubrey de Grey**

*Chief Science Officer & Co-Founder, **SENS Research Foundation**; Editor-In-Chief, **Rejuvenation Research***

Dr. Aubrey de Grey is a biomedical gerontologist based in Cambridge, UK and Mountain View, California, USA, and is the Chief Science Officer of **SENS Research Foundation**, a California-based 501(c) (3) charity dedicated to combating the aging process. He is also Editor-in-Chief of **Rejuvenation Research**, the world's highest-impact peer-reviewed journal focused on intervention in aging.

He received his BA and Ph.D. from the **University of Cambridge** in 1985 and 2000 respectively. His research interests encompass the characterisation of all the accumulating and eventually pathogenic molecular and cellular side-effects of metabolism ("damage") that constitute mammalian aging and the design of interventions to repair and/or obviate that damage. Dr. de Grey is a Fellow of both the **Gerontological Society of America** and the **American Aging Association**, and sits on the editorial and scientific advisory boards of numerous journals and organisations.





**Professor Azra Raza, M.D.**

*Columbia University, Medicine, Professor; Myelodysplastic Syndrome Center, Director*

Dr. Azra Raza is Professor of Medicine and Director of the MDS Center at Columbia University in New York, NY. She started her research in Myelodysplastic Syndromes (MDS) in 1982 and moved to Rush University, Chicago, Illinois in 1992, where she was the Charles Arthur Weaver Professor in Oncology and Director, Division of Myeloid Diseases.

The MDS program, along with a Tissue Repository containing more than 60,000 samples from MDS and acute leukemia patients was successfully relocated to Columbia University in 2010. Before moving to New York, Dr. Raza was the Chief of Hematology Oncology and the Gladys Smith Martin Professor of Oncology at the University of Massachusetts.

She has published the results of her laboratory research and clinical trials in prestigious, peer reviewed journals such as The New England Journal of Medicine, Nature, Molecular Cell, Blood, PNAS, Cancer, Cancer Research, British Journal of Hematology, Leukemia, Leukemia Research. She is also the co-author of *GHALIB: Epistemologies of Elegance*, a book on the works of the famous Urdu poet. Dr. Raza has mentored hundreds of medical students, residents, oncology fellows, doctoral and post-doctoral students in the last three decades.

She serves on numerous National and International panels as a reviewer, consultant and advisor and is the recipient of a number of awards including The First Lifetime Achievement Award from APPNA, Award in Academic Excellence twice (2007 and 2010) from Dogana, and Woman of the Year Award from Safeer e Pakistan, CA and The Hope Award in Cancer Research 2012 (shared with the Nobel Laureate Dr. Elizabeth Blackburn).

Dr. Raza has been named as one of the *100 Women Who Matter* by Newsweek Pakistan in March 2012. In 2015, Dr. Raza was a member of the Founder Group at Jackson Hole, Wyoming, designing *Breakthrough Developments in Science and Technology* with President Bill Clinton. On December 1, 2015, Dr. Raza was part of a core group of cancer researchers who met with Vice President Joe Biden to discuss the Cancer Moonshot initiative.



**Professor Cristina Atance**

*Associate Professor, School of Psychology, **University of Ottawa**; Principal Investigator, **Childhood Cognition and Learning Laboratory**; Editorial Board Member, **Canadian Journal of Experimental Psychology***

**Professor Cristina Atance** earned a B.Sc. (Honours) in Psychology at the **University of Toronto** in 1996 and Ph.D. in Psychology at the **University of Waterloo** in 2001. She was then a Post-Doctoral Research Associate from 2001-2003 at the Institute for Learning & Brain Sciences at the University of Washington in Seattle. Her research interests lie in cognitive development, and more specifically, future thinking, planning, and theory of mind (ToM) in young children.

She is the Principal Investigator for the **Childhood Cognition and Learning Laboratory** and an Editorial Board Member for the **Canadian Journal of Experimental Psychology**. *Dr. Atance's research has been funded by the Natural Sciences and Engineering Research Council of Canada (NSERC), the Social Sciences and Humanities Research Council of Canada (SSHRC), and by the Government of Ontario in the form of an Early Researcher Award in 2008.*



### Dr. Daniel Bernstein

*Tier 2 Canada Research Chair, Lifespan Cognition; Principle Investigator, Lifespan Cognition Lab; Instructor, Psychology, Kwantlen Polytechnic University; Inaugural Member, Royal Society of Canada's College of New Scholars, Artists and Scientists*

Dr. Daniel M Bernstein works as the **Tier 2 Canada Research Chair in Lifespan Cognition** for the Psychology department of **Kwantlen Polytechnic University**. He is the principal investigator for the **Lifespan Cognition Lab**. Dr. Bernstein earned his Bachelor of Arts at the **University of California, Berkeley**, Master's at **Brock University**, PhD at **Simon Fraser University**, and did Post-Doctoral work at the **University of Washington**. His research interests lie in "belief and memory; developmental metacognition; hindsight bias; mild head injury; sleep and dreams."

### Dr. Diane Purvey

*Dean, Arts, Kwantlen Polytechnic University*

Dr. Diane Purvey is the Dean of Arts at **Kwantlen Polytechnic University**. She is the co-editor of **Child and Family Welfare in British Columbia: A History** (Detselig Press) and, with John Belshaw, the co-author of **Private Grief, Public Mourning: The Rise of the Roadside Shrine in British Columbia** (Anvil) as well as **Vancouver Noir, 1930-1960** (Anvil). Her research interests include the history of deinstitutionalization as part of a Canada-wide project and educational leadership internationally. She is a contributor to **Vancouver Confidential** (Anvil). A homegrown Vancouverite, Diane attended the **University of British Columbia** (B.A., Ph.D.) and the **University of Victoria** (M.A.) and for several decades taught history in various BC colleges and universities.



### Dr. Evangelos Katsioulis, M.D., M.Sc., M.A., Ph.D.

Dr. Evangelos Katsioulis, M.D., M.Sc., M.A., Ph.D., works as a consultant psychiatrist and psychotherapist through online psychotherapy and counseling for **Psycall**. He earned an M.D., Medical Doctor Diploma (2000), M.Sc., Medical Research Technology (2003), M.A., Philosophy (2012), and Ph.D., Psychopharmacology (2015).

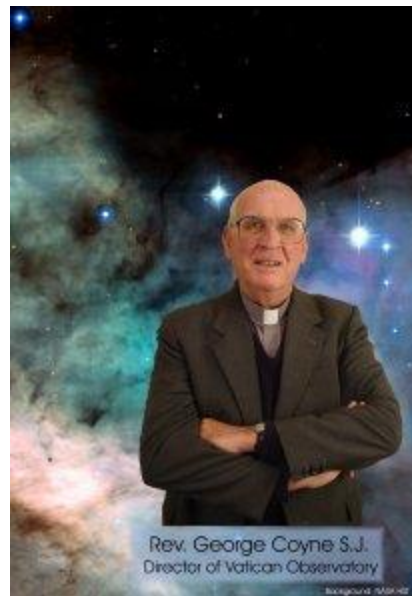
Dr. Katsioulis earned the **best performance in the Cerebrals international contest** (2009), **best performance in the Cerebrals NVCP-R international contest** (2003), **best performance in physics for the national final exams in Greece** (1993), and **third place in the Maths national contest in Thessaloniki, Greece** (1989).

Dr. Katsioulis scored some of the highest intelligence test scores (SD16) on international record with IQ scores of 205 on the NVCP-R [Rasch equated raw 49/54] in 2002, 196 on the Qoymans Multiple Choice #3 [ceiling] in 2003, 192 on the NVCP-E [Rasch equated raw 35/40] in 2002, 186 on the NVCP-R [Fluid Intelligence Index Score] in 2002, 183 on the NVCP-E [Fluid Intelligence Index Score] in 2002, 183 on the Cattell Culture Fair III A+B [ceiling-

1] in 2003, 180+ on the Bonnardel BLS4 – 2T [ceiling] in 2003, and 180+ on the WAIS-R [extrapolated full scale] in 2002.

Subsequently, Dr. Katsioulis remains a member in **over 60 high IQ societies**. In addition, he is the president and founder of **Anadeixi Academy of Abilities Assessment** and **World Intelligence Network** (WIN), and **OLYMPIQ, HELLIQ, CIVIQ, GRIQ, QIQ, IQID, GREEK** high IQ societies.

Dr. Katsioulis writes **articles, novels, and quotes** including screenplays – **ELLHNAS.com** (2008) and **TI PEI** (2009). Also, he contributed to the web advertisement-management of **NAMANIC.com** and the **web development** of **Charing Cross Scheme in Psychiatry** (2006), **Charing Cross & St Mary's Membership of the Royal College of Psychiatrists** (2006), and **Aristotle University of Thessaloniki – School of Medicine – General Biology Laboratory** (2012). He lives in Thessaloniki, Macedonia, Greece.



**Rev. Dr. George V. Coyne, S.J.**

*Emeritus Director and President, Vatican Observatory Foundation; McDevitt Chair, Religious Philosophy, Le Moyne College*

Fr. George V. Coyne, S.J., born January 19, 1933, in Baltimore, Maryland, completed his bachelor's degree in mathematics and his licentiate in philosophy at **Fordham University** in 1958. He obtained his doctorate in astronomy from **Georgetown University** in 1962. After several decades on the faculty at the **University of Arizona** (UA), Coyne became Director of the **Vatican Observatory** (VO) in 1978. He became the founding director of the **VO Foundation** (VOF) in 1986. In 1980 he established the **VO Research Group** in Tucson, AZ. During his time as Director he founded the VO Summer Schools, which over the years have introduced more than 300 students from more than 60 countries to professional astrophysics.



**J.J. Middleway**

*Member, Order of Bards Ovates and Druids (OBOD); Member, Mankind Project – (MKP UK)*

JJ Middleway is a Druid member of OBOD, where he served for seventeen years as tutor/mentor. He is a Celebrant, delivering ceremonies to mark Birth, Marriage and Death (Naming, Handfasting and Parting), across the full spectrum of society. His ritual and ceremonial work encompasses marking the eight seasonal festivals of the 'Wheel of the Year' and is focussed on a deep reverence for the Earth along with a laugh and a smile.

He developed and leads regular sessions of Enchanting the Void; a Western form of devotional chanting, geared toward the honouring and healing of the Land. He is an 'Elder' of several communities across UK and Europe, as well as leading singing groups and teaching extensively. His earlier claims to fame, were being born and brought up in a neighbouring street to Ozzy Osbourne, of playing maracas with The Incredible String Band and of sleeping through two thirds of Jimi Hendrix's last ever live concert.



**Dr. Jonathan Wai**



*Research Scientist, Duke University Talent Identification Program; Visiting Researcher, Case Western Reserve University*

Wai is a research scientist at the **Duke University Talent Identification Program** and a visiting researcher at **Case Western Reserve University**. He did his postdoctoral work at **Duke University**, holds a doctorate from **Vanderbilt University**, and graduated from **Claremont McKenna College**. He studies the development of talent and its impact on society. His interests focus on the many factors that contribute to the development of expertise in education, occupation, and innovation. Additionally, he is interested in policy and connecting his work with the larger global conversation.

Wai's academic work has appeared in *Journal of Educational Psychology*, *Current Directions in Psychological Science*, *Policy Insights From The Behavioral And Brain Sciences*, *Intelligence*, *Journal of Experimental Psychology: Applied*, *Journal of Advanced Academics*, *Gifted Child Quarterly*, and *Frontiers in Psychology: Developmental*. His work has started international conversations, and has been discussed in *The New York Times*, *The Wall Street Journal*, *The Washington Post*, *CNBC*, *Financial Times*, *The Economist*, *Scientific American*, *Wired*, *Education Week*, *Nature*, *Science*, and many others worldwide.

His public writing has appeared in *Psychology Today*, *Los Angeles Times*, *Forbes*, *National Review*, *Education Week*, *NPR*, *Quartz*, *Business Insider*, *TechCrunch*, *The World Economic Forum*, and others where his ideas have reached millions. Wai has been profiled in *Rotman Magazine*, *Forbes*, *Times Educational Supplement*, and *WSJ Marketwatch*. His academic papers have won multiple international *Mensa Awards for Research Excellence* and he has served on the board of directors of the **MATHCOUNTS Foundation**. He lives with his wife, son, and cat.

#### **Professor Kirsten Johnson, M.D., M.P.H.**

*CEO, Humanitarian U; Program Director, Humanitarian Studies Initiative (HSI), McGill University; Assistant Faculty Member, Harvard Humanitarian Initiative, Harvard University; Director, Canadian Consortium for Humanitarian Training (CCHT); Emergency Medicine Physician, McGill University; Assistant Professor, Family Medicine, McGill University; Board Member, International Humanitarian Studies Association*  
Dr. Kirsten Johnson practices Emergency Medicine at **McGill University's** Health Centres, Esthetic Medicine at Julien & Marin Dental Clinic and is an Assistant Professor in the Department of Family Medicine at **McGill University** in Montreal, Canada. She is Program Director of the McGill **Humanitarian Studies Initiative (HSI)**, Director of the **Canadian Consortium for Humanitarian Training (CCHT)** and President of the Humanitarian Training Initiative (HTI).

Dr. Johnson's research has focused on genocide, child combatants, sexual gender-based violence and conflict-related mental health and psychosocial support. She is involved in humanitarian professionalization, working on the development of competencies for training, education and certification of humanitarian responders globally. In 2010, Dr. Johnson was awarded the Segal Centre's *Janusz Korczak* award for her work on protecting the rights of children in conflict and the *Award of Excellence* for her work in global health by the **College of Family Physicians of Canada**. She was recognized as one of *Canada's Top 40 Under 40* in 2011.

#### **Dr. Manahel Thabet**

*President, WIQF; President, Smart Tips Consultants; Vice-President, WIN; Vice-Chancellor, The Gifted Academy; Patron, Women's Leadership MBA, Synergy University*

Dr. Manahel Thabet is the president of **World IQ Foundation (WIQF)** and **Smart Tips Consultants**, Vice President of **World Intelligence Network (WIN)**, Vice-Chancellor of **The Gifted Academy**, and the patron of the first **Women's Leadership MBA** program in the Middle East operating out of **Synergy University**. **WIQF** and **WIN** are devoted to the high IQ communities. For educational background, Dr. Thabet earned a Ph.D. in Financial Engineering at the age of 25.

Furthermore, Dr. Thabet earned a second Ph.D. in Quantum mathematics at the age of 31. In addition, her distinctions range through awards such as the Excellence of Global International Environmental and Humanitarian Award, L'Officiel Inspirational Woman of the Year Award, **Genius of the Year Award for 2013** (Representative of

Asia), and numerous others. Recently, Dr. Manahel has been assigned as the Vice Chancellor of **The Gifted Academy** and earned the **Avicenna Award** as a successor to **Tony Buzan** (Founder of **Mind Mapping**).



**Professor Maryanne Garry**

*Professor, Psychology, **Victoria University of Wellington**; Deputy Dean, Faculty of Graduate Research, **Victoria University of Wellington***

Dr. Maryanne Garry is a Professor in Psychology at **Victoria University**, and the Deputy Dean of the Faculty of Graduate Research. For nearly 20 years, she has studied a puzzle of memory: how is that otherwise intelligent, rational people can remember things they never really saw, or experiences they never really had? Professor Garry's interests in applying science to the law predate her interest in memory research or even in psychological science. Her undergraduate degrees are in Forensic Science and Chemistry. Professor Garry received her PhD in 1993 from the **University of Connecticut**, and did postdoctoral research at the **University of Washington** under the direction of **Professor Elizabeth Loftus**, the world's foremost researcher on human memory distortions.



**Paul Cooijmans**

*Administrator, **Giga Society**; Administrator, **The Glia Society***

Paul Cooijmans founded **GliaWebNews**, **Young and intelligent?**, **Order of Thoth**, **Giga Society**, **Order of Imhotep**, **The Glia Society**, and **The Grail Society**. His main high-IQ societies remain **Giga Society** and **The Glia Society**. Both devoted to the high-IQ world. **Giga Society** remains the world's most exclusive high-IQ society with a theoretical cutoff of one in a billion individuals. **The Glia Society**, founded in 1997, is a "forum for the intelligent" to "encourage and facilitate research related to high mental ability."

Cooijmans earned credentials, two bachelor degrees, in composition and in guitar from Brabants Conservatorium. His interests lie in human "evolution, eugenics, exact sciences (theoretical physics, cosmology, artificial intelligence)." He continues administration of numerous societies, such as the aforementioned, to compose musical works for online consumption, to publish intelligence tests and associated statistics, and to write and publish on topics of interest to him.

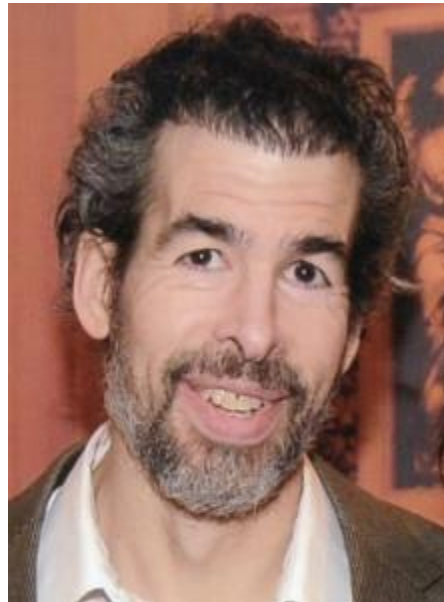


**Paul Krassner**

*Founder, Editor, and Contributor, **The Realist***

Paul Krassner published *The Realist* (1958-2001), but when People magazine labeled him “father of the underground press,” he immediately demanded a paternity test. And when Life magazine published a favorable article about him, the FBI sent a poison-pen letter to the editor calling Krassner “a raving, unconfined nut.” “The FBI was right,” **George Carlin** responded. “This man is dangerous — and funny, and necessary.” While abortion was illegal, Krassner ran an underground referral service, and as an antiwar activist, he became a co-founder of the Yippies (Youth International Party).

Krassner’s one-person show won an award from the L.A. Weekly. He received an **ACLU** (Upton Sinclair) Award for dedication to freedom expression. At the Cannabis Cup in Amsterdam, he was inducted into the **Counterculture Hall of Fame** — “my ambition,” he claims, “since I was three years old.” He won a *Playboy Award* for satire and a Feminist Party and in 2010 the Oakland branch of the writers’ organization PEN honored him with their *Lifetime Achievement Award*. “I’m very happy to receive this award,” he concluded in his acceptance speech, “and even happier that it wasn’t posthumous.”



**Richard Gilligan Rosner**

*Member, The Giga Society; Member, The Mega Society*

Rick Rosner has written for *Remote Control*, *Crank Yankers*, *The Man Show*, *The Emmy Awards*, *The Grammy Awards*, and *Jimmy Kimmel Live!*. He has also worked as a stripper, a bouncer, a roller-skating waiter, and a nude model. In a TV commercial, Domino’s Pizza named him the World’s Smartest Man.

He was also named Best Bouncer in the Denver Area by *Westwood Magazine*. He has received eight Writer’s Guild Award and Emmy nominations and was named **2013 North American Genius of the Year** by The World Genius Registry. He lives in Los Angeles, California with his wife and daughter.



**Dr. Sally Satel, M.D.**

*Lecturer, Medicine, Yale University; W.H. Brady Fellow, American Enterprise Institute*

Dr. Sally Satel is a resident scholar at AEI and the staff psychiatrist at a local methadone clinic in D.C. Dr. Satel was an assistant professor of psychiatry at Yale University from 1988 to 1993 and remains a lecturer at Yale. From 1993 to 1994 she was a Robert Wood Johnson policy fellow with the Senate Labor and Human Resources Committee. She has written widely in academic journals on topics in psychiatry and medicine, and has published articles on cultural aspects of medicine and science in numerous magazines and journals. She has testified before Congress on veterans' issues, mental health policy, drug courts, and health disparities.

Dr. Satel is author of *Drug Treatment: The Case for Coercion* (AEI Press, 1999), and *PC, M.D.: How Political Correctness Is Corrupting Medicine* (Basic Books, 2001). She is coauthor of *One Nation under Therapy* (St. Martin's Press, 2005), co-author of *The Health Disparity Myth* (AEI Press, 2006), and editor of *When Altruism Isn't Enough: The Case for Compensating Kidney Donors* (AEI Press, 2009). Her recent book, co-authored with Emory psychologist Scott Lilienfeld is *Brainwashed: The Seductive Appeal of Mindless Neuroscience* (Basic, 2013). *Brainwashed* was a finalist for the 2013 *Los Angeles Times* Book Prize in Science.





**Professor Sven van de Wetering**

*Head/Professor, Psychology, University of the Fraser Valley*

Dr. Sven van de Wetering works as an Instructor for the Psychology Department of **University of the Fraser Valley**. Dr. van de Wetering earned his BSc in Biology at **The University of British Columbia**, and Bachelors of Arts, Master of Arts, and PhD in Psychology from **Simon Fraser University**. His research interest lies in “conservation psychology, lay conceptions of evil, relationships between personality variables and political attitudes.”



**Professor Wayne Podrouzek**

*Instructor, Psychology, Kwantlen Polytechnic University; Associate Professor, Psychology, University of the Fraser Valley*

Dr. Wayne Podrouzek works as an Instructor for the Psychology Department of **University of the Fraser Valley** and instructor in the Psychology Department of **Kwantlen Polytechnic University**. Dr. Podrouzek earned his a Bachelor of Arts in Child Studies and a Bachelor of Science (Honours) from **Mount Saint Vincent University**, a Master of Arts from **Simon Fraser University**, and Ph.D. from **Simon Fraser University** under Dr. Bruce Whittlesea.

### Previous Advisory Board Members

**Dr. Hawa Abdi, M.D.**

*Hawa Abdi Foundation, Founder; Nobel Peace Prize Nominee, 2012*

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*Kwantlen Polytechnic University, Psychology, Instructor*

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*Kwantlen Polytechnic University, Psychology, Instructor*

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*University of Calgary, Psychology, Professor*

**Dr. Wayne Fenske**

*Kwantlen Polytechnic University, Philosophy, Instructor*

# Overview

*In-Sight Publishing* began fall, 2014. It publishes ebooks, for free and charge, and operates in independent and public interests rather than for private gains, and is committed to publishing, in innovative ways, ways of cultural, community, educational, moral, personal, and social value that are often deemed insufficiently profitable. It operates inside and outside of the bounds of non-profit/not-for-profit. *In-Sight: Independent Interview-Based Journal* began fall, 2012. It publishes interviews, articles, and issues. It operates inside the bounds of non-profit/not-for-profit. It equates to the first independent interview-based journal in the world. All informal statuses.

## Open, General Acknowledgement and Appreciation

*In-Sight Publishing* and *In-Sight: Independent Interview-Based Journal* exist because of three identifiable sectors of support: academics, contributors, and readers. Therefore, all time and effort does have identifiable people, groups, and organizations. Each earned acknowledgement and appreciation for single or continuous, individual or group, contribution in the construction of *In-Sight Publishing* and *In-Sight: Independent Interview-Based Journal*. Many of them without mention of name contributed time and effort to the production of the journal. Some with provision of interviewee recommendations, connection to the interviewee, assistance in social media, social networks, and academic circles, photography or portraits, time for considered and comprehensive responses to questions, and assertive, constructive, and positive feedback too. Finally, and greatest, readers give the most support. For every person, group, and organization involved in this project, we express deepest gratitude to all types of direct or indirect assistance from every side for contributions to this initiative. Your effort, interest, and time support independent publishing purposed for the encouragement of academic freedom, creativity, diverse voices, free speech, and independent thought.

## Design and Development

- *Phase 1*, August 1, 2012: foundation with “Independent Interview-Based Undergraduate Journal” status.
- *Phase 2*, January 1, 2013: production capacity increased with “Tri-Annual” status.
- *Phase 3*, January 1, 2014: stricture removal, both implied and actual, based on “Undergraduate” status through cessation of “Independent Interview-Based Undergraduate Journal” status and instantiation of “Independent Interview-Based Journal” status.
- *Phase 4*, January 1, 2014: increased presence through incorporation of social media.
- *Phase 5*, September 1, 2014: creation of *In-Sight Publishing*, and inclusion of reference styles in American Psychological Association (APA, 6<sup>th</sup> Edition, 2010) and Modern Language Association (MLA, 7<sup>th</sup> Edition, 2009).
- *Phase 6*, January 1, 2015: inclusion of footnotes and bibliographic references in full PDF issues, and Chicago/Turabian (16<sup>th</sup> Edition) and Harvard reference styles, and creation of the ebooks section for the first stages of construction of *In-Sight Publishing*.
- *Phase 7*, January 1, 2015: incorporation of American Psychological Association (APA, 6<sup>th</sup> Edition, 2010), Chicago/Turabian (16<sup>th</sup> Edition), Harvard, and Modern Language Association (MLA, 7<sup>th</sup> Edition, 2009) reference styles in website interview publications.
- *Phase 8*, April 1, 2015: creation of “Academic” and “Casual” sections for ebook publications. “Academic” includes footnotes, bibliographic references, and reference styles. “Casual” does not include footnotes, bibliographic references, and reference styles.
- *Phase 9*, May 1, 2015: inclusion of footnotes and bibliographic references in website interview publications.
- *Phase 10*, July 1, 2015: incorporation of common reference styles such as American Medical Association (AMA), American Psychological Association (APA, 6<sup>th</sup> Edition, 2010), Brazilian National Standards (ABNT), Chicago/Turabian Author-Date (16<sup>th</sup> Edition), Chicago/Turabian (16<sup>th</sup> Edition), Harvard, Harvard (Australian), Modern Language Association (MLA, 7<sup>th</sup> Edition, 2009), and Vancouver/ICMJE reference styles in website interview publications in addition to one complete list of 27 reference styles (manual insertion without access dates)

- *Phase 11*, August 22, 2015: article website layout refinement: article title, biography, abstract, keywords, common reference style listing, article title, bibliography/references/reference list, footnotes, appendix I: complete reference style listing – if any, other appendices including tables, figures, and images, and license and copyright. Updates to *Copyright*, *General Philosophy*, *In-Sight Publishing: Overview*, *Journal Overview: Section B*, and *License*.
- *Phase 12*, September 1, 2015: previous *Letter of Appreciation* appreciations moved to *Acknowledgements and Appreciation*. Major appreciations remain in *Letter of Appreciation*. In addition, the refinement of interview layout on the website: interview title, interviewee image/photograph/portrait/sketch, abstract, keywords, common reference style listing, interview title, bibliography/references/reference listing, footnotes, appendix 1: complete reference style listing, and license and copyright; refinement to interviews in full issues: interview title, interviewee image/photograph/portrait/sketch, contents, abstract, keywords, common reference style listing, interview title, bibliography/references/reference listing, appendix 1: complete reference style listing – if any, other appendices including tables, figures, and images, and license and copyright. Footnotes for each page remain in their respective page. An update to ebook inside cover with respect to mandate and copyright. All informal statuses.
- *Phase 13*, September 22, 2015: revision to format of the online publications, introduction of appendices for photographs, transformation of bibliography/references/reference list into bibliography, removal of common reference style listing, and introduction of citation style listing in place of complete reference style listing.
- *Phase 14*, November 1, 2015: Amazon purchase transition with total proceeds to co-authors and *In-Sight Publishing* and *In-Sight: Independent Interview-Based Journal*; EBSCO contract signed by Scott Douglas Jacobsen and EBSCO to proliferate *In-Sight: Independent Interview-Based Journal* for formal institution distribution from the P.D.F. issues.
- *Phase 15*, January 1, 2016: EBSCO co-sign completion with over 150 entries at the time; officiation of the *In-Sight: Independent Interview-Based Journal* with continued information status of *In-Sight Publishing*.

Near future phases will incorporate donations, paid ebooks, and ebook listings. Far future phases will develop from re-design and transformations of *In-Sight Publishing* and *In-Sight: Independent Interview-Based Journal*.

# Journal Overview

## In-Sight: Independent Interview-Based Journal

*In-Sight: Independent Interview-Based Journal* exists as the first international independent interview-based journal. Submissions remain international and interdisciplinary for interviews, articles, and others. Individual publications throughout the year: January 1 to May 1; May 1 to September 1; September 1 to January 1, and so on. Each publication on the 1, 8, 15, and 22 of the month. Tri-annual full issue publications on “Spring,” “Summer,” and “Winter”: January 1, May 1, and September 1, respectively.

### General Philosophy

Where imperatives, utility, and virtues interrelate, and where accuracy/authenticity implicates honesty, credibility implicates integrity, fairness/balance implicates justice, and news judgment implicates prudence, honesty, integrity, justice, and prudence converge on the ethical utility in the moral imperative of truth. Truth necessitates honesty, integrity, justice, and prudence. Academic freedom permits the possibility of truth; academic freedom necessitates destitution of dogma or obfuscation. An ability to question anything, pursue implications, and express these implications in spite of harbored biases and fear of backlash. All without alteration or omission to discover knowledge. *In-Sight: Independent Interview-Based Journal* aims to attain academic freedom through its core interview format.

### Format, Overview

*In-Sight: Independent Interview-Based Journal* formatted by subjects or ideas per issue. Each issue divides into interviews (A), submissions (B), and responses (C).

### Sections ‘A’, ‘B’, and ‘C’

- Issue titles implicate format, e.g. “Issue 1, Subject: Psychology,” “Issue 2, Idea: Epistemology,” and so on. Interview, essay, and response sections segmented by issue content. Interviews specified by “A”; submissions specified by “B”; responses specified by “C”, e.g. “Issue 1.A, Subject: Psychology,” “Issue 2.B, Idea: Arts,” “Issue 2.C, Idea: Arts.”

### Subject Issues

- Interview sections contain *only* experts from *one* discipline with emphasis on *a subject*, e.g. “Psychology,” and so on. Submission sections contain *only* experts from *one* discipline with emphasis on *a subject*, e.g. “Psychology,” and so on. Contribution exceptions permitted with sufficient reason sent to the Editor-in-Chief.

### Idea Issues

- Interview sections contain *many* experts from *many* disciplines with emphasis on *an idea*, e.g. *Women in Academia*, *Outliers and Outsiders*, and so on. Submission sections contain *many* experts from *many* disciplines with emphasis on *an idea*, e.g. *Women in Academia*, *Outliers and Outsiders*, and so on. Contribution exceptions permitted with sufficient reason sent to the Editor-in-Chief.

### Frequency



- Individual publications throughout the year: January 1 to May 1; May 1 to September 1; September 1 to January 1, and so on. Each publication on the 1, 8, 15, and 22 of the month. Tri-annual full issues publications on “Spring,” “Summer,” and “Winter”: January 1, May 1, and September 1, respectively. Frequency dependent upon material quantity and completion dates. **Multiple delayed completions will accelerate the publication rate until issue fulfillment.**

# Interview Guidelines (‘Section A’)

An overview of the interview process for this section. Interview submissions not accepted from external sources.

## Research

- Preliminary research required for interview solicitation. If interview consent obtained from interviewee, **a typical, but not absolute, minimum of one to four weeks** for comprehensive research. This includes purchasing, acquiring, and processing articles, audio-visual material, books, interviews, social media material, and their respective synthesis to produce questions.

## Consent

- Interviewees either provide written or verbal consent based on an interview request. Written or verbal consent relate to the interviewee having the power to deny/accept the interview, and for final decision of publication as a single interview on the website or in the full issue publication with all other issue-interviews in PDF and on the website. It remains casual in consent. See *Copyright* for information on ownership of publications.

## Conducting

- Interview form depends on interviewee preference: email via *Microsoft Word* or *Open Office* file, in person, phone call, question set, or Skype. Most prefer question sets in email via *Microsoft Word* or *Open Office*. Most questions mix standardized and specialized formats. Standardized for consistency of journal format. Specialized for relevant-to-interview questions. All questions have design to elicit in-depth and full responses from interviewees.

## Editing Stage One

- Editing consists of the interviewees original interview with minimal editing to keep the intended meaning and message of the interviewees intact, even where certain answers may contain controversial or ‘politically incorrect’ statements, opinions, or information.

## Editing Stage Two

- Interviewer sends draft back to the interviewee to confirm the originally intended meaning and message seem sustained to the satisfaction of the interviewee. If the interviewee requires any further alterations, omissions, or edits, the interviewer repeats the cycle of edit to confirmation of accuracy of message and meaning to re-edit until the interviewee evaluates the final version of the interview as sufficiently accurate to their intended meaning and message. Any major editing consists of corrections to grammatical and/or spelling errors. This editing aims to optimize the correspondence between the interview and the interviewees intended message and meaning to the satisfaction of the interviewee.

# Submission Guidelines (Section ‘B’)

## Material

- Contributor status access restricted to undergraduate students, graduate students, instructors, professors, and experts. Each submission considered on appropriateness of grammar and style, comprehensiveness, coherence, and originality of content.

## Scope

- Depending on the issue, the accepted submissions consists of articles, book reviews, commentaries, poetry, prose, and art.

## Submission

- It must not have publication or pending publication elsewhere. For exceptions, sufficient reason should be sent to the Editor-in-Chief along with the material. For written scholarly material, it must be in 12-point font, Garamond, double-spaced, and with APA or MLA formatting. Length of material ranges from 2,000 to 7,500 words. Material should be sent to the following:
  - [Scott.D.Jacobsen@Gmail.com](mailto:Scott.D.Jacobsen@Gmail.com)

# Response Guidelines (Section ‘C’)

Responses to interviews (‘A’) or essays (‘B’) must have the following format:

## **Material**

- Preferable for respondents to have experience or expertise in area relevant to interview or essay content.

## **Scope**

- Response material should relate to current or prior issue on specific points in one essay or article.

## **Submission**

- Responses must have the following format: APA format, Garamond, 12-point font, double-spaced, citation of interviewee and each ‘Question-and-Answer’ section of response (maximum of 5), and reference list of relevant articles, books, prior interviews, watching of video material, reading of social media material in APA. Length of material should range from 500-1,000 words; exceptions will have consideration with appropriate reasons provided to the Editor-in-Chief. Material should be sent to the following:
  - [Scott.D.Jacobsen@Gmail.com](mailto:Scott.D.Jacobsen@Gmail.com)

## Research Ethics

*In-Sight: Independent Interview-Based Journal* does not answer a research question. Interviews hold total control over final published responses for as accurate a representation as possible of an interviewee as possible. Hence, zero mandatory ethics board consent necessitated by its operation. Monetary detachment removes constraint by an institution or individual for published content, despite academic positions or alma maters for the Editor-in-Chief and Advisory Board. Please see *Internal and External Funding* for monetary information.

## Internal and External Funding

Scott D. Jacobsen provides complete internal funding *In-Sight: Independent Interview-Based Journal*. All internal funding includes purchasing of articles, books, chapters, prior interviews, video material, social media material, and all marketing efforts of *In-Sight: Independent Interview-Based Journal*. In the case of external monetary funding, only monetary funding not restricting academic freedom for *In-Sight: Independent Interview-Based Journal* will have consideration. **At this time, *In-Sight: Independent Interview-Based Journal* operates with internal funding from Scott Douglas Jacobsen with the addition of one website renewal donation from Richard G. Rosner.**

## Attachments

Attachments means constraints or restraints through functioning out of institutions or groups. For instance, an institution or group would consist of a university, an agency, a think-tank, and/or an interest group of some form. *In-Sight: Independent Interview-Based Journal* functions autonomous from any institution or group. This provides total freedom of content for consistency with principles of operation for academic freedom.

## Advertising Policy

All advertising for the journal exists as open-access for any individual. See 'Open Access' for more information.

## Open Access

*In-Sight: Independent Interview-Based Journal* exists as open access for online contents, where any content *In-Sight: Independent Interview-Based Journal* becomes accessible for **reading or downloading** to any interested individual/group.



# Letter of Appreciation

*Outsiders and Outliers* continues into its seventh issue. I extend appreciation to the following: Dr. Aubrey de Grey; Professor Azra Raza, M.D.; Professor Christina Atance; Dr. Daniel Bernstein; Dr. Diane Purvey; Dr. Evangelos Katsioulis, M.D., M.Sc., M.A., Ph.D.; Rev. Dr. George V. Coyne; Professor Kirsten Johnson, M.D., M.P.H.; Dr. Manahel Thabet; Professor Maryanne Garry; Paul Krassner; Richard G. Rosner; Dr. Sally Satel; Dr. Sven van de Wetering; Dr. Wayne Podrouzek; the previous Advisory Board members; and to the interviewees for the thoughtful responses. I express gratitude and respect for the Athabasca University, Simon Fraser University, The University of British Columbia, Kwantlen Polytechnic University, and University of California, Irvine librarians. I appreciate all assistance in collaboration necessary for required sufficient comprehension of new disciplines, research, and interviewees involved in this project coinciding with improvisatory and comprehensive feedback. Above all, I - for those who know their contributions in innumerable aspects - reciprocate the genuine love to the utmost.

Scott D. Jacobsen

Editor-in-Chief

# Marco Ripà



Interviewer: Scott Douglas Jacobsen  
 Title: In-Sight: Independent Interview-Based Journal  
 Place of Publication: Langley, British Columbia, Canada  
 Name of Publisher: In-Sight Publishing  
 Numbering: Issue 10.A, Idea: Outliers & Outsiders (Part Six)  
 Individual Publication Date: January 1, 2016 (2016-01-01)  
 Issue Publication Date: May 1, 2016 (2016-05-01)  
 Frequency: Three Times Per Year  
 Web Domain: [www.in-sightjournal.com](http://www.in-sightjournal.com)  
**ISSN 2369-6885**

### Abstract

**An interview with Marco Ripà. He discusses: geographic, cultural, and linguistic familial background; influence on personal development; pivotal moments; loneliness and associated fear in youth, and its frequency in gifted youth; physique sculpting and personal combat training; B.Econ.Sc., *magna cum laude*; autodidactic proclivities; expertise and knowledge and its benefit for personal and professional life; contents of the big IQ projects; inspiration for mathematics competitions, papers in number theory, and the creation of integer sequences for OEIS; title, contents, and interest in the discrete mathematics book; academic papers on currency speculation, market failures, social justice, and sub-prime mortgage crisis; common intelligences with lower than expected occurrence and flourishing; a society that provides for the gifted and talented; summarization of the research subjects completed by him; entrance into the high-IQ and ultra-high-IQ world; and the inter-relationship development up to the present between the high-IQ, and ultra-high-IQ, community and himself.**

**Keywords:** gifted youth, high-IQ, IQ, Marco Ripà, mathematics, research, society, ultra-high-IQ.

### An Interview with Marco Ripà (Part One)<sup>1,2,3,4</sup>

*\*Footnotes throughout the interview, and bibliography and citation style listing after the interview.\**

#### 1. In terms of geography, culture, and language, where does your family background reside?

I was born in Rome (Italy), 31 years ago, and I still live here. My parents' IQ is average and my family belongs to the Catholic middle class (let's say, none of them talks a second language or knows how to create a P.D.F. file – sad but true), despite this I became agnostic at the age of 17 and I started to read foreigner thinkers such as Nietzsche, Voltaire, Goethe, Rousseau and so on...

#### 2. How did this influence personal development?

I think that this environment has not influenced my cultural development in a positive way, even if I opened my mind and started to think deeper about myself when I discovered the World Wide Web and Google.

#### 3. What about influences and pivotal moments in major cross-sections of early life including kindergarten, elementary school, junior high school, high school, and undergraduate studies (college/university)?

Well, when I was a child I was afraid of school (I was in a kindergarten just for one year or so). The loneliness was triggering the fear but, sometimes, the fear of being rejected by others was driving the loneliness itself... I started feeling better during my high school years, practicing karate (wado-ryu style at agonistic level) and starting to lift some weights. From my very personal point of view, it could be good to change something in your lifestyle in order to make a change in the way you relate with others and to make them feel good with you, starting to listen more their words rather than just talking.

<sup>1</sup> Founder, sPIqr Society; Co-Founder & Co-President, World IQ Foundation (WIQF).

<sup>2</sup> Individual Publication Date: January 1, 2016 at [www.in-sightjournal.com](http://www.in-sightjournal.com); Full Issue Publication Date: May 1, 2016 at [www.in-sightjournal.com](http://www.in-sightjournal.com).

<sup>3</sup> B.Econ.Sc. (*magna cum laude*), University of Roma Tre.

<sup>4</sup> Photograph courtesy of Marco Ripà.

**4. You noted the fear brought on by loneliness in youth. Does this happen with frequency among the gifted?**

I think so. Obviously, it is not a general rule, but I think that it can be a very common condition, especially if you have some Asperger traits too.

**5. You mentioned weightlifting and karate, “wado-ryu style.” What does physique sculpting and personal combat training provide for you?**

I started practicing karate during my second High School year. My initial thought was that it would be helpful to gain some respect in my classroom, to avoid myself from getting bullied. Keep training, I gained many injuries and I started to realize what is the real meaning of this discipline, looking at it not just as a sport. Later I started to train myself also at the gym, hoping to become stronger and I gradually reduced my commitment in karate, looking for something more flexible to practice during my college years. At the end of the journey I can say that I have gained many injuries and a lot of respect for the sports, their practitioners and their common values.

**6. You earned a B.Econ.Sc., *magna cum laude*.<sup>5</sup> What expertise and knowledge comes with this qualification?**

I consider myself a self-taught man with a wide range of interests (including Psychometrics, Statistics, Divergent Thinking and Mathematics) but, at the time, my thought was that a degree in Economics would have been better than a degree in Physics, so I left the “Physics and Astrophysics” course and I spent a few years studying Keynes, Friedman, Wicksell, Hayek and their ideas about the trade-off between equity and efficiency. I did not appreciate Economic theories very much, because I prefer more abstractive and rigorous subjects, so I finally left university when the sub-prime mortgage crisis reached my country.

**7. “Psychometrics, Statistics, Divergent Thinking and Mathematics” provide a solid foundation for research into intelligence. Intelligence research observes and examines the gifted and talented. Gifted and talented**

**individuals might tend towards autodidactic education. Your own autobiography given before describes this. As a general rule about and for the gifted and talented, do autodidactic proclivities seem true about them to you?**

I read being a self-taught person as a natural response to an inner discomfort, when you cannot find enough challenge in the school or if it cannot put you in the right perspective. I do not know if a general rule exists, but I think that any unrecognized gifted individual can easily develop many interests in the world wide web era. Speaking about talented people, it is probably true that if they can taste their passion (at least) one time, they can usually find the way to follow it.

**8. How did this expertise and knowledge benefit personal and professional life?**

To be honest with you, I have to say that I did not use very much what I learned in the Economics field. When I left the College/University (here in Italy they are basically the same thing) I participated in a few projects within the private sector, unfortunately my colleagues did not keep their word about them... so, during the last few years, I have worked alone on some projects involving abstract conceptualization, 3D modeling, giftedness and proficiency analysis. By the way, I am currently working, as a member of two different teams, on two big projects relating to IQ.

**9. With respect to those two different teams purposed to the study of IQ in big projects, what remain the contents of those projects?**

Well, the aim of the first project is to establish a not yet existing link between the high IQ world and the job world, for an interesting exchange never realized, where very selected “brains” are offered for companies searching for special abilities: this is “BrainsJob”, indeed. The second project is the implementation of my spatial dynamic IQ tests (ENSDT): the original idea was explained in my ebook “<https://books.google.it/books?isbn=8863699461>” in 2012.

<sup>5</sup> LinkedIn. (2015). Marco Ripà. Retrieved from <https://it.linkedin.com/pub/marco-rip%C3%A0/14/991/950>.

- 10. You earned an honor prize in high school and second place in the high school mathematics competition around the same time. In addition to these accomplishments, you authored papers on number theory and created some integer sequences for OEIS. What inspired taking part in these for you?**

As previously mentioned, since I was a child I liked discrete mathematics very much. Thus, after the undergraduate degree I started to write a novel involving cryptography and a book about hyperoperations. This book focused on the p-adic convergence of tetration contains many integer sequences and a few of them were not listed on the OEIS, thus I decided to submit them. To date I have contributed to the OEIS with more than 40 new sequences.

I have published also a few papers on peer-reviewed journals (such as “Notes on Number Theory and Discrete Mathematics” and “Matematicamente”) relating to prime numbers and a couple of papers about the classic *Nine Dots Puzzle* extended to any k-dimensional space ( $k > 2$ ), the latest paper will be published soon on the same journal.

- 11. Regarding the title of the book based on discrete mathematics and personal interest in it, what was the title of the book and its contents?**

“La strana coda della serie  $n^n \dots n^n$ ” is a book that I have published in 2011 and it is focused on hyperoperators and their p-adic convergence properties. In particular, I presented some new results about tetration (or hyper-4).

To easy understand what tetration is, you can take a look at the following relations, addition : multiplication = multiplication : exponentiation = exponentiation : tetration.

- 12. You authored academic papers on currency speculation, market failures, social justice, and sub-prime mortgage crisis. Why these topics?**

I wrote them in Italian. The first one was relating to my essay “International organizations facing the current crisis” and then I shared my thoughts about social justice: I think that it is very important in order to reduce the gap in education due to economic factors or constraints. Some constraints of a subjective nature, ethics, morals and various prejudices may still persist:

intelligence is not focused in specific areas or specific regions of the planet. This implies that, anywhere, in different social, religious, economic and environmental situation, we may find the presence of intelligences that, under the right conditions, might be able to put to use their gift. Thus, contexts in which the dynamics of social, religious, environmental but also economic and infrastructure aspects do not allow personal development, could drive us to miss the great chance to give these humans like us the opportunity to develop their talents. And this could be done with the intelligence as well with artistic talents. Moreover, social issues (religious, environmental, and so on...) can affect the development of the personality of “gifted” children and “gifted” adults.

- 13. With respect to the underutilization of gifts and talents of the gifted and talented, what common intelligences seem to have lower than expected occurrence and flourishing?**

Very hard to say, and I am not a big fan of Gardner’s theory of multiple intelligences. Could I argue for a quite common lack of “relational skills” or so? This would be the main key, in my opinion.

- 14. What society appears to provide for the gifted and talented?**

If we assume that we live in a modern country where liberalism and *laissez-faire capitalism* belong to the mainstream, and where the idea of the self-made man (such as Jobs, Gates, and so on) is often embodied by gifted and/or talented people, we could imagine a good scenario, even if it cannot be the best of all. Gifted and talented individuals sometime need to be understood, supported and feeling themselves to be appreciated by others, unconditionally.

- 15. What summarizes each of these research subjects completed by you?**

Mathematics is my first love and I need to deal with her occasionally, while the hope to support gifted children is my main goal and now I am very happy about what me and my associate, Roberto Enea, are doing in this field: we are implementing the first dynamic spatial IQ test in the world with a unique norm and immune from the risk of cheating! It would be a dream that become reality one day, to have this new generation of tests to be, administrated to



measure cognitive abilities with a clinical approach.

- 16. You have deep involvement in the high-IQ world. For examples, you founded the sPIQr Society, co-founded the World IQ Foundation (WIQF), constructed the *X-Test*, presented at the 12th Asia-Pacific Conference on Giftedness in the United Arab Emirates, Dubai (2012), and hold memberships in about thirty high-IQ societies.<sup>6,7,8</sup> In addition, you have an interesting proposal for a new computer-based intelligence test for the high-range.<sup>9</sup> How did this entrance into the high-IQ and ultra-high-IQ world begin for you?**

Good question, thanks for letting me tell this story. I discovered IQ tests in early 2009, searching for something to relax my brain after

my last exam. I found the M-FACE/L test and I took it. A few months later I took the 916 test by Laurent Dubois scoring well in either cases... I put the blame on Google.

- 17. How did this inter-relationship develop up to the present between the high-IQ, and ultra-high-IQ, community and yourself?**

When I discovered my giftedness I started to learn more about this topic and I sadly understood that in my country the word “gifted” is almost unknown and there is not any support in our schools (no acceleration, no curriculum compacting nor curricular enrichment). Thus, I decided to found the sPIQr Society after I joined some well-known high-IQ groups. Now I have many pen friends all over the world and I can see our society from a lot of different perspectives.

<sup>6</sup> sPIQr Society. (2015). sPIQr Society. Retrieved from <http://www.spiqrsociety.com/>.

<sup>7</sup> World IQ Foundation. (n.d.). Organizers. Retrieved from <http://wiqf.org/international-titles/organizers/>.

<sup>8</sup> World Intelligence Network. (n.d.). SPIQR. Retrieved from <http://www.iqsociety.org/win/societies/spiqr/>.

<sup>9</sup> “High-range” defined as “at or above 3 standard deviations or 3 sigma from the norm.”

Interviewer: Scott Douglas Jacobsen  
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 Numbering: Issue 10.A, Idea: Outliers & Outsiders (Part Six)  
 Individual Publication Date: January 8, 2016 (2016-01-08)  
 Issue Publication Date: May 1, 2016 (2016-05-01)  
 Frequency: Three Times Per Year  
 Web Domain: [www.in-sightjournal.com](http://www.in-sightjournal.com)  
 ISSN 2369-6885

### Abstract

**An interview with Marco Ripà. He discusses: positives and negatives in the world of the high-IQ and ultra-high IQ; famous flames in the high-IQ and ultra-high IQ; personality difference among the gifted generalists and gifted specialists; creating, developing, and sustaining the sPIqr Society up to the present; total number and personality profile of the sPIqr Society membership; source of linguistic talent; accrued benefits for professional and personal life; YouTube channel; aerobic, balance, and strength health recommendations; source of aforementioned interests; Asperger's Syndrome advantages and disadvantages; utilization of advantages and adaptation of disadvantages of Asperger's Syndrome; Tim Page, Glenn Gould, friendship, companionship, and Asperger's Syndrome; audio-visual media for self-expression and its contrast with print media; most correct general philosophy; most correct ethical philosophy; most correct political philosophy; most correct social philosophy; most correct economic philosophy; and the singular philosophical framework of the most correct general, ethical, political, social, and economic philosophy in civilization.**

**Keywords:** Asperger's Syndrome, Dr. Manahel Thabet, Dubai, Glenn Gould, high-IQ, intelligence test, Marco Ripà, Tim Page, ultra-high-IQ, United Arab Emirates, X-Test, YouTube.

### An Interview with Marco Ripà (Part Two)<sup>10,11,12,13</sup>

*\*Footnotes throughout the interview, and bibliography and citation style listing after the interview.\**

#### 18. You co-founded WIQF with Dr. Manahel Thabet. How did this collaboration develop and influence the growth of WIQF up to the present?

The WIQF would not have been founded without Dr. Manahel Thabet. The original idea come-up in my mind a few years ago. At the time, my thought was that high IQ people should ask for a more reliable and strict ranking than the WGD. People tend to report only their top scores forgetting the rest, but this partial info would lead to inflated scores, so I reported this issue to Manahel and we finally decided to create the WIQF: she helped me with the WIQF formula, its registration, with the website and later bringing inside the group (as advisory board members) Prof. Tony Buzan and the chess Grandmaster Raymond D. Keene OBE. One year

later, WIQF does not count many members, but the average level is really good.

#### 19. With respect to the X-Test and other high-range intelligence tests, how does one create, develop, refine, administer, statistically norm, and publish a legitimate test?<sup>14</sup>

The X-Test is no longer in use since May 2013, because I analyzed the main problems related to high range tests. You can find the whole story here:

[http://www.researchgate.net/publication/251238254\\_X-Test\\_Solutions\\_Finally\\_Revealed!](http://www.researchgate.net/publication/251238254_X-Test_Solutions_Finally_Revealed!)

By the way, high range tests (even my ENSDT 20 and ENSDT Prototype) cannot be an exact science not because their norm cannot be based on thousands of testees, norms are usually based on z-score, I mean on the scores achieved by a

<sup>10</sup> Founder, sPIqr Society; Co-Founder & Co-President, World IQ Foundation (WIQF).

<sup>11</sup> Individual Publication Date: January 8, 2016 at [www.in-sightjournal.com](http://www.in-sightjournal.com); Full Issue Publication Date: May 1, 2016 at [www.in-sightjournal.com](http://www.in-sightjournal.com).

<sup>12</sup> B.Econ.Sc. (*magna cum laude*), University of Roma Tre.

<sup>13</sup> Photograph courtesy of Marco Ripà.

<sup>14</sup> LinkedIn. (2015). Marco Ripà. Retrieved from <https://it.linkedin.com/pub/marco-rip%C3%A0/14/991/950>.

testee on most reliable, recognized and supervised tests. It is not easy to do, but I hope to provide a useful tool to guess the ultra-high-IQ taking a Gf loaded test at home, without any time limit.

**20. How did the opportunity arise to present in Dubai in the United Arab Emirates?**

It was Dr. Manahel Thabet to give me this opportunity and I am really grateful for having had the chance to present a couple of papers about gifted children features and their needs, plus a screening method to easily identify gifted pupils inside the school. It was a great experience and a memory that will last a lifetime.

**21. What positives and negatives exist in the world of the high-IQ and ultra-high IQ?**

In my humble opinion, the world of the high-IQ is not very different from common life. High-IQ groups are groups of different people, from different countries, religions, ideas and so on. We usually talk in English or Spanish and sometimes a flame can be hard to be resolved, especially if you are talking about an IQ related topic. The best gift I have received from high IQ people is a 360° understanding, sharing a lot of interesting ideas and projects, while on the other side of the coin I can see some lack of self-confidence and existential loneliness.

**22. Based on the response, flames in the high-IQ community remain hard to extinguish at times. However, most should self-exhaust because most societies most of the time continue to persist, even grow and adapt to internal changes. Any famous flames which continue in high-IQ and ultra-high-IQ community?**

A famous personal flame is the one against the Figure test (by N. Soulios and L. Papadioti), since I started it asking for its norm to the authors: as I got no response, I guessed that Figure has not any serious norm. Now I am trying to avoid this topic, keeping the focus on my own online (dynamic) IQ tests.

**23. A panoramic perspective can come from the gifted, but numerous gifted individuals specialize and think deep thoughts about a**

**single topic. What personality characteristics seem to separate the gifted generalists and the gifted specialists?**

First of all, their persistence and the interest in the specific topic, but there could be so many elements that we should take into account. Modern sciences require to do so if we hope to achieve something great. Perhaps, the last person with a very deep knowledge of an entire field of science was the Italian physicist Enrico Fermi.

**24. How did you create, develop, and sustain sPIqr Society up to the present?<sup>15</sup>**

I founded sPIqr at the beginning of 2010, creating a website and a mailing list while, a few months later, I created the Facebook group too. I cover its costs using the small (one time) membership fee paid by members who join the 1/5000 society, even if I let somebody join for free if he has a real reason that prevent him from paying.

**25. What is the total number and general personality profile of the sPIqr membership – aside from nationality and IQ rarity?**

sPIqr full members are obviously very smart, we have a member who gained his bachelor degree as a teenager and a few other child prodigies, but there are also some gifted underachievers. The full membership status requires to go beyond the 153 SD=15 mark on two different kind of tests, so sPIqr members are usually skilled in different fields, loving mathematics, poetry, writing and so on. Many of them are listed on a lot of high IQ societies and they like logics and IQ tests, caring about the cause of the group: to try and help gifted pupils in their schools, spreading IQ knowledge and related issues all over the world.

**26. You speak five languages at various levels of proficiency including Italian (native), English (professional), French (professional), Spanish (limited working), and Latin (limited working).<sup>16</sup> Where does this linguistic talent source itself?**

I do not consider myself very good at languages, including English. However, trying to understand what I read I have learnt some English by myself and a little Spanish in just two

<sup>15</sup> LinkedIn. (2015). Marco Ripà. Retrieved from <https://it.linkedin.com/pub/marco-rip%C3%A0/14/991/950>.

<sup>16</sup> LinkedIn. (2015). Marco Ripà. Retrieved from <https://it.linkedin.com/pub/marco-rip%C3%A0/14/991/950>.

weeks when I was at the university (in Italy we study Latin during our high school years, translating ancient poets and statesman from Latin to Italian). Last year I started to study French because my (former) girlfriend and I were planning to go and live in Geneva, together. Unfortunately our relationship broke-off before our common project could have been realized.

**27. What benefits have accrued throughout professional and personal life because of them to you?**

Let me skip this point answering the question with another one: "Can we say that this wonderful interview is not enough?"

**28. You host an Italian language (with English translation possibilities) YouTube channel.<sup>17</sup> What is the core content of the channel?**

Well, thanks for asking. I opened the channel in 2006 when YouTube was far smaller than the large community we can see nowadays... it was just a (small) fitness channel focused on home training: I used the channel to share my lifts on a thematic forum to improve my form and technique.

A few months ago I decided to move the channel on IQ related topics, talking about giftedness, IQ tests, Asperger Syndrome (yeah, I am an Aspie too), physics, etc... I would like to share the first spatial dynamic IQ test and the other project (related to IQ as well) we are working on through this powerful platform at the right time (very soon).

**29. Fitness training regimens can differ in the scope and intensity of recommendations for the trainees by the trainer. In terms of the long-term fitness training regimen recommendations from you, such as those through the YouTube channel, what general fitness training regimen recommendations should most people most of the time practice for general health in terms of aerobic, balance, strength, and stretch health?**

My personal suggestion is to avoid powerlifting and bodybuilding, while aerobic training and/or practicing a good martial art as an amateur

would be a good idea. I regret the hard lifts I did in the past ten years.

**30. Where do these interests source themselves for you?**

Very hard to say, I guess they can be in some way related to the giftedness plus Asperger combo. I do not think that I could have been influenced by family, peers or school in this way.

**31. Asperger's Syndrome exists as a pervasive developmental disorder (PDD). Insofar as this ubiquitous developmental disorder expresses itself in the daily lives of those with its symptoms across its spectrum, and from the 31 years of personal experience, if I may ask, what advantages and disadvantages come with Asperger's Syndrome?**

I tried and explained what Asperger is in a video loaded on Youtube a couple of months ago. However, generally speaking, living with the Asperger is not very nice and Aspies are hardly understood by neurotypicals. We are hypersensitive people, reconnecting ourselves with our childhood; we can feel depressed for no reason, there is a higher risk of suicide and meltdowns are not so infrequent between us. I admitted to have the Asperger as an adult and I simply lived my life without caring so much about this PDD, my thought was that I was simply "uncommon", with my occasional fixations and hobbies.

**32. How can an individual with the syndrome capitalize on the advantages, and re-formulate thoughts and behaviour around the disadvantages, to create a better life for their self and those of value to them?**

As I just said, forgetting to be "so strange" (sometime) could be a good strategy to avoid to use the Asperger's Syndrome as an excuse for not achieving our best in everything we start. On the contrary, being an Aspie can turn into an advantage too, because it helps us to stay more focused on the project we are involved in. As an example, you can think to Satoshi Tajiri, the creator of the Pokémon!

**33. Some stories come to mind about the nature of someone living with Asperger's Syndrome**

<sup>17</sup> YouTube. (n.d.). Marco Ripà. Retrieved from <https://www.youtube.com/user/marcokrt>.

**and the need for companionship. In light of this line of discussion, if I may, I will relate one narrative for a moment. Tim Page, a music critic, lives with Asperger's Syndrome, and the late Glenn Gould, had, quite probably, either autism or Asperger's Syndrome, and Page notes the loneliness for himself in a life with the syndrome and without friendship and companionship in terms of relationship with kin. Once Page met Gould, Page described that as a friendship at first sight - so to speak. Music existed as a deep passion for them and the bridge for the oft-sought friendship and companionship for them. For those in the present or the far future who happen to read this portion of the interview and live with Asperger's Syndrome, any advice to them on acquiring the kinship of mind desired by possibly some, or even most, with Asperger's Syndrome?**

It would be very hard to predict when "friendship" and/or "love" will knock at your door, but if you will keep it open no one will knock at it... thus, Asperger individuals have a good chance to open it at the right person, bearing in mind that we are hypersensitive too. I met my best friend when we were 5 years old and he is a neurotypical man, even if many people I know teasingly call me "Sheldon", referring to the famous BBT character.

**34. What does audio-visual media provide in contrast to print media for self-expression?**

I think that both of them can reach the same goal through different paths, it depends on who uses them and how he communicates to his audience. In general, the audio-visual can be a more informal way to share yourself and your character, while print media are more professional and better to communicate, technical and professional contents. To be more specific, I found YouTube very good for tutorials.

**35. What general philosophy seems the most correct to you?**

"Est modus in rebus". It is a quote by the Latin poet Horace (Quintus Horatius Flaccus) from his

"Satires 1" that resumes the idea of "Aurea Mediocritas", meaning that extremes are dangerous and it would be better to try and reach moderation in everything. This is what I would like to achieve, even if I am still far from this personal goal.

**36. What ethical philosophy seems the most correct to you?**

I have a strong set of moral and ethical values. I am aware of the fact that morality is derived from evolutionary rules of mankind looking at man as a "social animal" by nature; despite of this my keywords are: benevolence, meritocracy (in employment settings) and social justice.

**37. What political philosophy seems the most correct to you?**

Italy is well known for its food and for Mafia, so I have to put my two cents on a governance or authority able to enforce justice, laws and to establish a legal code that remains the same for every citizen.

**38. What social philosophy seems the most correct to you?**

I think that every human being should have the same opportunities: the true substantive equality is the enhancement of individuality.

**39. What economic philosophy seems the most correct to you?**

Considering the tradeoff between efficiency and equality, I would choose the second one...

**40. General moderation, and benevolence, meritocracy, and social justice grounded in evolutionary theory, and enforcement of justice, laws, and a legal code for each citizen by governance, and true equality through enhanced individualism, and a focus on economic equality. What unites these in a singular philosophical framework?**

Civilization.

Interviewer: Scott Douglas Jacobsen

Title: In-Sight: Independent Interview-Based Journal

Place of Publication: Langley, British Columbia, Canada

Name of Publisher: In-Sight Publishing

Numbering: Issue 10.A, Idea: Outliers & Outsiders (Part Six)

Individual Publication Date: January 15, 2016 (2016-01-15)

Issue Publication Date: May 1, 2016 (2016-05-01)

Frequency: Three Times Per Year

Web Domain: [www.in-sightjournal.com](http://www.in-sightjournal.com)

ISSN 2369-6885

## Abstract

**An interview with Marco Ripà. He discusses: interest in arts and culture, children, economic empowerment, human rights, education, and science and technology; accrued benefits from them; changes to the educational systems of the world; development of an educational system to provide for the needs of the gifted population; most important global problems; solutions to them; policies and economic system for “equitable redistribution”; remedies for problems of diet, fitness, and social connections; a general moral, intellectual, spiritual, and emotional progression or development; ultimate relationship between consciousness and the universe; differentiation of “mankind” from the rest of the animal kingdom; relationship of mathematics to the operation of the universe; ease of correspondence due to accident/chance, design/teleology, or an alternate possibility; reasonableness of artificial intelligence with consciousness in the near future; major organizations devoted to similar causes; Gino Strada and his wife; myths around the gifted and talented population; possible motivation for the one third of underachievers in the gifted population; truths to dispel the myths; shared concern for the gifted population, especially the young; responsibilities of the gifted population towards society and culture; reason for thinking this; argument for provision for this sector of society; person of most influence on him; personal heroes in history; personal heroes in the present; smartest person he’s ever met, Evangelos Katsioulis; most creative people he’s ever met, Manahel Thabet and Enrico Preziosi; most intelligent person to have ever lived in human history without necessary overlap with IQ; the future for gifted and talented education in Italy; best untimed, power, intelligence test; technological advancement and the gifted and talented landscape influence in education, in governmental policy, in socio-cultural life, in their definition; upcoming collaborative projects; upcoming solo projects; and near and far future for the ultra-high-IQ community.**

**Keywords:** Evangelos Katsioulis, gifted, Gino Strada, IQ, mankind, Marco Ripà, talented, ultra-high-IQ, universe, young.

## An Interview with Marco Ripà (Part Three)<sup>18,19,20,21</sup>

*\*Footnotes throughout the interview, and bibliography and citation style listing after the interview.\**

### 41. You have in interest arts and culture, children, economic empowerment, human rights, education, and science and technology.<sup>22</sup> Why these interests?

When you feel that something is wrong around you and inside you, almost every day of your life, you start to search a response, but there is no solution and every answer brings two or more

questions. An endless process, a continuous search for the unknown.

### 42. What benefits accrue from them?

Keep thinking in order to avoid what I prefer to forget, I mean: “To preserve a flexible and curious brain”, just as children do.

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<sup>19</sup> Individual Publication Date: January 15, 2016 at [www.in-sightjournal.com](http://www.in-sightjournal.com); Full Issue Publication Date: May 1, 2016 at [www.in-sightjournal.com](http://www.in-sightjournal.com).

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<sup>21</sup> Photograph courtesy of Marco Ripà.

<sup>22</sup> LinkedIn. (2015). Marco Ripà. Retrieved from <https://it.linkedin.com/pub/marco-rip%C3%A0/14/991/950>.



**43. If you could, how would you change the educational systems of the world?**

My dream would be to see an educational system that is not stereotyped, that can adapt itself to individualities, allowing pupils, children and boys to express their full potential and capabilities for the benefit of society. There should not be “better” or “worse”, just different people on the same world.

**44. In particular, how would you develop an educational system to provide for the needs of the gifted population?**

Through acceleration, curricular enrichment and curriculum compacting, this means to let the educational system be more flexible, introducing a preliminary screening for every pupil of a class. A good solution would be to combine a collective IQ test with an individual one (e.g., Raven’s Coloured Progressive Matrices with a cut-off at the 90<sup>th</sup> percentile plus WISC for pupils above 120 SD=15). You can find more info here:

<http://www.slideshare.net/marcokrt/identifying-gifted-children-and-dyslexia-early-diagnosis-risk-of-cheating-on-iq-tests>

**45. What global problems do you consider most important at the moment?**

Food. Food is life and there is a very strong link between food and global health: unfortunately this is still a massive issue for too many people around the world.

**46. How would you solve them?**

Reducing the inequality of income and wealth, forcing towards a more equitable redistribution of them, spreading the growth opportunities from the most privileged people to the forgotten ones.

**47. What policies and economic system would further this “equitable redistribution”?**

Inequality directly undermines equality of opportunities: it entrenches immobility also affecting opportunity on a daily basis, leading to inefficiency. Thus, the classic and aforementioned trade-off between equity and efficiency is not a dogma, if we can find a good approach to use the new “capabilities” for achieving and sustaining the growth. So, my favorite model is definitely Martha Naussbaum’s

theory of justice: it is focused on some fundamental capabilities, dignity and a threshold, expanding Sen’s capabilities approach.

**48. Insofar as the global health issues relate to poor diet – noted in question 46, poor fitness regimens, and poor social connections with the introduction of modern technology too, what means seem to provide the remedies for each of these problems of diet, fitness, and social connections aside from equitable redistribution?**

Informing children and their families about the risks of those “modern age mistakes”, as much as possible, would be a good starting point.

**49. If you do consider a general moral, intellectual, spiritual, and emotional progression or development, how do you view development from the basic to most advanced levels at the individual and collective level?**

This is a hard question for me and I can only guess something about living in peace as a group rather than living for ourselves looking for others approval, hoping in their envy to be recognized as “winners”. I do not know why I am here, on this strange world, nor if there exists any reason to be here, but here we are and I feel that it is important to help those who are unlucky to be proud of us. We cannot forget that we are just men, calling us “mankind”.

**50. What is the ultimate relationship between consciousness and the universe?**

Being conscious of ourselves is what makes us to feel alive. The whole universe is around and inside us: an exterminate, multidimensional, place in the pocket of a single brain.

**51. Based on personal analysis, what differentiates "mankind" from the rest of the animal kingdom?**

As Albert Einstein explained to a little child, we are smart animals, but just animals: our brain should be the key to raise mankind above animal level, and a good help was given by the opposable thumb. Unfortunately there would be a second answer to the same question: human beings are more cruel than the rest of the animal kingdom, what a big difference a smart brain makes!

**52. What explains the relationship of mathematics to the operation of the universe?**

This is the task of the philosophy of mathematics and I do not want to take away the big answer to Hilary Putnam and his heirs.

**53. Does this ease of correspondence seem based on accident/chance, design/teleology, or an alternate possibility to you?**

The only thing I can argue here is that both mathematics and the Universe seem to equipose their rules and formulas, Galois showed this with his group theory too. I like very much asymmetrical formulas such as Maxwell's equations, describing all classical electromagnetic phenomena. Electromagnetism is one of the four fundamental forces (interactions) of Nature, indeed.

**54. Does the creation of an artificial intelligence with consciousness seem reasonable in the near future?**

I do not think so, but... "Who knows?". It is very hard to predict this: I am still trying to answer to "Why am I conscious about myself?" I think about it since I was a child and I have not solved the riddle after so many years.

**55. What other major organizations devoted to similar causes can you recommend for resources and support?**

UNICEF and Emergency (an Italian humanitarian NGO founded by Gino Strada and his wife in 1994).

**56. Please expand, who are Gino Strada and his wife?**

He is a brave medical doctor (surgeon) who said about himself "I am not a pacifist: I am against war!". He and his wife, Teresa (who died in 2009), founded the humanitarian medical organization "Emergency", officially not recognized as a NGO, with the aim to provide basic medical services to civilians in many countries devastated by wars. He is also an author and he openly opposed the Italian government for its support to the NATO in a peacekeeping mission in Afghanistan (the ISAF Operation).

**57. What myths exist around the gifted and talented population?**

It is quite common to assume that a gifted person should be good at school or that he will live a happy life: on the contrary, there is about one third of the gifted population that is composed of underachievers. Moreover, too many gifted men are nihilists or depressed, feeling sad most of the time.

**58. What might motivate this one third of underachievers in the gifted population to begin to achieve to some small, or even large, degree?**

They need to find a subject to study both challenging and interesting for them, feeling good at school and inside their class. It is not easy at all to achieve such a goal, but we have to do our best in order to reduce this big loss.

**59. What truths dispel them?**

"Truth" is relative and, in my humble opinion, it would have to be declined in as many meanings as we can see different cases and situations to apply it. Gifted or not, talented or not, first we are men who dream to be accepted as we are.

**60. You share a concern of mine. In particular, the sincere desire to assist the gifted population in flourishing, especially the young. Now, many organizations provide for the needs of the moderately gifted ability sectors of the general population, most often adults and sometimes children. However, few provide for the needs of children (and adults) in the high, profound, exceptional, or 'unmeasurable' ability sectors of the general population. Some organizations and societies provide forums, retreats, journals, intelligence tests, literature, or outlets for the highest ability sub-populations. What can individuals, organizations, and societies do to provide for the gifted population?**

It is just a matter of priority: "in primis" gifted children need to be accepted and supported by their family and by their school. Thus, they need to be identified during their early childhood... I think that this would be a very good starting point. We can do more for them, such as focusing our attention on their relationships with peers, the third pillar of a gifted children development in addition to "family" and

“school” according to many experts (Monks et al.).

**61. In turn, what responsibilities do the gifted population have towards society and culture?**

If they are well-supported starting from their childhood, they will gain more chances to bring significant benefits to society contributing to science and human arts. In addition, they have to develop a deeper comprehension of mankind and the need of social justice, because they have the tools to better understand the world and the human behavior.

**62. Why do you think this?**

Because I am a gifted myself, I guess. Who knows?

**63. What argument most convinces you of the need to provide for this sector of society?**

It would be very sad to waste talent, because it is not true that gifted people always create their own opportunities if they cannot be supported by a good environment to let them grow-up in the right way. This would be a pity and a great loss for the whole society.

**64. Who most influenced you?**

When I was young, I was inspired by Dante Alighieri and Voltaire. Now that I am over 30, I still admire rebel geniuses, such as *Évariste Galois* and Friedrich *Nietzsche*.

**65. What personal heroes exist in history?**

I like very much Rostand's *Cyrano de Bergerac*, but some of my favorite historical heroes are Socrates, William Wallace, Newton, Tesla, Ettore Majorana, Mahatma Gandhi, the Tank Man and the Italian carabinieri *Salvo D'Acquisto*.

**66. What about in the present?**

Three Nobel Laureates fighting poverty for more global justice: Malala Yousafzai, Kailash Satyarthi, Amartya Sen and his “*Capability Approach*”.

**67. Who is the smartest person you've ever met?**

This is a really hard question, but, basing my guess on IQ performances only, my best choices are Evangelos Katsioulis and an Italian fellow student I met when we both attended Physics courses, his name is Sergio Simonella. I think he is a mathematician now and I remember he was really smart, a fast thinker too.

**68. Who is the most creative person you've ever met?**

Someone I see almost every time, walking next to a mirror... but I have not met a lot of people in my life. However, a couple of very creative person I met years ago are the entrepreneurs Manahel Thabet and Enrico Preziosi (owner of a famous toys brand).

**69. Who appears to be the most intelligent person to have ever lived in human history – not by necessity an overlap with IQ?**

In order to answer this question we should previously agree about a embraceable definition of “intelligence”. Anyway, could I guess “Johann Wolfgang von Goethe” instead of “Leonardo da Vinci” without making my compatriots getting angry? Perhaps it would be better to choose “the one who invented the wheel” and stay in peace.

**70. What lies in the future for gifted and talented education in Italy?**

Unfortunately, I cannot see any good news on the horizon. People keep talking about their “professional work” in this field, pushing parents to pay for a private screening, but nothing is moving in Italian children's future, gifted or not. Considering how many spots about gambling our children watch, I fear a (big) blind future for them.

**71. What untimed, power, intelligence test seems the best to you?**

My favourite untimed test for the high range is Lato's LS36, because IMHO it still remains the best Gf loaded HRT. You can find similar ideas in latest HRTs and this proves that LS36 is a great test and that newest ones can suffer from the learning contamination effect, as explained here:

<http://www.scribd.com/doc/144702702/HRTs-Big-Flaws>.

**72. How will the continued increase in the pace of technological advancement alter the gifted and talented landscape, for example, in education, in governmental policy, in socio-cultural life, in their definition, and so on?**

Looking at the Flynn effect, we could argue that the technological advancement increases people's IQ (gifted or not) as well. It is clear that computer based skills will become more and more important but, if you want to know more, I have to take the crystal ball and tie my turban.

slightly more contact with one another online through Google Glass or so, ignoring bigger problems related with food lack, resources shortage, terrorism and overpopulation. I hope there will not be a third world war and it will come true just my prediction concerning who has the highest IQ and Google Glass. Time will tell.

**Thank you for your time, Mr. Ripà.**

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**73. Any upcoming collaborative projects?**

I am currently involved in two "big" collaborative projects dealing with IQ: the first one will be an 8 hands platform to connect high IQ people and smart jobs offers, while the second one is the aforementioned implementation of the Dynamic Spatial IQ Tests. I and Roberto Enea will work on it for the most part of the 2016 in order to achieve this ambitious goal. We have already started making a prototype of the system that let us check all the transformations we are going to use for every test. This tool will let us deepen the study of the tests in order to detect error conditions (e.g., multiple solutions) and it has been developed as a stand-alone application, even if our aim is to turn it into a web application during the first step and later into a smartphone application. In the web application we are going to apply all the security features necessary to guarantee the correctness and non-hackability of the test and at the same time the privacy of the scores.

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**74. Any upcoming solo projects?**

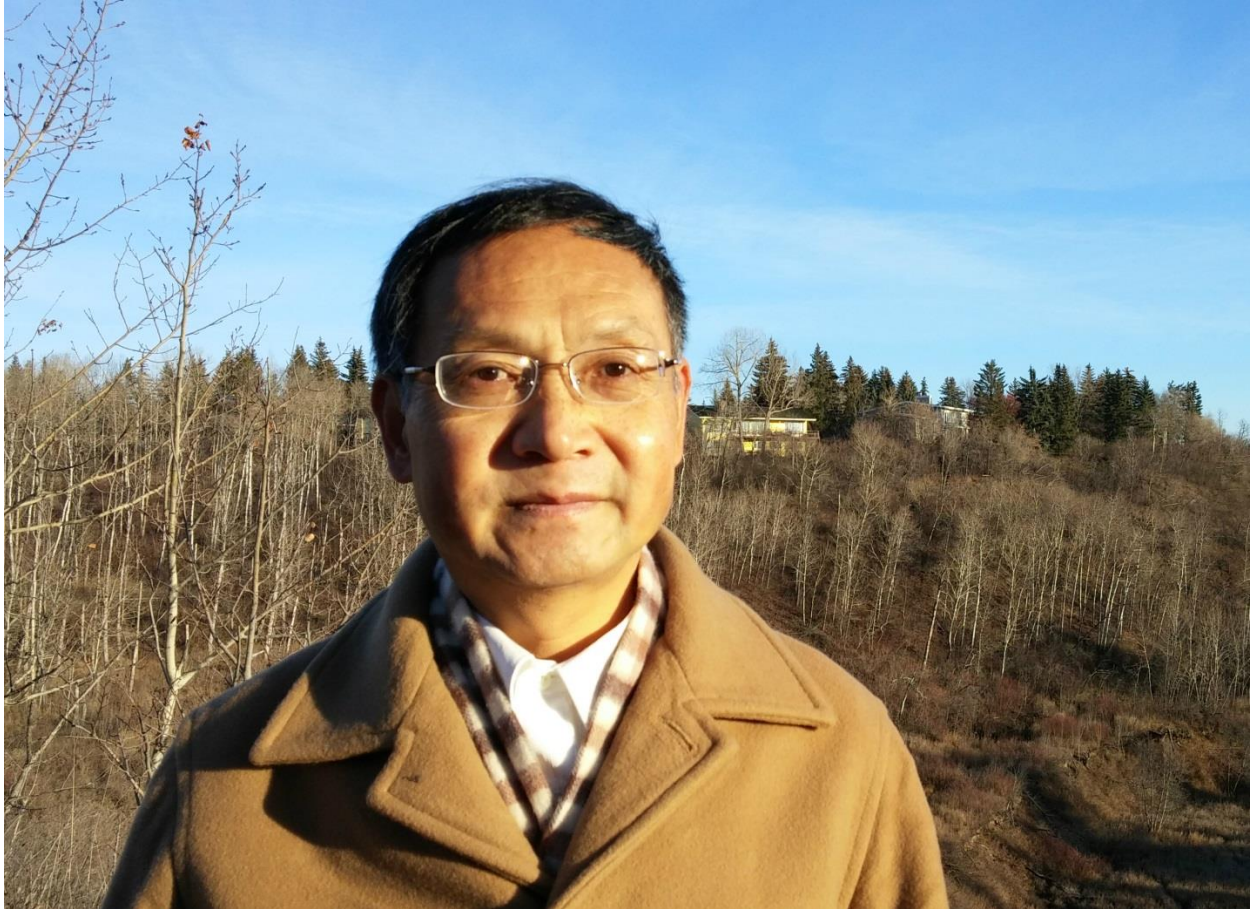
I am currently focused on my YouTube channel [<https://www.youtube.com/user/marcokrt>] and I am still working on a few math papers concerning primes and the extended "Nine Dots Puzzle" [<http://nntdm.net/volume-20-2014/number-1/59-71/>].

**75. What near and far future seems most probable for the ultra-high-IQ community?**

In the near future I think that we keep on arguing about who has the highest IQ (sometimes taking many low quality tests and reporting only the top score). Many of us will continue to quietly writing books, feeling frustrated about the small numbers of people to talk to, and probably



# Professor Junye Wang



Interviewer: Scott Douglas Jacobsen

Title: In-Sight: Independent Interview-Based Journal

Place of Publication: Langley, British Columbia, Canada

Name of Publisher: In-Sight Publishing

Numbering: Issue 10.A, Idea: Outliers & Outsiders (Part Six)

Individual Publication Date: January 22, 2016 (2016-01-22)

Issue Publication Date: May 1, 2016 (2016-05-01)

Frequency: Three Times Per Year

Web Domain: [www.in-sightjournal.com](http://www.in-sightjournal.com)

ISSN 2369-6885

## Abstract

**An interview with Professor Junye Wang. He discusses: geographic, cultural, linguistic, and family background; influence on development; influences and pivotal moments in major cross-sections of early life including kindergarten, elementary school, junior high school, high school, and undergraduate studies (college/university); origination of interest in science and technology; educators that inspired in youth; previous professional positions including research scientist at Scottish Crop Research Institute (The James Hutton Institute) from July, 2003 to November, 2004, research associate at Loughborough University from November, 2004 to February, 2008, and principal research scientist at Rothamsted Research from March, 2008 to May, 2013 and the research experience from them; greatest take-home message from these positions; responsibilities to the public with these positions; current position is professor and CAIP Research Chair at Athabasca University beginning in August, 2013 and its targeted teaching objectives in addition to duties to the public and students; research objectives and concomitant responsibilities with the CAIP Research Chair position; and implications in funding and research for the CAIP Research Chair.**

**Keywords:** Athabasca University, CAIP Research Chair, Loughborough University, Professor Junye Wang, responsibilities, Scottish Crop Research Institute.

## An Interview with Professor Junye Wang (Part One)<sup>23,24,25,26</sup>

*\*Footnotes throughout the interview, and bibliography and citation style listing after the interview.\**

### 1. In terms of geography, culture, and language, where does your family background reside?

In the late 1950s, many state farms were built in Jiangxi province, China. Thus, many educated urban youth cadres and veterans were mobilized, and sent to these state farms by the movement of “up to the mountains and down to the villages.” My parents were sent to the Comprehensive Reclamation and Cultivation Farm at Yunshan. I was born in the state farm in the year just after Great Leap Forward and “Three Bitter Years” started. My childhood was difficult, and meals were meager. Because my parents were busy with their careers, my maternal grandmother came to Yunshan to look after us children. She was not accustomed to life in Jiangxi and was missing her hometown, Shuangpai village, Lanxi, Zhejiang

province. Therefore, my grandmother brought me and my sister to travel between the hometown and the place that my parents worked. When she came to Yunshan, she brought us to Yunshan. When she came back to the hometown, I was with her to live in Shuangpai and we weren't living with my parents. Thus, I had many friends of peasant children. The peasant children were more hardship than the state farm children. Some of them had to take care of their younger brother/sisters and fed pigs because their parents had no salaries. I saw some classmates to bring their young sister or brother to school. In China, life in cities was much better than our own. My family wanted to move back to the cities from the farm. However, the great majority of those at the farm found themselves trapped in the countryside, condemned to a life of back-breaking labor, and

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<sup>24</sup> Individual Publication Date: January 22, 2016 at [www.in-sightjournal.com](http://www.in-sightjournal.com); Full Issue Publication Date: May 1, 2016 at [www.in-sightjournal.com](http://www.in-sightjournal.com).

<sup>25</sup> Ph.D. (1993 – 1996), Chemical Engineering and Mechanical Engineering, East China University of Science and Technology; M.Sc. (1986 – 1989), Aerospace, Aeronautical and Astronautical Engineering, Harbin Shipbuilding Engineering Institute.

<sup>26</sup> Photograph courtesy of Professor Junye Wang.



hoping for a recall to the city that never came. My family was the same. In Yunshan, our time there would be lengthy, perhaps permanent. The students did not need to study for both Shuangpai or Yunshan school due to the Cultural Revolution. I didn't have any forehead mark indicating that I have any special abilities, and I didn't have any opportunities to study, so my childhood and teenage years were mainly full of activities that I enjoyed, and labor work such as collecting firewood, fishing in creeks, and collecting wild fruits.

## 2. How did this influence development?

Rural youths in developing countries had fewer opportunities than those in the cities due to poor educational resources. They needed to make more of an effort as a result. However, difficult circumstances can temper one's will. I did not have a good education, but I was educated by our experiences during the Cultural Revolution and rural hardship.

## 3. What about influences and pivotal moments in major cross-sections of early life including kindergarten, elementary school, junior high school, high school, and undergraduate studies (college/university)?

I had no experiences of kindergarten. My grandmother looked after my preschool and primary school. Like those who lived in rural regions in China, their grandmothers were a housewife for cooking and looking after their grandsons and granddaughters. When I attended primary school, the Cultural Revolution broke out, and the school was changed into a forum for political propaganda. All the students in the school recited Quotations from Chairman Mao Zedong and became Little Red Guards. They criticized Capitalism and revisionism in their terms, and studied a little math, physics, and chemistry. For the rural students, they also learned weeding rice plots in Spring and rice harvest in Summer and Fall from the poor and lower-middle peasants. When I was 14 years old, I did not attend high school, but The Communist Labor University at Yunshan [John Cleverley, *In the Lap of Tigers: The Communist Labor University of Jiangxi Province*, Rowman & Littlefield Publishers (March 1 2000)]. All students in the branch worked for periods in field or forest without exception. Although, I was the youngest student in the university, no one was exceptional to undertake the heavy labor work because our

branch was on demands of students for rice production throughout. Generally, two days were in field or forest and 3 days were in class rooms like that described by John Cleverley. However, in my memory, the physical labor time on demand were much more than study time because of too many busy farming seasons, such as seeding, weeding rice plots in Spring, and harvesting rice in Summer and Fall, and building/maintaining the irrigation system and cultivating economic trees in Winter. All days were in fields except for breakfast and lunch. The rice was weeded and harvested by hand using a sickle. This was harder work: "back to the sky, face to the land." Cuts to legs and arms easily became infected and leeches followed water motion disturbed by legs to attach to bare feet scars. Despite the heavy physical work required, it did not feel hard to do these labor jobs for a rural youth. As a student who was major in the forest, I was also required to cultivate trees in Winter and Spring. Also, we studied basic soil sciences and forest surveys. Studying English would have been impossible because that was realized to be impractical. After I graduated from the University in early 1976, I was assigned to do a similar job. Therefore, what I regret most is that I didn't get a good education in my teenage years, there is a best age for studying, and we missed it. That was the torrent of the times, you couldn't resist it. We have to let history judge.

In 1977, the National Higher Education Entrance Examination was officially restored as the traditional examination based on academics. Like most of the hopefuls who had accumulated during the ten years of the Cultural Revolution, I simply wanted to try my luck to emerge from society for the examination. Due to my poor school education, I failed in 1977 and then I had a distinction in the national examination in 1978. I entered the College of Jiangxi Electric Power to study thermal energy and power engineering for a three-year technical college diploma. The examination was highly competitive and admission rate in both 1977 and 1978. In late 1970s, the admission rates were much low in the history of the People's Republic of China (PRC). We treasured the college years, and we studied harder than the current generation of students. After I graduated, I was assigned to Jiujiang Power Plant, where I worked for 5 years. Although, I was satisfied with my job. I had a dream of higher education in a prestigious university. Thus, I started to be a self-learner by studying university courses for the National Postgraduate Entrance Examination, which was

highly competitive too. I needed to study until midnight every day because I had a full-time job. I faced numerous challenges. For example, I needed a university curriculum and syllabus that I could follow, and then I could buy textbooks. Furthermore, a diploma student was not eligible to participate in the National Postgraduate Entrance Examination, except for an approval letter from your company. However, this was not easy to have such a letter from your units. After I failed twice, I had a distinction in National Postgraduate Entrance Examination in 1986. Particularly, I earned the highest score in the Advanced Mathematics examination among all participants in the Harbin Shipbuilding Engineering Institute (Harbin Engineering Institute). As an exception of diploma students, I was admitted to the Master's program by the Institute history under direction of my first supervisor, Prof. Bingcheng Sang. The institute admitted a first by being the 1st to give the Master's admission to a technical diploma student. I started my research project on laser measurement of propellant combustion. I became confident after National Postgraduate Entrance Examination. I found myself capable of doing things that other students thought were impossible. It might be important that I found effective and efficient learning methods.

#### 4. Where did interest in science and technology originate for you?

My original interests were in engineering, particularly energy engineering, which originated from problem-solving. Energy engineering is certainly an old science that constitutes multiple areas of special interest in this respect, since the most important theoretical issues and the contentious relations with other sciences are clear. However, energy issues could not be solved by a single discipline of energy science and technology itself. Environmental pollution and sustainability are closely related to energy consumption, security and technology development. Thus, because of the adaptability to such an interdisciplinary issue, some profound changes have taken place, which leads to my transformations from energy to environment and sustainability. With regard to these transformations, many traditional disciplinary boundaries should be broken as the interdisciplinary nature. Therefore, my motives

for the interdisciplinary research are to transform and integrate in my research when faced complex problems with conceptual and methodological changes. This adaptability is for the problems of today, and out of an interest for the past unrelated to present-day concerns from within the discipline itself or from a more general starting point.

#### 5. Any key educators which inspired you in youth?

I grew up in a cultural revolution. In this special era, knowledge is nothing and education is not useful. However, my grandmother and mother believed in the importance of education. Though I did not agree with them in my childhood and youth, I realized the importance of the education as I grew up. In the latter 1970s and 1980s, only knowledge could change your fate for the rural youths in China. Higher education was a unique way that a Chinese youth could move to a city from the countryside.

#### 6. You held previous professional positions including research scientist at Scottish Crop Research Institute (The James Hutton Institute) from July, 2003 to November, 2004, research associate at Loughborough University from November, 2004 to February, 2008, and principal research scientist at Rothamsted Research from March, 2008 to May, 2013.<sup>27</sup> What research experience came from these professional experiences?

In these jobs, I worked on different problems from chemical engineering, aeronautical engineering to biogeochemical processes in agroecosystems using analytical, numerical and experimental approaches. I have acquired the experiences of various modelling methods, from high-resolution numerical approaches such as the lattice Boltzmann method (LBM) and computational fluid dynamics (CFD) (e.g., PHYSICA multi-physics package and the Rolls-Royce HYDRA CFD code) to process-based models of agroecosystems (e.g., DNDC and Roth-C). As a professional modeler, I am deeply familiar with a variety of numerical methods and have an exceptional ability to select the most suitable approach for a specific real-world problem and to integrate numerical methods for their mutual enhancement in modelling. Particularly, my

<sup>27</sup> LinkedIn. (2015). Junye Wang. Retrieved from <https://ca.linkedin.com/pub/junye-wang/15/a87/a87>.

experiences on multidiscipline lead to rethinking about the problem of today. As mentioned in Question 4, these experiences allow me to adopt a whole systems approach to complex watershed modelling. Our emphasis is on interdisciplinary and multiscale research and integration to support systematic, quantitative and comprehensive clarification of concepts and assumptions as we study the problems of sustainable resource development and management.

**7. What were the greatest take-home messages which came from these positions?**

Persistent efforts, keep going, do not give up, and fight to the end.

**8. What responsibilities to the public came from these positions?**

The Athabasca River Basin (ARB) is an ecologically and economically significant resource for the development and sustainability of northern Alberta communities. This oil sand resource helps establish Canada as a stable, dependable source of oil and natural gas for national and international markets. However, concerns over the extraction and management of this resource are causing public resistance from citizens and stakeholders because of the potential dangers, such as water contamination, toxic and known carcinogens from flow-back.

My basic research on multi-scale and multidisciplinary modelling will benefit Albertans and Canadians by leading to integrated watershed management, and recommendations for land- and water-use decisions for sustainable development of northern Alberta communities.

**9. Your current position is professor and CAIP Research Chair at Athabasca University beginning in August, 2013.<sup>28</sup> What does the professorship include in terms of targeted teaching objectives? What duties to the public and students comes with this prestige?**

As a CAIP Chair, I promote research-driven teaching and learning at AU. A cutting-edge research project is usually an example to face various challenges. Thus, it is an excellent opportunity for students to acquire skills of critical thinking and problem-solving through the

real problems-driven learning. Through the cutting-edge research, research students can be involved in discussions by asking interesting questions on the project or by facing challenging concepts and sometimes paradoxes from the real world. Particularly many cutting-edge research projects require teamwork, which helps students view different problems from different perspectives and disciplines. This program is to provide a hub for student training in multidisciplinary collaboration and one of the main outcomes will be the delivery of highly trained researchers, including postdoctoral research fellows, visiting scholars, graduate students and technical staff who will undertake cutting edge science, with specific training in computational modelling, experimental design, biogeochemistry, microbiology, integrating qualitative and quantitative data, statistical analyses, report writing and presentation of research.

**10. What about research objectives in addition to concomitant responsibilities with the CAIP Research Chair position?**

The Athabasca River Basin (ARB) is a natural resource, and its sustainable resource development is a priority of the 2012 Alberta Research & Innovation Plan. Alberta's Water for Life Strategy and Land-use Framework include the necessity of managing cumulative effects from both agricultural and oilsands industrial activity in the ARB. Athabasca University's research foci and expertise align closely with these provincial priorities. It is essential for Canada's and Alberta's competitiveness to take advantage of available resources and to have the knowledge and technology to perform complex quantitative simulations of integrated terrestrial and aquatic systems. The CAIP Chair research program is to establish a modelling framework of integrated terrestrial and aquatic systems through coupled biogeochemical and hydrological processes so that we can directly simulate dynamics of nutrients, water and pollutants in the ARB, as well as GHGs. This is currently a significant knowledge gap, and therefore will generate new evidence to increase understanding of non-point source pollution and to develop improved technologies to mitigate GHGs and toxic pollutants, thereby providing a new tool of land-use management and decision-making for

<sup>28</sup> LinkedIn. (2015). Junye Wang. Retrieved from <https://ca.linkedin.com/pub/junye-wang/15/a87/a87>.

managing and protecting watersheds. This information could then be used to develop 'Opportunity Mapping for Optimised Resource Development in the Athabasca River Basin,' a concept which the program will demonstrate. In the long-term, such spatially-resolved data will provide a framework and methodology for those interested in delivering a low-carbon economy, sustainable resource development and climate change that can be adapted to other river basins and industries in Canada and beyond and will thus be of wide significance.

**11. What does the CAIP Research Chair implicate – in funding and research?**

Alberta is really interesting, particularly the Athabasca River basin, because there is no other place that has to deal with water, oilsands, agriculture, environment and sustainability. My basic research on multi-scale and multidisciplinary modelling will benefit Albertans and Canadians by leading to integrated watershed management, and recommendations for land- and water-use decisions. The CAIP program provides long-term funding. This allows me to focus on development of an ambitious framework: the modelling framework of integrated terrestrial and aquatic systems.

Interviewer: Scott Douglas Jacobsen  
 Title: In-Sight: Independent Interview-Based Journal  
 Place of Publication: Langley, British Columbia, Canada  
 Name of Publisher: In-Sight Publishing  
 Numbering: Issue 10.A, Idea: Outliers & Outsiders (Part Six)  
 Individual Publication Date: February 1, 2016 (2016-02-01)  
 Issue Publication Date: May 1, 2016 (2016-05-01)  
 Frequency: Three Times Per Year  
 Web Domain: [www.in-sightjournal.com](http://www.in-sightjournal.com)  
**ISSN 2369-6885**

### Abstract

**An interview with Professor Junye Wang. He discusses: most effective means of teaching students through an online education; benefits to the professor-researcher; LinkedIn self-description and breadth of experience brought to Athabasca University; unifying theme for select research articles; *Domain-decomposition method for parallel lattice Boltzmann simulation of incompressible flow in porous media* (2005); pragmatic implications for implementation to research on the Athabasca River Basin; *Flow simulation in a complex fluidics using three turbulence models and unstructured grids* (2009); *Development and application of a detailed inventory framework for estimating nitrous oxide and methane emissions from agriculture* (2011); extrapolations about average annual emissions in the United Kingdom 2011 to the present and in the next decade; *Theory of flow distribution in manifolds* (2011); greater generality create more or less functionality; *Discrete approach for flow field designs of parallel channel configurations in fuel cells* (2012); and *Modelling nitrous oxide emissions from grazed grassland systems* (2012).**

**Keywords:** Athabasca River Basin, Athabasca University, CAIP Research Chair, LinkedIn, Professor Junye Wang.

### An Interview with Professor Junye Wang (Part Two)<sup>29,30,31,32</sup>

*\*Footnotes throughout the interview, and bibliography and citation style listing after the interview.\**

#### 12. What is the most effective means of teaching students through an online institution such as Athabasca University?

E-learning, digital course, and distance learning has been very important part of higher education. An online course could aim at unlimited participation and open access via the web. In addition to traditional course materials such as filmed lectures, readings, and problem sets, a massive open online course can provide interactive user forums to support community interactions between students, professors, and teaching tutors. AU is internationally a leader in open and distance education. AU is dedicated to the removal of barriers that restrict access to and success in university-level study and to increasing equality of educational opportunity for adult learners worldwide through widely researched

development in distance education, such as mobile learning, multi-media, and online activities.

#### 13. What benefits come to the professor-researcher such as yourself?

My basic research is on multi-scale and multidisciplinary modelling. The CAIP program provides long-term funding so that I can focus on development of an ambitious framework: the modelling framework of integrated terrestrial and aquatic systems.

#### 14. According to LinkedIn, circa 2015, you self-describe, as follows:

*Junye's research mainly focus on energy, environment and sustainability. [He] has*

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<sup>30</sup> Individual Publication Date: February 1, 2016 at [www.in-sightjournal.com](http://www.in-sightjournal.com); Full Issue Publication Date: May 1, 2016 at [www.in-sightjournal.com](http://www.in-sightjournal.com).

<sup>31</sup> Ph.D. (1993 – 1996), Chemical Engineering and Mechanical Engineering, East China University of Science and Technology; M.Sc. (1986 – 1989), Aerospace, Aeronautical and Astronautical Engineering, Harbin Shipbuilding Engineering Institute.

<sup>32</sup> Photograph courtesy of Professor Junye Wang.



over 30 year experience of multi-scale and multidisciplinary modeling and is internationally recognized as a leader in energy, environment and sustainability. His research program is aimed at integrating agroecosystem, land use change and Geographic Information System (GIS) to assess environmental impacts of expanding biogas, bioenergy crops and land use change with emphasis on their interactions. He has developed various modeling and simulation of various physical, chemical and biological systems using various numerical and empirical approaches, such as lattice Boltzmann method (LBM) and computational fluid dynamics (CFD) and agroecosystem modelling (IPCC and process-based approaches) with a broad range of applications, such as agroecosystems, soil carbon sequestration, greenhouse gas emission and mitigation, nutrient cycling, water and hydrology, fuel cells/microbial fuel cells, thermofluid systems, porous media and bioenergy. His researches were highlighted by governments and organisations, such as European Commission in Science for Environment Policy, Earth Emphasis and Renewable Energy Global Innovation. He looks to expand capacity of agroecosystem modeling and computational sustainability to develop an integrated framework for assessment of environmental impacts of unconventional oil and gas (oil sands and hydraulic fracturing) production on agroecosystem and identify key factors of the cumulative effects for watershed management across Alberta and Canada. He has authored about 50 refereed journal papers and serves associate editor and editorial board member of several international journals. He is a reviewer of papers for about 40 journals and a reviewer of proposals and final reports for three research councils in the UK (EPSRC, NERC and ESRC).<sup>33</sup>

#### **What does this breadth of experience bring to the educational and research work at Athabasca University?**

A river basin is a complex system of physical, chemical and biological processes. Any single method is insufficient to build such an ambitious

research hub and infrastructure. It is necessary to integrate multiple approaches and disciplines for establishing a relationship between physical, chemical and biological processes that reflects real-world problems. I have the unique background and experience of various modelling methods, from high-resolution numerical approaches such as the lattice Boltzmann method (LBM) and computational fluid dynamics (CFD) (e.g., PHYSICA multi-physics package and the Rolls-Royce HYDRA CFD code) to process-based models (e.g., DNDC and Roth-C). As a professional modeller, I have a strong experience of a variety of numerical methods and an exceptional ability to select the most suitable approach for a specific real-world problem and to integrate numerical methods for their mutual enhancement. Thus, my expertise and experience make it easier to adopt a whole systems approach and multidisciplinary collaboration to study dynamic interactions of nutrients, water, energy, pollutants, human activities and land-use management in river basin research. On the other hand, my experience and expertise in multidisciplinary and interdisciplinary integration and collaboration, can promote research-driven teaching and learning at AU. A cutting-edge research usually requires students to face various challenges. Thus, it is an excellent opportunity for students to acquire skills of critical thinking and problem-solving through the real problems-driven learning.

15. **You have authored a number of articles including *Domain-decomposition method for parallel lattice Boltzmann simulation of incompressible flow in porous media* (2005), *Flow simulation in a complex fluidics using three turbulence models and unstructured grids* (2009), *Development and application of a detailed inventory framework for estimating nitrous oxide and methane emissions from agriculture* (2011), *Theory of flow distribution in manifolds* (2011), *Modelling nitrous oxide emissions from grazed grassland systems* (2012), *Discrete approach for flow field designs of parallel channel configurations in fuel cells* (2012), *Pressure drop and flow distribution in a mini-hydrocyclone group: UU-type parallel arrangement* <sup>(2013)</sup>, *Barriers of scaling-up fuel cells: Cost, durability and reliability* (2015), and *Theory and practice of flow field designs for fuel cell scaling-up: A critical review***

<sup>33</sup> LinkedIn. (2015). Junye Wang. Retrieved from <https://ca.linkedin.com/pub/junye-wang/15/a87/a87>.



(2015)<sup>34,35,36,37,38,39,40,41,42</sup> **Before exploration of these particular articles, what core theme unites these research articles, and, more generally, their respective topics and sub-topics?**

These articles are on various topics from chemical engineering and energy, to environment and biogeochemical processes. A core theme is on energy, environment and sustainability. The world consists of fluid and solid. Despite very different phenomena in the real world, they are all essentially interactions between fluids, solids or fluid and solid, which are controlled by three transports (mass, energy and momentum) and two reactions (chemical and biological). These articles are to establish relationships between the three transports and the two reactions for different real-world problems using various analytical and numerical methods.

**16. Domain-decomposition method for parallel lattice Boltzmann simulation of incompressible flow in porous media (2005) describes the lattice Boltzmann method for the simulation of flow in porous media, and a “cell-based domain-decompositions method for the parallel lattice Boltzmann simulation of flow in porous media.”<sup>43</sup> It relates to parallel or high performance computation. What are the advantages in this method? How was this cell-based domain-decompositions method utilized in this paper?**

A personal computer does not have capacities to complete a large scale simulation in time. Parallel computation is a type of computation in which a big job of simulation is divided uniformly into

many smaller ones. Then, these smaller jobs are distributed on many CPUs. Thus, many calculations are carried out simultaneously, operating on the principle that each CPU takes approximate job load. Therefore, it is central in the parallel computation how a big job is divided uniformly into many smaller ones, which is called “domain-decompositions.” The algorithm of the cell based domain decomposition is a generalized method of domain-decompositions for complex geometries. It has the following advantages: i) automatically decomposes a complex flow domain, ii) optimizes computer memory using sparse matrix that only store fluid cells, iii) exact load balance, iv) simple communication pattern and nearest communication connection among processors, and v) high parallel efficiency in agreement with the theoretical efficiency. Therefore, the algorithm is flexible, efficient and reliable for modeling flow in any complex geometry and is superior to other similar methods for complex geometries.

**17. What seem like some of the pragmatic implications for implementation to research on the Athabasca River Basin?**

Ensuring sustainable resource development is a top priority of Alberta strategic plans. The development of next generation modeling tools is key to drive new and deeper understanding in terrestrial and aquatic systems for sustainable resource management. Such an analysis of the real system such as the Athabasca River Basin based on the multidisciplinary and interdisciplinary research and integration will enforce systematic, quantitative and comprehensive clarification of concepts and assumptions and impose rational

<sup>34</sup> Wang, J., Zhang, X., Bengough, A. G., & Crawford, J. W. (2005). Domain-decomposition method for parallel lattice Boltzmann simulation of incompressible flow in porous media. *Physical Review. E, Statistical, Nonlinear, And Soft Matter Physics*, 72(1 Pt 2), 016706.

<sup>35</sup> Junye, W., & Geoffrey H., P. (2009). Flow simulation in a complex fluidics using three turbulence models and unstructured grids. *International Journal Of Numerical Methods For Heat & Fluid Flow*, 19(3/4), 484-500.

<sup>36</sup> Wang, J., Cardenas, L. M., Misselbrook, T. H., & Gilhespy, S. (2011). Development and application of a detailed inventory framework for estimating nitrous oxide and methane emissions from agriculture. *Atmospheric Environment*, 45(7), 1454-1463. doi:10.1016/j.atmosenv.2010.12.014

<sup>37</sup> Wang, J. (2011). Theory of flow distribution in manifolds. *Chemical Engineering Journal*, 168(3), 1331-1345. doi:10.1016/j.cej.2011.02.050

<sup>38</sup> Wang, J., Cardenas, L. M., Misselbrook, T. H., Cuttle, S., Thorman, R. E., & Li, C. (2012). Modelling nitrous oxide emissions from grazed grassland systems. *Environmental Pollution*, 162223-233. doi:10.1016/j.envpol.2011.11.027

<sup>39</sup> Wang, J., & Wang, H. (2012). Discrete approach for flow field designs of parallel channel configurations in fuel cells. *International Journal Of Hydrogen Energy*, 37(14), 10881-10897. doi:10.1016/j.ijhydene.2012.04.034

<sup>40</sup> Huang, C., Wang, J., Wang, J., Chen, C., & Wang, H. (2013). Pressure drop and flow distribution in a mini-hydrocyclone group: UU-type parallel arrangement. *Separation & Purification Technology*, 103139-150. doi:10.1016/j.seppur.2012.10.030

<sup>41</sup> Wang, J. (2015). Barriers of scaling-up fuel cells: Cost, durability and reliability. *Energy*, 80509-521. doi:10.1016/j.energy.2014.12.007

<sup>42</sup> Wang, J. (2015). Theory and practice of flow field designs for fuel cell scaling-up: A critical review. *Applied Energy*, 157640-663. doi:10.1016/j.apenergy.2015.01.032

<sup>43</sup> Wang, J., Zhang, X., Bengough, A. G., & Crawford, J. W. (2005). Domain-decomposition method for parallel lattice Boltzmann simulation of incompressible flow in porous media. *Physical Review. E, Statistical, Nonlinear, And Soft Matter Physics*, 72(1 Pt 2), 016706.

methods for approaching the problem of sustainable resource development and management in a river basin. It is likely that the research results will offer new approaches and improved technologies to achieve sustainable resource development and management in the Athabasca River Basin system.

- 18. *Flow simulation in a complex fluidics using three turbulence models and unstructured grids* (2009) aimed to simulate “symmetrical turn-up vortex amplifier (STuVA)” for the maximal flow-rate of an “eight-port STuVA.”<sup>44</sup> The paper described the utilization for the methodology as 3 turbulence models known as the standard k-epsilon", the renormalization group (RNG) k-epsilon " model and the Reynolds stress model (RSM)"; wherein, each of them has simulated flow in an eight-port STuVA for maximum flow minus swirling in the flow. From this, the article compared, or better contrasted, with the flow rate in ambient conditions. RSM appeared to match the experimental observations and measurements more than RNG and the standard k-epsilon models. How can research in different models of flow rate be utilized in the Athabasca River Basin – in practical terms?**

Fluid mechanics is fundamental to studies of hydrological processes. The computational fluid dynamics (CFD) is a high-resolution method of fluid mechanics to simulate three transports (mass, energy and momentum) and two reactions (chemical and biological). Though the background of this article is on STuVA, the three turbulence models and numerical algorithms of the CFD in this paper are the same as those of various industrial and hydrological problems. In practice, there have been many applications of the CFD in hydrological modelling, such as coast wave modelling, flooding and flume diffusion. Therefore, the CFD is not unsuitable for the watershed modelling but computers lack sufficient power and memory. At least the numerical treatments and algorithms of the CFD can inspire our thinking in the watershed modelling during simplifying hydrological models.

<sup>44</sup> Junye, W., & Geoffrey H., P. (2009). Flow simulation in a complex fluidics using three turbulence models and unstructured grids. *International Journal Of Numerical Methods For Heat & Fluid Flow*, 19(3/4), 484-500.

<sup>45</sup> Wang, J., Cardenas, L. M., Misselbrook, T. H., & Gilhespy, S. (2011). Development and application of a detailed inventory

- 19. *In Development and application of a detailed inventory framework for estimating nitrous oxide and methane emissions from agriculture* (2011)<sup>20</sup>, the team utilized Intergovernmental Panel on Climate Change (IPCC) default or country-specific emission factors (EFs) with census data from England, Northern Ireland, Scotland, and Wales to develop a detailed inventory framework for the estimation of nitrous oxide (N<sub>2</sub>O) and methane (CH<sub>4</sub>).<sup>45</sup> This framework was used to calculate the mean annual emissions of CH<sub>4</sub> and N<sub>2</sub>O from crops and livestock, as well as leaching or runoff for nations bound within the United Kingdom. What other findings came from this research?**

The UK ratified the United Nations Framework Convention on Climate Change (UNFCCC) in December 1993 and the Convention came into force in March 1994. Parties to the Convention are committed to developing, publishing and regularly updating national inventories of GHG emissions. The inventory framework was constructed to resolve local differences and regional heterogeneity. Thus, local-level EFs were replaced easily using either local-specific EFs (Tier 2) or more complex ones from process-based models (Tier 3). Here we demonstrated a capability of the present framework for the estimate of a national inventory with four country-level resolution. The emissions from England, Wales, Scotland and Northern Ireland, were estimated separately using the IPCC approach. The total emission from the four countries was aggregated to the U.K. national total. Although the framework was illustrated using four country-level data, it is easy to be extended to higher resolution without any code structural change. Furthermore, it is ready to integrate with Geographic Information System (GIS) to resolve spatial variation and map emissions pattern.

- 20. *What extrapolations remain relevant to the current condition of average annual emissions in the United Kingdom from 2011 to the present, and in the next decade?*<sup>46</sup>**

framework for estimating nitrous oxide and methane emissions from agriculture. *Atmospheric Environment*, 45(7), 1454-1463. doi:10.1016/j.atmosenv.2010.12.014

<sup>46</sup> Wang, J., Cardenas, L. M., Misselbrook, T. H., & Gilhespy, S. (2011). Development and application of a detailed inventory framework for estimating nitrous oxide and methane emissions

The IPCC inventory approach is simple, comparable, transparent and global coverage for estimate of GHG inventory. The IPCC inventory is based on statistical approach to report national greenhouse gas (GHG) with a view to providing internationally acceptable inventory methodologies. Therefore, the IPCC inventory is not for prediction of GHGs but for reporting national GHG emissions though IPCC inventory allows different policy options and different land-use to be compared and to be evaluated.

- 21. *Theory of flow distribution in manifolds* (2011) delineates the theory of flow distribution and pressure drop in the prediction of dynamic performance and efficiency for manifold systems which occurred within the methodological and the theoretical models.<sup>47</sup> The paper unified existing models, momentum theory, Bernoulli theory, and discrete & continuum models – a novel generalised model without a concomitant neologism. End result: a user-friendly design tool to evaluate the interaction among structures, operational conditions, and manufacture “tolerance.” Could this model become more generalized through incorporation of more (disparate) models?**

Flow distribution in manifolds is fundamental issue of fluid mechanics and encounters in a wide range of areas, from radial flow reactors in chemical engineering and boiler header in mechanical engineering, to fuel cells in energy engineering and irrigation in agricultural engineering. In the past fifty years, hundreds of different models have been developed for flow distribution in manifolds that are scattered in different areas. However, some models are empirical and most of all the existing models are only suitable for some specific flow region or specific manifold structure. A generalized theory is suitable for all the flow conditions and more general manifold structure, but it is a well-known challenge to develop a generalized theory in the past fifty years. The point is not to incorporate more models in manifolds, but to solve the

practical problem of flow distributions. This theory has included the main models and methods that have been developed in the past fifty years. In other words, these existing models and methods become a special case of this generalized theory.

- 22. *Would this greater generality create more or less functionality?***

No, this generality is not to create more or less functionality, but to be useful for more structures and operating conditions.

- 23. *In Discrete approach for flow field designs of parallel channel configurations in fuel cells* (2012), the paper describes the difficulty, the problem, in transformation of single, or multiple, laboratory scale fuel cells into industrial scale production for mass utility, which involves a number of problems to maintain “throughput, operating life, low cost, reliability and high efficiency in R&D of fuel cells.”<sup>48</sup> You intended the research to find a uniform flow distribution and pressure drop in a homogenous, or parallel, set of channel setups, or “configurations.”<sup>49</sup> How did the “present approach” improve upon the performance of “different layout configurations, structures, and flow conditions”?<sup>50</sup>**

The upscaling of fuel cells is based on a basic assumption of repeat units that a successful cell performance can be repeated by all other cells in the stack since they use the same materials, seals, catalyst and structures, and undertake the same electrochemical processes. This means that the issues of chemistry, materials, water, and heat have been solved in a single cell scale. For this type of designs using repeat units, the uniformity of the flow distribution in a manifold system often determines efficiency, durability and cost of the unit stack. Under the ideal operating conditions, the electrochemical reaction is uniform over all the cells and the efficiency of the fuel cell stack is the highest and its reliability and durability is comparable to that of its individual cell.

from agriculture. *Atmospheric Environment*, 45(7), 1454-1463. doi:10.1016/j.atmosenv.2010.12.014

<sup>47</sup> Wang, J. (2011). Theory of flow distribution in manifolds. *Chemical Engineering Journal*, 168(3), 1331-1345. doi:10.1016/j.cej.2011.02.050

<sup>48</sup> Wang, J., & Wang, H. (2012). Discrete approach for flow field designs of parallel channel configurations in fuel cells. *International Journal Of Hydrogen Energy*, 37(14), 10881-10897. doi:10.1016/j.ijhydene.2012.04.034

<sup>49</sup> Wang, J., & Wang, H. (2012). Discrete approach for flow field designs of parallel channel configurations in fuel cells. *International Journal Of Hydrogen Energy*, 37(14), 10881-10897. doi:10.1016/j.ijhydene.2012.04.034

<sup>50</sup> Wang, J., & Wang, H. (2012). Discrete approach for flow field designs of parallel channel configurations in fuel cells. *International Journal Of Hydrogen Energy*, 37(14), 10881-10897. doi:10.1016/j.ijhydene.2012.04.034

Therefore, the development of the theoretical model is to evaluate if the performance of a successful cell is repeated by all other cells in the fuel cell stack and if all the cells in the stack

operate in the same operating conditions, such as flow rates and pressure drops. Thus, a design can be improved by optimization of flow conditions and structure.

Interviewer: Scott Douglas Jacobsen

Title: In-Sight: Independent Interview-Based Journal

Place of Publication: Langley, British Columbia, Canada

Name of Publisher: In-Sight Publishing

Numbering: Issue 10.A, Idea: Outliers & Outsiders (Part Six)

Individual Publication Date: February 8, 2016 (2016-02-08)

Issue Publication Date: May 1, 2016 (2016-05-01)

Frequency: Three Times Per Year

Web Domain: [www.in-sightjournal.com](http://www.in-sightjournal.com)

ISSN 2369-6885

## Abstract

**An interview with Professor Junye Wang. He discusses: *Modelling nitrous oxide emissions from grazed grassland systems* (2012); *Pressure drop and flow distribution in a mini-hydrocyclone group: UU-type parallel arrangement* (2013); utilization of findings for commercial and industrial applications; *Barriers of scaling-up fuel cells: Cost, durability and reliability* (2015); most probable future for commercialization and industrialization of fuel cells in Athabasca, Alberta, and Canada; *Theory and practice of flow field designs for fuel cell scaling-up: A critical review* (2015); inter-relationship of CAIP Research Chair position, the Athabasca River Basin and Alberta, and the commercialization and industrialization of productions such as fuel cells from the laboratory scale of production; environmental impacts of the oil sands; environmental impacts of hydraulic fracturing; and top three energy sources for the next 10, 25, and 100 years.**

**Keywords:** Alberta, Athabasca River Basin, Athabasca University, CAIP Research Chair, commercial, fuel cells, industrial, LinkedIn, oil sands, Professor Junye Wang.

## An Interview with Professor Junye Wang (Part Three)<sup>51,52,53,54</sup>

*\*Footnotes throughout the interview, and bibliography and citation style listing after the interview.\**

**24. In *Modelling nitrous oxide emissions from grazed grassland systems* (2012), the paper describes the grazed grassland systems and their role in the global carbon cycle in addition to influence on global climate change based in the identical emissions types from *Development and application of a detailed inventory framework for estimating nitrous oxide and methane emissions from agriculture* (2011) – namely: nitrous oxide and methane.<sup>55</sup> You, and others, note the uncertainty involved in the parameterisation of process-based, or dynamic, models for grazed grassland systems, which emerges out of the enormous biodiversity of flora and fauna in these grassland systems that are grazed. Insofar as the descriptive models are concerned, the dynamic models work in the United Kingdom,**

**the DeNitrification-DeComposition (DNDC) or the “process-based biogeochemistry model” was used there.<sup>56</sup> What did the paper discover about the observations and its correspondence with the model?**

The IPCC inventory methodology (Question 19 and 20) is a practical, first-order approach that uses simple default emission factors (EFs) and addresses the anthropogenic effects on sources and sinks of GHGs using a series of default EFs. However, emissions from livestock depend on a range of factors, such as animal type, their weight and age, proportion of time spent grazing, type of animal housing, type of manure and its storage and application, weather and soil type. The variability of all these control EFs, both in time and space, results in very heterogeneous GHG

<sup>51</sup> Professor and CAIP Chair, Science and Technology, Athabasca University.

<sup>52</sup> Individual Publication Date: February 8, 2016 at [www.in-sightjournal.com](http://www.in-sightjournal.com); Full Issue Publication Date: May 1, 2016 at [www.in-sightjournal.com](http://www.in-sightjournal.com).

<sup>53</sup> Ph.D. (1993 – 1996), Chemical Engineering and Mechanical Engineering, East China University of Science and Technology; M.Sc. (1986 – 1989), Aerospace, Aeronautical and Astronautical Engineering, Harbin Shipbuilding Engineering Institute.

<sup>54</sup> Photograph courtesy of Professor Junye Wang.

<sup>55</sup> Wang, J., Cardenas, L. M., Misselbrook, T. H., Cuttle, S., Thorman, R. E., & Li, C. (2012). Modelling nitrous oxide emissions from grazed grassland systems. *Environmental Pollution*, 162223-233. doi:10.1016/j.envpol.2011.11.027

<sup>56</sup> Wang, J., Cardenas, L. M., Misselbrook, T. H., Cuttle, S., Thorman, R. E., & Li, C. (2012). Modelling nitrous oxide emissions from grazed grassland systems. *Environmental Pollution*, 162223-233. doi:10.1016/j.envpol.2011.11.027



emissions. To contribute towards more reliable estimates of N<sub>2</sub>O emissions from grazing systems, the process-based model and its corresponding validation technology in the UK were developed to provide a useful tool for integrating our knowledge of key processes and driving variables to estimate N and C trace gas emissions from grazed pastures.

The model generally captured the timing and intensity of N<sub>2</sub>O pulses following rainfall, N fertilizer application or grazing events. The results imply that the external parameters used as inputs to run UK-DNDC take into account the main factors dominating variations of N<sub>2</sub>O emissions from the grazed plots. However, discrepancies exist between the modelled results and observations. For example, the model missed some observed high peaks of N<sub>2</sub>O emissions, especially the high peaks related to the high fertilizer rates and grazing intensity at the Cae Banadl site. Future improvements in the scientific processes of the model could provide opportunities to reduce the uncertainties in modelling N<sub>2</sub>O emissions from grazing systems. Understanding the uncertainties or challenges is critically important for us to accurately address questions regarding the impact of land-management practices and future climate changes on GHG emissions.

- 25. Pressure drop and flow distribution in a mini-hydrocyclone group: UU-type parallel arrangement** <sup>(2013)</sup> describes miniature hydrocyclones based on the advantages for increased “separation precision, low cost, easy operation and high stability,” where the single or multiple mini-hydro-cyclones need linkage in parallel for industrial utilization.<sup>57</sup> Of course, the article describes the great difficulty in the development of parallel single and multiple miniature hydro-cyclones for industrial application. The paper provides a general mathematical model for these parallel miniature hydro-cyclones known as the UU-type parallel mini-hydro-cyclone group.<sup>58</sup> What did the results of the research show about the parallelization of the UU-type?

Hydrocyclone separation technology has been widely applied in petroleum refining, petrochemical industry, coal liquefaction, coal separation, natural gas purification, methanol-to-olefin conversion, mineral processing, textile and pulp, and other environmental industries. Miniature hydrocyclones have received increasing attention due to their advantages of higher separation precision, low cost, easy operation, and high stability. However, because of small treatment capacity of a single mini-hydrocyclone, numerous mini-hydrocyclones need to be connected in parallel to meet the requirements of industrial scale treatments. Such a system of numerous mini-hydrocyclones in parallel connection can meet the requirement of large scale of industrial applications and at the same time achieve its maximum efficiency of separation. This is another example of repeated units that the performance of a successful hydrocyclone is repeated by all other hydrocyclones in the system. Under the ideal operating conditions, every mini-hydrocyclone separation efficiency is similar as other hydrocyclones and the efficiency of the system is the highest. This paper extended the theory of flow distribution in manifolds into the more complex system of parallel miniature hydrocyclones known as the UU-type parallel mini-hydro-cyclone group. The results demonstrate the capability of the present model to improve the separation efficiency and to meet treatment capacity for large-scale industrial applications.

- 26. How might this become utilized for commercial and industrial applications?**<sup>59</sup>

The UU-type hydrocyclone group has been used successfully for many fields, such as wastewater treatment of delayed coking, washing soil contaminated by a variety of heavy metals and radioactive contaminants, separation of animal and microbial cells, and the recycling of sewage slurry with alkali and sulfur in many industrial projects in China.

- 27. Barriers of scaling-up fuel cells: Cost, durability and reliability** (2015) describes the foundation of the fuel cell from 170 years ago in addition to its present status, industrially,

<sup>57</sup> Huang, C., Wang, J., Wang, J., Chen, C., & Wang, H. (2013). Pressure drop and flow distribution in a mini-hydrocyclone group: UU-type parallel arrangement. *Separation & Purification Technology*, 103139-150. doi:10.1016/j.seppur.2012.10.030

<sup>58</sup> Huang, C., Wang, J., Wang, J., Chen, C., & Wang, H. (2013). Pressure drop and flow distribution in a mini-hydrocyclone group:

UU-type parallel arrangement. *Separation & Purification Technology*, 103139-150. doi:10.1016/j.seppur.2012.10.030

<sup>59</sup> Huang, C., Wang, J., Wang, J., Chen, C., & Wang, H. (2013). Pressure drop and flow distribution in a mini-hydrocyclone group: UU-type parallel arrangement. *Separation & Purification Technology*, 103139-150. doi:10.1016/j.seppur.2012.10.030



as “fledgling,” and the mainstream nature of the technology is, apparently, nil.<sup>60</sup> The article poses some problems with respect to the commercialization and industrialization of fuel cells:

*Why has scaling-up of fuel cells failed so often when many researchers have stated their successes in the small scale? Why do fuel cell stacks have lower durability, reliability and robustness than their individual cells? Could investments of a hydrogen fueling infrastructure stimulate advancements in the key issues of durability, reliability and robustness and substantially reduce fuel cell costs?*<sup>61</sup>

#### How did the paper answer each query?

The immediate aim of this paper was to stimulate debate on the open issues of fuel cell technology, and to propose changes for improvement. Unless one understands the challenges of commercialization, there is little chance of meeting them. In this paper, I analyzed and confronted these critical questions to address the challenges of scaling-up technologies and identify key barriers. Further, root causes for the challenges of durability, reliability and robustness of fuel cells were analyzed. I elaborated on why durability and reliability of fuel cells are the biggest technical barriers to commercialization rather than establishing hydrogen fueling infrastructures. Future opportunities for the commercialization of fuel cells have been discussed with recommendations for change of priorities. An integrated approach is required for the fuel cell technology to substantially improve the durability and reliability of fuel cells and reduce their costs. I examine options and suggest a procedure for change to ensure that scaling-up targets for durability and reliability are met.

#### 28. What seems like the most probable future for commercialization and industrialization of fuel cells in Athabasca, Alberta, and Canada?

Fuel cell technologies have clear advantages of high efficiency, low emission and low noise over conventional engines, such as internal combustion (IC) engines and gas turbines. High efficiency

means a low bill and low emissions. If the reliability and durability of fuel cells are comparable to IC engines or boilers, many end-users will choose the low bill engines even if a little bit of high capital. Particularly, if consider environmental-friendly, more and more end-users will choose the new technologies. Therefore, as a core technology of future engine and energy, fuel cells will play a pivotal role in revolutionizing the way we power our world; offering cleaner, more-efficient alternatives to the IC engine in vehicles and gas turbines or coal fired boilers and steam turbines at distributed power generating stations.

#### 29. Finally, *Theory and practice of flow field designs for fuel cell scaling-up: A critical review* (2015) demarcates the laboratory and industrial scale fuels cells, akin to some problems involved with the commercialization and industrialization described in the earlier articles, and the scaling upwards of the “throughput, operating lifetime, cost, reliability and efficiency.”<sup>62</sup> How does this article tackle these issues?

As an assembly of repeated units, the maximum power output of a stack should ideally be a linear sum of all cells in the stack and the lifetime, reliability and durability of a stack are determined by its worst individual cell. Although there are various outward appearances of scaling-up failures, such as water, heat and material issues, the failure of scaling-up is because of poor designs, leading to uneven gas intake of each cell in the stack due to uneven flow distribution. The performance degradation or failure of scaling-up is essentially due to some channels in a cell or some cells in a stack deviating from their design conditions due to an uneven gas intake distribution. As long as uneven flow distribution and pressure drop exceeds its operating windows, there will be a series of deteriorations, leading to an uneven chemical reaction. The uneven chemical reaction is the main cause of uneven water, heat, and current productions. An uneven heat production leads also to a heterogeneous distribution of temperature and thermal stress, an important indicator of duration and life of the cell. This deviation can significantly exceed the capacity of water removal and heat diffusion in a channel or a cell, leading eventually to larger

<sup>60</sup> Wang, J. (2015). Barriers of scaling-up fuel cells: Cost, durability and reliability. *Energy*, 80509-521. doi:10.1016/j.energy.2014.12.007.

<sup>61</sup> Wang, J. (2015). Barriers of scaling-up fuel cells: Cost, durability and reliability. *Energy*, 80509-521. doi:

10.1016/j.energy.2014.12.007.

<sup>62</sup> Wang, J. (2015). Theory and practice of flow field designs for fuel cell scaling-up: A critical review. *Applied Energy*, 157: 640-663. doi:10.1016/j.apenergy.2015.01.032

issues, such as flooding, drying, and hotspots. This review addresses two key barriers facing engineers in flow field designs of fuel cells. One is how to find an optimal combination with high performance (high uniformity and low pressure drop) from thousands upon thousands of combinations among configurations, channel and header shapes, and flow conditions (pressure, flow rate, temperature and humidity). Another is to assess how far a fuel cell is from its optimal/given operating conditions and how a flow field design can be improved to meet specific operating ranges. Flow field designs are a strategic solution and provide a major opportunity to improve the durability and reliability of large scale stacks. To this end, remarkable progresses in the theory and tool of flow field designs have been achieved to establish a direct and explicit relationship of configurations, structures, flow conditions and performance that can be used to evaluate different design alternatives regarding the various structural and flow conditions with respect to performance and predictive capability. All these studies demonstrate the possibility of designs for fuel cell configurations to achieve an optimal performance, reliability, and durability of fuel cell scaling-up in terms of good flow distribution, low pressure drop and transient response through the four characteristic parameters.

**30. What appears to inter-relate the CAIP Research Chair position, the Athabasca River Basin and Alberta, and the commercialization and industrialization of productions such as fuel cells from the laboratory scale of production?**

A river basin such as the Athabasca River Basin (ARB) is a complex system which consists of terrestrial and aquatic systems. All processes of physics, chemistry, biology and society interact at different scales but such a system is artificially separated into different components according to their disciplines. This artificial separation is not due to the essence of the system but the limitation of our knowledge and understanding. In fact, a river basin has no clear boundaries of different disciplines. It is clear that such an analysis of the real system requires the multidisciplinary and interdisciplinary research and integration. However, it is unclear which discipline should be included or which discipline could definitely not be related to the complex system. This may be called their scientific identity crisis. Knowledge from other disciplines may make an important

contribution to a river basin research. As you may know, engineering has provided research instruments and equipment for the development of many disciplines, such as chemistry, biology and society. Fuel cells are a type of energy devices but they can be developed for a specific instrumentation. Here, the biogeochemical processes in soil architecture are at the micro-scale. Soil pores permit the coexistence of air, chemicals such as nutrients, and water essential to soil microbial activities. Pore and channel structures determine how easily microbes can extract water and nutrients, and the rate of diffusion of nutrients and water into and out of the soil architecture. However, it is difficult to measure the pore-scale processes in the below ground using the conventional laboratory and field experiments because that requires very high resolution. Therefore, a specially designed microreactor has potentials to enable systematical tests for complex interactions of microbial and nutrients in porous media. For example, microbial fuel cells are commonly used for wastewater treatment or biosensors. Fuel cells are a special type of microreactor. Their theory can be fundamental to design special microreactors or microbial fuel cells for measurement of pore scale processes. This technology may deepen our understanding of soil processes; findings and knowledge at the micro-scale will be used to develop and improve the large-scale CAIP modelling framework of integrated terrestrial and aquatic systems. The goals and the evolution of this CAIP program have led to a growing integration of our research with that which is being undertaken by other researchers, while at the same time providing a stimulus for, and a new perspective on, the work on current issues in watershed management which is being carried out in the program.

**31. What remain the environmental impacts of the oil sands?**

Extraction of oil and gas from oil sands, are often associated with industrial processes. Wastewater and tailings can be generated in large quantities that contain constituents that are potentially harmful to human health and the environment. Cumulative effects can last hundreds of years if without appreciate remediation and reclamation.

**32. What remain the environmental impacts of hydraulic fracturing?**

Development of hydraulic fracking, from seismic and core hole exploration, production well pads, roads and pipelines, can create significant disturbance to the forest and grassland, which can negatively impact biodiversity of animals and plants. A growing number of active wells and inactive and abandoned wells are incurring significant environmental impacts because of the potential dangers of well leaching and spill from flow-back, such as contamination of groundwater, methane pollution and its impact on climate change and air pollution, exposure to toxic chemicals, blowouts due to gas explosion, waste disposal and large volume water use in water-deficient regions. This potentially harmful wastewater and gas creates a need for appropriate wastewater management infrastructure and practices. There are also major knowledge gaps in how the flow-back and leaching pollutants will degrade and diffuse through the biogeochemical and hydrological processes above and below ground once they are inputted to a site or a watershed.

### 33. What seem like the top three energy sources for the next 10, 25, and 100 years?

In the next 10 years, fossil and nuclear energy will still be dominant. In next 25 years, renewable energy will increase gradually their share with fossil and nuclear energy. Finally, renewable energy will replace fossil and nuclear energy in the future.

**Thank you for your time, Professor Wang.**

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# Pat O'Brien



Interviewer: Scott Douglas Jacobsen

Title: In-Sight: Independent Interview-Based Journal

Place of Publication: Langley, British Columbia, Canada

Name of Publisher: In-Sight Publishing

Numbering: Issue 10.A, Idea: Outliers & Outsiders (Part Six)

Individual Publication Date: February 15, 2016 (2016-02-15)

Issue Publication Date: May 1, 2016 (2016-05-01)

Frequency: Three Times Per Year

Web Domain: [www.in-sightjournal.com](http://www.in-sightjournal.com)

**ISSN 2369-6885**

### Abstract

**Interview with Pat O'Brien. He discusses: geographic, cultural, linguistic, and family background; Center for Inquiry Canada and intellectual affirmation of skepticism; other moments that piqued interest in humanism, secularism, and other "-isms" associated with the skeptical worldview; *Humanists see light at end of subway tunnel* and the definition of humanism and formalized statements about the humanist worldview, and the big and small aspects of humanism; unique opportunities and representations for the sub-population of the "unaffiliated," "no religious affiliation," "no religion," "none," and so on, in British Columbia (B.C.), Canada; *Without God, The Story of Secular Humanism* and work with Dr. Robert Buckman; and the core message meant from *Without God, The Story of Secular Humanism* and the apparent reaction to the final production.**

**Keywords:** Center for Inquiry Canada, Dr. Robert Buckman, God, humanist, humanism, Pat O'Brien, Vancouver,



## An Interview with Pat O'Brien (Part One)<sup>63,64,65,66</sup>

*\*Footnotes throughout the interview, and bibliography and citation style listing after the interview.\**

### 1. In terms of geography, culture, and language, where does your family background reside?

Vancouver B.C.

did not have any answers either so it was a gradual realization that the teaching of the church, since they could not be backed up by facts, must be in some way wrong.

### 2. Your biographic information from the Center for Inquiry Canada (CFIC/CFI Canada) website describes brief personal information about the pivotal moment for transformation into the skeptic mentality, as follows:

*At the age of 8 when told “watched water never boils”, Pat put a pot of water on the stove and proved the adage wrong, thus began the life of a skeptic. Pat did not begin his official involvement in the secular/skeptical movement till 2001 when he was researching a documentary on Humanism.<sup>67,68,69</sup>*

### What other pivotal moments in early life stimulated intellectual affirmation of skepticism?<sup>70</sup>

I was raised a Catholic but from an early age I liked to ask questions and the church never seemed to have satisfactory answers. My education from grade 1 – 5 was in a Catholic school where we were taught by nuns and they

### 3. What about other moments which piqued interest in humanism, secularism, and other “-isms” with relative correspondence, or reasonable conceptual overlap, with aspects of the skeptical worldview?

I was always a contrarian. I liked to take the “other” side of an argument because it seemed the best way to learn about the argument. I never took someone’s word for anything, I always wanted proof. This is the basis of scepticism and although I did not know it at the time, that is the first step towards atheism.

### 4. In an article entitled *Humanists see light at end of subway tunnel*, you defined humanism, as follows:

*Humanism is neither a religion nor a theology and the fact that a person can live a moral life, without deferring to any deity, has been recognized and accepted by religious and secular communities.<sup>71,72</sup>*

<sup>63</sup> Board Vice-Chair, Center for Inquiry Canada (CFIC/CFI Canada); Past President, Humanist Canada; Past President, British Columbia Humanist Association.

<sup>64</sup> Individual Publication Date: February 15, 2016 at [www.in-sightjournal.com](http://www.in-sightjournal.com); Full Issue Publication Date: May 1, 2016 at [www.in-sightjournal.com](http://www.in-sightjournal.com).

<sup>65</sup> Bachelor of Science & Bachelor of Education, Science, Biology, and Education.

<sup>66</sup> Photograph courtesy of Pat O'Brien.

<sup>67</sup> Center for Inquiry Canada (2015). CFI Canada Board of Directors. Retrieved from <http://centreforinquiry.ca/about-us/cfi-canada-board-of-directors/>.

<sup>68</sup> According to the reportage of Pat Johnson, with partial quotations from O'Brien, in the article entitled *Pacific Spirit: Atheists demand proof for God's existence*:

*When Pat O'Brien was eight or nine years old, his father told him that a watched pot never boils. “So I got a pot, put it on the stove, never took my eyes off it and it boiled,” says O'Brien. “From that moment on I was a skeptic. I wouldn't believe anything until I actually saw it for myself.” Pretty soon, he was applying the same criteria to religion. . . . [Pat] is a board member of the Centre for Inquiry Canada, whose mission is to advance “skeptical, secular, rational and humanistic inquiry.*

Johnson, P. (2014, June 12). *Pacific Spirit: Atheists demand proof for God's existence*. Retrieved from <http://www.vancourier.com/community/pacific-spirit-atheists-demand-proof-for-god-s-existence-1.1127233#sthash.ehr1f1AN.dpuf>.

<sup>69</sup> Johnson, P. (2014, June 12). *Pacific Spirit: Atheists demand proof for God's existence*. Retrieved from <http://www.vancourier.com/community/pacific-spirit-atheists-demand-proof-for-god-s-existence-1.1127233#sthash.ehr1f1AN.dpuf>.

<sup>70</sup> Center for Inquiry Canada (2015). CFI Canada Board of Directors. Retrieved from <http://centreforinquiry.ca/about-us/cfi-canada-board-of-directors/>.

<sup>71</sup> Peat, D. (2009, March 6). *Humanists see light at end of subway tunnel*. Retrieved from <http://www.torontosun.com/news/torontoandgt/2009/03/06/8647786-sun.html>.

<sup>72</sup> In addition to this definition of humanism, other terms within the canon of the unaffiliated with religion have definition by O'Brien; for instance, in *On Atheists*, he defined atheism in the following manner:



**Organizations such as American Humanist Association, for instance, defined humanism within the *Humanist Manifesto*, in one of its three forms, in a similar frame of reference.<sup>73,74,75,76,77</sup> A suite of associations, societies, and organizations exist for the secular humanist community - which can create a chary sense in the less secular, less humanistic, and more religious – in British Columbia, other provinces, the territories, and the nation at**

*Atheist: noun – One who holds the position that the theists have not met their burden of proof...Atheism is simply one position on one issue; whether a god or gods exist. Atheism says nothing about a person; except that they are not convinced by the evidence the theists have shown, that a god exists.*

O'Brien, P. (2014, August 12). On Atheists. Retrieved from <http://www.companyofdisciples.com/on-atheists-by-pat-obrien-of-cfi-canada/>.

<sup>73</sup> The American Humanist Association *Humanist Manifesto* connects to the *Humanist Manifesto I* (1933), *Humanist Manifesto II* (1973), and *Humanist Manifesto III* (2003). The *Humanist Manifesto III* provides the cultural, ethical, philosophical, and scientific codification of the humanist worldview. Each development – 1933, 1973, and 2003 - provides an incremental improvement, an accruelement, of the ideological values for humanists with explicit statement for them. Here's one segmented quotation for some perception of the four prior categorizations of humanist belief:

*Humanism is a progressive philosophy of life that, without supernaturalism, affirms our ability and responsibility to lead ethical lives of personal fulfillment that aspire to the greater good of humanity... Knowledge of the world is derived by observation, experimentation, and rational analysis. Humanists find that science is the best method for determining this knowledge as well as for solving problems and developing beneficial technologies... Humans are an integral part of nature, the result of unguided evolutionary change. Humanists recognize nature as self-existing... Humanists ground values in human welfare shaped by human circumstances, interests, and concerns and extended to the global ecosystem and beyond... Humanists long for and strive toward a world of mutual care and concern, free of cruelty and its consequences, where differences are resolved cooperatively without resorting to violence... Humanists are concerned for the well being of all, are committed to diversity, and respect those of differing yet humane views... The responsibility for our lives and the kind of world in which we live is ours and ours alone.*

American Humanist Association (2015). *Humanist Manifesto III: Humanism and Its Aspirations*. Retrieved from [http://americanhumanist.org/Humanism/Humanist\\_Manifesto\\_III](http://americanhumanist.org/Humanism/Humanist_Manifesto_III).

<sup>74</sup> American Humanist Association (2015). *Humanist Manifesto I*. Retrieved from [http://americanhumanist.org/Humanism/Humanist\\_Manifesto\\_I](http://americanhumanist.org/Humanism/Humanist_Manifesto_I).

<sup>75</sup> American Humanist Association (2015). *Humanist Manifesto II*. Retrieved from [http://americanhumanist.org/Humanism/Humanist\\_Manifesto\\_II](http://americanhumanist.org/Humanism/Humanist_Manifesto_II).

**large.<sup>78,79,80,81,82,83,84,85,86,87,88,89,90</sup> Of course, the major continental and international organizations for the secular humanist movement exist too.<sup>91,92,93,94,95,96,97</sup> These remain theories and collectives, though. What does humanism look like in one's real life to you – big and small aspects?**

This will sound arrogant and is something I criticize the religious for but I believe that we are all Humanist at our core. I don't think people get

<sup>75</sup> American Humanist Association (2015). *Humanist Manifesto III: Humanism and Its Aspirations*. Retrieved from [http://americanhumanist.org/Humanism/Humanist\\_Manifesto\\_III](http://americanhumanist.org/Humanism/Humanist_Manifesto_III).

<sup>76</sup> Society of Ontario Freethinkers (2015). *Our Humanist Principles*. Retrieved from <http://www.sofree.ca/our-humanist-principles/>.

<sup>77</sup> Secular Connexion Séculaire (2015). *Goals and Principles*. Retrieved from <http://www.secularconnexion.ca/goals-principles.html>.

<sup>78</sup> A non-exhaustive list of the national, provincial, and territorial unaffiliated with religion organizations under individuated banners of humanist, secular, and so on.

<sup>79</sup> Ontario Humanist Society (2015). *Ontario Humanist Society*. Retrieved from <http://ontariohumanists.ca/>.

<sup>80</sup> Humanist Association of Toronto (2015). *Humanist Association of Toronto*. Retrieved from <http://humanisttoronto.blogspot.ca/>.

<sup>81</sup> British Columbia Humanist Association (2015). *British Columbia Humanist Association*. Retrieved from <http://bchumanist.ca/>.

<sup>82</sup> Secular Connexion Séculaire (2015). *Secular Connexion Séculaire*. Retrieved from <http://www.secularconnexion.ca/>.

<sup>83</sup> Society of Ontario Freethinkers (2015). *Society of Ontario Freethinkers*. Retrieved from <http://www.sofree.ca/>.

<sup>84</sup> Vancouver Skeptics (2015). *Vancouver Skeptics*. Retrieved from <http://vancouver skeptics.org/>.

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<sup>86</sup> Center for Inquiry (2015). *Center for Inquiry: Vancouver*. Retrieved from <http://www.cficanada.ca/vancouver>.

<sup>87</sup> Comox Valley Humanists (2015). *Comox Valley Humanists*. Retrieved from <http://cvhumanists.org/>.

<sup>88</sup> Center for Inquiry (2015). *Center for Inquiry: Okanagan*. Retrieved from <http://centreforinquiry.ca/author/cfi-okanagan/>.

<sup>89</sup> British Columbia Humanist Association (2015). *Fraser Valley Atheists, Skeptics, and Humanists*. Retrieved from <http://bchumanist.ca/communities/fraser-valley/114-welcome-fraser-valley-humanists>.

<sup>90</sup> British Columbia Humanist Association (2015). *Vancouver Island Humanists*. Retrieved from <http://bchumanist.ca/communities/oceanside>.

<sup>91</sup> A non-exhaustive list of the international humanist, secular, and other organizations.

<sup>92</sup> International Humanist and Ethical Union (2015). *International Humanist and Ethical Union*. Retrieved from <http://iheu.org/>.

<sup>93</sup> Atheist Alliance International (2015). *Atheist Alliance International*. Retrieved from <https://www.atheistalliance.org/>.

<sup>94</sup> The European Humanist Federation (2015). *The European Humanist Federation*. Retrieved from <http://humanistfederation.eu/>.

<sup>95</sup> Rationalist International (2015). *Rationalist International*. Retrieved from <http://www.rationalistinternational.net/>.

<sup>96</sup> International League of Humanists (2015). *International League of Humanists*. Retrieved from <http://www.intlh.com/bh/>.

<sup>97</sup> Sunday Assembly (2015). *Sunday Assembly*. Retrieved from <http://sundayassembly.com/>.

their morality from religion, I think religion gets its morality from humans and our shared evolutionary past that imprinted morality not on our hearts but in our DNA. So to answer the question, Humanism is the articulation of that morality that is inherent in most of us (there will always be the Clifford Olsen's) and our shared humanity, our feeling of what is right and wrong is innate in us, in a naturalistic way. So unlike religion where one must constantly have their religious version of morality reinforced by prayer church attendance etc. we Humanists simply live a moral life without much thought to it most of the time.

**5. What unique opportunities and representations exist for the sub-population of the “unaffiliated,” “no religious affiliation,” “no religion,” “none,” and so on, in British Columbia (B.C.), Canada?<sup>98,99,100,101,102,103,104</sup>**

I think we have a lot to offer the general public, mostly in the area of science and the discovery of the natural world and how that creates a most beautiful way of looking at the world. Some, like Oprah, think atheists can have to awe or wonder. I think the opposite is true because we see things as there really are, not as we would like them to be. The beauty of a rainbow is not enhanced by thinking a celestial painter did it, but by the understanding of light and refraction. To paraphrase one of the brightest physicists of the 20<sup>th</sup> century, Richard Feynman; is it not more awe inspiring to have a complete understanding of the way a phenomenon like a rainbow is

created that to have an answer that is almost certainly wrong?

**6. Your CFI Canada biography continues with elucidation of some professional film work:**

*The documentary “Without God, The Story of Secular Humanism” with Dr Robert Buckman aired on Vision TV, and CBC Newsworld.<sup>105</sup>*

**What instigated involvement with Dr. Robert Buckman for the filming, editing, and eventual production of *Without God, The Story***

<sup>98</sup> Bearing in mind, the global number of individuals in the unaffiliated categorization equates to about 16%. The continental, North American, count comes to 17.1%. The national, Canadian, count comes to 16%. The provincial, British Columbian, quantity sits around 35.88% or ~35-36%, following footnotes for appropriate bibliographic reference redirections.

<sup>99</sup> Those without affiliation with religion come with numerous self-identifications including agnostic, atheist, “bright,” feminist, “freethinker,” humanist, non-believer, non-religious, skeptic, and many others, with an emphasis on a novel definition, which includes many of the previous definitions in relation to religion, “unaffiliated.” Both national and international evidence attest to the comparable affiliation with religion, in December of 2012, to the Canadian quantification, in 2001, at ~16%, and the higher than global number with the province of BC’s affiliation with religion at ~35.88%. A BC “no religious affiliation” sub-population divided by the total BC population: 1,388,300/3,868,875=~35.88%. PEW Research Center (2015, April 2). The Future of World Religions: Population Growth Projections, 2010-2050. Retrieved from <http://www.pewforum.org/2015/04/02/religious-projections-2010-2050/>.

<sup>100</sup> PEW Research Center (2015, April 2). The Future Of World Religions: Population Growth Projections, 2010-2050: North

America. Retrieved from

<http://www.pewforum.org/2015/04/02/north-america/>.

<sup>101</sup> British Columbia Humanist Association (2013, June 19). BC Religious and Secular Attitudes. Retrieved from <http://bchumanist.ca/news/110-bc-religious-and-secular-attitudes-poll>.

<sup>102</sup> PEW Research Center (2012, December). The Global Religious Landscape. Retrieved from <http://www.pewforum.org/files/2014/01/global-religion-full.pdf>.

<sup>103</sup> PEW Research Center (2012, December 12). The Global Religious Landscape. Retrieved from <http://www.pewforum.org/2012/12/18/global-religious-landscape-exec/>.

<sup>104</sup> Statistics Canada (2005, January 25). Population by religion, by province and territory (2001 Census): (Alberta, British Columbia, Yukon). Retrieved from <http://www.statcan.gc.ca/tables-tableaux/sum-som/101/cst01/demo30c-eng.htm>.

<sup>105</sup> Statistics Canada (2005, January 25). Population by religion, by province and territory (2001 Census): (Alberta, British Columbia, Yukon). Retrieved from <http://www.statcan.gc.ca/tables-tableaux/sum-som/101/cst01/demo30c-eng.htm>.

*of Secular Humanism?*<sup>106,107,108,109,110,111,112,113,114,115,116,117,118</sup>

I was researching the documentary when I happened to come across the B.C. Humanist Association. I sent an email to the web site and got a reply from their board. I met with several of them who proved to be most helpful in the making of the film. It was one of them that suggested Rob. When I contacted him he was very excited about the project and jumped on immediately. We decided that he would be an excellent on air narrator as he had a lot of experience in front of the camera and with that one of the most influential relationships of my life began.

**7. What core message did Dr. Robert Buckman and yourself want to come across with, and what seemed to emerge from the viewership in reaction to, the final product of *Without God, The Story of Secular Humanism*?**<sup>119,120,121,122,123,124</sup>

We wanted to show two things, first of all, what exactly a Humanist is and more importantly, why we are in fact as, or more moral, than the religious. It is well known that atheists have a bad reputation and we wanted people to know that we are just like everyone else with the same basic hopes, dreams and sense of right and wrong.

Interviewer: Scott Douglas Jacobsen

Title: In-Sight: Independent Interview-Based Journal

<sup>106</sup> IMDB (2015). Rob Buckman. Retrieved from [http://www.imdb.com/name/nm0118721/bio?ref\\_=nm\\_ov\\_bio\\_sm](http://www.imdb.com/name/nm0118721/bio?ref_=nm_ov_bio_sm).

<sup>107</sup> Duly note, the late Dr. Robert Buckman held the presidency of the Humanist Association of Canada in 2004. A doctor and author with a specialty in oncology, or the study and treatment of tumors. He died in sleep during a transatlantic flight.

<sup>108</sup> Langan, F. (October 11, 2011). Renowned oncologist Robert Buckman dies at age 63. Retrieved from [http://www.theglobeandmail.com/news/national/renowned-oncologist-robert-buckman-dies-at-63/article2198113/?utm\\_medium=Feeds%3A%20RSS%2FAtom&utm\\_source=National&utm\\_content=2198113](http://www.theglobeandmail.com/news/national/renowned-oncologist-robert-buckman-dies-at-63/article2198113/?utm_medium=Feeds%3A%20RSS%2FAtom&utm_source=National&utm_content=2198113).

<sup>109</sup> Jones, T. (2011, October 12). Rob Buckman Obituary. Retrieved from <http://www.theguardian.com/books/2011/oct/12/rob-buckman>.

<sup>110</sup> The Times (2011, October 15). Rob Buckman. Retrieved from <http://www.thetimes.co.uk/tto/opinion/obituaries/article3194806.ec>.

<sup>111</sup> Q&Q Staff (2000, October). Robert Buckman hits the funny bone. Retrieved from <http://www.quillandquire.com/authors/robert-buckman-hits-the-funny-bone/>.

<sup>112</sup> The Telegraph (2011, October 30). Rob Buckman. Retrieved from <http://www.telegraph.co.uk/news/obituaries/medicine-obituaries/8985526/Rob-Buckman.html>.

<sup>113</sup> [DocAITulonge] (2007, August 9). Without God – Part 1 of 5. Retrieved from <https://www.youtube.com/watch?v=e7IoSDKBAMU>.

<sup>114</sup> [DocAITulonge] (2007, August 9). Without God – Part 2 of 5. Retrieved from <https://www.youtube.com/watch?v=T8BAgfVlbbA>.

<sup>115</sup> [DocAITulonge] (2007, August 9). Without God – Part 3 of 5. Retrieved from

<https://www.youtube.com/watch?v=dN0nKsiY7qA>.

<sup>116</sup> [DocAITulonge] (2007, August 9). Without God – Part 4 of 5. Retrieved from <https://www.youtube.com/watch?v=zqIEBY1Gsi0>.

<sup>117</sup> [DocAITulonge] (2007, August 9). Without God – Part 5 of 5. Retrieved from <https://www.youtube.com/watch?v=LG1-yGZJk1Y>.

<sup>118</sup> Duly note, one obituary written by the famed Terry Jones of Monty Python. Therefore, a query in direct relation to instigations brings the fame of popular British comedy, such as Monty Python, into the fray with Dr. Robert Buckman, a comedian; not an accident for this phraseology.

<sup>119</sup> IMDB (2015). Rob Buckman. Retrieved from [http://www.imdb.com/name/nm0118721/bio?ref\\_=nm\\_ov\\_bio\\_sm](http://www.imdb.com/name/nm0118721/bio?ref_=nm_ov_bio_sm).

<sup>120</sup> [DocAITulonge] (2007, August 9). Without God – Part 1 of 5. Retrieved from <https://www.youtube.com/watch?v=e7IoSDKBAMU>.

<sup>121</sup> [DocAITulonge] (2007, August 9). Without God – Part 2 of 5. Retrieved from

<https://www.youtube.com/watch?v=T8BAgfVlbbA>.

<sup>122</sup> [DocAITulonge] (2007, August 9). Without God – Part 3 of 5. Retrieved from

<https://www.youtube.com/watch?v=dN0nKsiY7qA>.

<sup>123</sup> [DocAITulonge] (2007, August 9). Without God – Part 4 of 5. Retrieved from <https://www.youtube.com/watch?v=zqIEBY1Gsi0>.

<sup>124</sup> [DocAITulonge] (2007, August 9). Without God – Part 5 of 5. Retrieved from <https://www.youtube.com/watch?v=LG1-yGZJk1Y>.

Place of Publication: Langley, British Columbia, Canada  
Name of Publisher: In-Sight Publishing  
Numbering: Issue 10.A, Idea: Outliers & Outsiders (Part Six)  
Individual Publication Date: February 22, 2016 (2016-02-22)  
Issue Publication Date: May 1, 2016 (2016-05-01)  
Frequency: Three Times Per Year  
Web Domain: [www.in-sightjournal.com](http://www.in-sightjournal.com)  
**ISSN 2369-6885**

### Abstract

**An interview with Pat O'Brien. He discusses: earned positions of board of the B.C. Humanist Association, President of British Columbia Humanist Association, board of Humanist Canada, and President of Humanist Canada; operation of the British Columbia Humanist Association at the provincial-scale; common problems in the midst of leadership at national and provincial magnitudes; personal and social fulfillment, and duties, necessitate involvement with grassroots initiatives and ambassadorship such as Center for Inquiry Canada and Atheist Alliance International; personal career as a Proper Master in film and television; conduct, duties, and responsibilities as the Board Vice-Chair for Center for Inquiry Canada; duties and responsibilities that come from influencing the public mind whilst holding an important position; and the importance of flagship publications.**

*Keywords:* Atheist Alliance International, British Columbia Humanist Association, Center for Inquiry Canada, Humanist Canada, Pat O'Brien.

## An Interview with Pat O'Brien (Part Two)<sup>125, 126, 127</sup>

*\*Footnotes throughout the interview, and bibliography and citation style listing after the interview.\**

- 8. You earned positions including “board of the B.C. Humanist Association (BCHA), President of BCHA and then on the board of Humanist Canada (HC), eventually taking over as President of HC.”<sup>128, 129, 130</sup> HC, as an organization, exists within the philosophy of “education, reason, and compassion.”<sup>131</sup> With more depth, the organization defines itself:**

*Founded in 1968, Humanist Canada has its roots in the former Humanist Fellowship of Montreal. This fellowship was an organization of humanists that was founded in 1954 by Drs. R. K. Mishra, Ernest Poser, and Maria Jutta Cahn. Lord Bertrand Russell and Dr. Brock Chisholm were its first patrons.<sup>132</sup>*

**As the past president of Humanist Canada, your insight, from experience, into the membership involvements and activities, organizational structure and internal dynamics, theory and practice, positions and tasks, internal humanist membership sustainability and national public outreach, seems deep, comprehensive, and relevant to me.<sup>133</sup> How does one run a large organization from the national scale?<sup>134</sup>**

You don't, you let it run itself. It has been said many times that trying to get Humanists to agree on something is like trying to herd cats. I learned early on that as a leader I could not rule from

above, or make unilateral decisions. The membership is highly educated and smart they do not respond well to decrees or being told what to do or what position they should take on a matter so one learns to be inclusive, trying to reach consensus. Without going into too much detail, the reason I resigned was because I felt in a particular circumstance unilateral action was the best course to take and still believe I made the right decision, but it lead to me being forced to resign. In the end, my decision was upheld.

- 9. You held the presidency of the BCHA too.<sup>135</sup> How does one operate a provincial-scale organization?<sup>136</sup>**

It is easier because you meet regularly with members, they know who you are and there tends to be more trust. Again though, the members are smart, skeptical people who will question everything so you have to not only know what you are talking about but must be willing to compromise. All Humanist groups function democratically and all decisions must be discussed and voted on at least the board level. The other thing about running a local group is that it is easier to plan and hold events. Most of the work that gets done even in a national organization is initiated and run by local groups.

- 10. What common problems emerge, and solutions require implementation, in the midst**

<sup>125</sup> Board Vice-Chair, Center for Inquiry Canada (CFIC/CFI Canada); Past President, Humanist Canada; Past President, British Columbia Humanist Association.

<sup>126</sup> Individual Publication: February 22, 2016 at [www.in-sightjournal.com/an-interview-with-pat-obrien-part-two](http://www.in-sightjournal.com/an-interview-with-pat-obrien-part-two); Full Issue Publication: May 1, 2016 at [www.in-sightjournal.com/an-interview-with-pat-obrien-part-two](http://www.in-sightjournal.com/an-interview-with-pat-obrien-part-two).

<sup>127</sup> Bachelor of Science & Bachelor of Education, Science, Biology, and Education.

<sup>128</sup> Trapper, J. (2011, October 10). Dr. Robert Buckman, renowned oncologist, comedian and Star columnist, dead at 63. Retrieved from [http://www.thestar.com/news/gta/2011/10/10/dr\\_robert\\_buckman\\_renowned\\_oncologist\\_comedian\\_and\\_star\\_columnist\\_dead\\_at\\_63.html](http://www.thestar.com/news/gta/2011/10/10/dr_robert_buckman_renowned_oncologist_comedian_and_star_columnist_dead_at_63.html).

<sup>129</sup> Humanist Canada (2015). Humanist Canada. Retrieved from <https://www.humanistcanada.ca/>.

<sup>130</sup> Twitter (Humanist Canada (2015). @Humanist\_Canada. Retrieved from [https://twitter.com/Humanist\\_Canada](https://twitter.com/Humanist_Canada).

<sup>131</sup> Twitter (Humanist Canada (2015). @Humanist\_Canada. Retrieved from [https://twitter.com/Humanist\\_Canada](https://twitter.com/Humanist_Canada).

<sup>132</sup> Explicit statement of the values, mission, and vision, as follows:

*Values Our key values are to uphold honesty, reason, critical thinking and cooperation in every facet of human interdependence. Mission We promote the separation of religion from public policy and foster the development of reason, compassion and critical thinking for all Canadians, through secular education and community support. Vision Our vision is a world where reason and compassion guide public policy and beliefs are respected— provided that they are compatible with the rights of others.*

Humanist Canada. (2015). Humanist Canada Brochure. Retrieved from <https://www.humanistcanada.ca/images/docs/HC-brochure-2015.pdf>.

<sup>133</sup> Humanist Canada (2015). Humanist Canada. Retrieved from <https://www.humanistcanada.ca/>.

<sup>134</sup> Humanist Canada (2015). Humanist Canada. Retrieved from <https://www.humanistcanada.ca/>.

<sup>135</sup> British Columbia Humanist Association (2015). British Columbia Humanist Association. Retrieved from <http://bchumanist.ca/>.

<sup>136</sup> British Columbia Humanist Association (2015). British Columbia Humanist Association. Retrieved from <http://bchumanist.ca/>.



### of leadership at the national and provincial magnitudes?<sup>137,138</sup>

The biggest problem is fundraising. It is difficult to get Humanists to part with their money. We can't offer eternal salvation so when we do fundraise it has to be a specific initiative. Even then, most Humanist living in Canada do not feel the need to be out there advertizing and being social activists, most are happy with weekly or monthly meetings where they discuss topics of interest. This does not require much money so the donations reflect this.

### 11. Your biographic information from CFI Canada concludes:

*In the interim Pat was an ambassador for Atheist Alliance International, sitting briefly on their board. Pat is involved in many grassroots initiatives in his hometown of Vancouver where he has a successful career as a Props Master in the film and television industry. Pat is also an award winning documentary filmmaker.*<sup>139</sup>

### What personal and social fulfillment, and duties, necessitate involvement with grassroots initiatives and ambassadorship?<sup>140</sup>

I am someone who wants to make a difference in my community. I like being part of social change and I think we need more people like that who are willing to take on leadership roles to try and make our society better. I rally do believe, and the evidence is on my side, that the world would

be a better place with less religion. My goal is not to stamp out religion but to show people there is an alternative to living a full rewarding life that does not include believing in the unbelievable and hopefully they will see us as a suitable alternative.

### 12. What does "Props Master in the film and television industry," personal career, implicate for you, e.g. tasks, responsibilities, projects involved in, capabilities and limitations, and so on?<sup>141</sup>

My job is what I do so I can afford to do the things I really enjoy such as being part of the Humanist/Skeptical community (and playing golf). I am also very lucky to have a job I really like. It is very rewarding to know that my work entertains people and allows them an escape from their daily lives.

### 13. You work for CFI Canada. Another secular organization, a registered educational charity, devoted to "educate and provide training to the public in the application of skeptical, secular, rational and humanistic enquiry through conferences, symposia, lectures, published works and the maintenance of a library."<sup>142</sup> Your core position exists within the board, as Board Vice-Chair.<sup>143</sup> What conduct, duties, and responsibilities remain expected with this position within CFI Canada?<sup>144,145</sup>

As the board member from BC I keep an eye on things in the west and try to engage the

<sup>137</sup> Humanist Canada (2015). Humanist Canada. Retrieved from <https://www.humanistcanada.ca/>.

<sup>138</sup> British Columbia Humanist Association (2015). British Columbia Humanist Association. Retrieved from <http://bchumanist.ca/>.

<sup>139</sup> Center for Inquiry Canada (2015). CFI Canada Board of Directors. Retrieved from <http://centreforinquiry.ca/about-us/cfi-canada-board-of-directors/>

<sup>140</sup> Atheist Alliance International (2015). Atheist Alliance International. Retrieved from <https://www.atheistalliance.org/>.

<sup>141</sup> Atheist Alliance International (2015). Atheist Alliance International. Retrieved from <https://www.atheistalliance.org/>.

<sup>142</sup> CFI Canada (2015). About Us. Retrieved from <http://centreforinquiry.ca/about-us/>.

<sup>143</sup> Center for Inquiry Canada (2015). CFI Canada Board of Directors. Retrieved from <http://centreforinquiry.ca/about-us/cfi-canada-board-of-directors/>.

<sup>144</sup> Adriaans, E. (2014, December 18). Center for Inquiry Canada Code of Conduct. Retrieved from <http://centreforinquiry.ca/wp-content/uploads/2013/02/Centre-For-Inquiry-Canada-Code-of-Conduct-Dec-18th-2014.pdf>.

<sup>145</sup> Some definitions within the *Center for Inquiry Canada Code of Conduct* define a board member as "community," as follows,

"“CFI Canada’s Community” means any and all clients, personnel, members, Board Members, Friends of the Centre, Councillors, donors, supporters and all those individuals and organizations who have a responsibility toward CFI Canada and an interest in its success.” In addition to this definition, other statements have value within in with respect to the position of board members. In sections G and H.2., the *Center for Inquiry Canada Code of Conduct*: “A breach of the Code of Conduct is subject to disciplinary or legal action in accordance with applicable policies and procedures as approved by the Board of Directors from time to time. The nature of disciplinary action will take into account harm to the individual, harm to CFI Canada and its reputation, and whether or not there was an unequal power relationship. Disciplinary action includes dismissal, where circumstances warrant...H. Responsibilities 2. Members of the Board of Directors, Branch Directors, the National Executive Director and other Officers of CFI Canada are responsible for oversight, applying and implementing this policy in each of their respective jurisdictions.” In other words, a serious position with responsibilities for particular activities and, therefore, consequences for certain misconduct.



membership here. I also am the media representative in BC so if a story is in the news and they need the Humanist/Atheist side, I often will get the call. As Vice Chair, all that really means is that I take over the duties of the Chair if he or she is unavailable.

**14. Your representation in the media emerges in numerous avenues internal and external, obscure and mainstream, pro and con, to CFI Canada, and Humanist Canada.**

<sup>146,147,148,149,150,151,152,153,154,155,156,157,158,159,160,161,162,163,164,165,166,167,168</sup>

**What duties and responsibilities come from influencing the public mind through the media, especially whilst holding an important position in an organization in the educational charity sector?**

I think it is the most important thing I do. Communication is the key to understanding and I

take my responsibility as a communicator very seriously. It sometimes means I have to tone down the message I would like to give, when one is on TV talking to the masses, one must be succinct and clear, without putting people off to the point where they turn the dial. It is a fine line because to many religious types my very existence as an atheist is offensive to them. So my job is show them that I am a regular person with some (I hope) interesting things to say, and if I can educate one person or show one person a new way of looking at an issue then I call that a win.

**15. Many, many organizations, formal and informal, with concomitant publications exist for the distribution of principles and values interrelated with critical thinking, humanism, naturalism, secularism. For example, the Committee for Scientific Investigation of Claims of the Paranormal (CSICOP, the old**

<sup>146</sup> Global TV (n.d.). BC1- Atheist ad rejected in Vancouver. Retrieved from <http://globalnews.ca/video/embed/1016280/>.

<sup>147</sup> Note, the title of "Center for Enquiry Canada" in the Global TV interview provided a faulty title for the educational charity within the interview for O'Brien. The correct title remains "Center for Inquiry Canada."

<sup>148</sup> Abbass, V. (2014, June 18). Pacific Spirit. Retrieved from <http://www.canadianatheist.com/pacific-spirit/>.

<sup>149</sup> Johnson, P. (2014, June 12). Pacific Spirit: Atheists demand proof for God's existence. Retrieved from <http://www.vancourier.com/community/pacific-spirit-atheists-demand-proof-for-god-s-existence-1.1127233#sthash.ehr1f1AN.dpuf>.

<sup>150</sup> The Agenda with Steve Paikin (2013, December 13). How to Get Atheism in Advertising. Retrieved from <http://theagenda.tv.org/blog/agenda-blogs/how-get-atheism-advertising>.

<sup>151</sup> CFI Canada (2012). If we raise \$40,000 by December 31, 2012 a generous donor will match it!. Retrieved from [http://action.centerforinquiry.net/site/MessageViewer?em\\_id=33841.0](http://action.centerforinquiry.net/site/MessageViewer?em_id=33841.0).

<sup>152</sup> Peat, D. (2009, March 6). Humanists see light at end of subway tunnel. Retrieved from <http://www.torontosun.com/news/torontoandgta/2009/03/06/8647786-sun.html>.

<sup>153</sup> Canada Press (2009, March 6). More Godless Advertising. Retrieved from <http://www.marketingmag.ca/advertising/more-godless-advertising-7384>.

<sup>154</sup> Egan, D (2007, January 17). Preaching the Word of Atheism. Retrieved from <http://theyee.ca/Life/2007/01/12/Atheism/>.

<sup>155</sup> The Drew Marshall Show (2009, March 7). Special Guests. Retrieved from <http://drewmarshall.ca/show/090307>.

<sup>156</sup> Context with Lorna Dueck (2007, June 19). Atheism: Is Faith Stupid. Retrieved from <http://www.contextwithlornadueck.com/episodes/atheism-is-faith-stupid>.

<sup>157</sup> McElheran, T. (2009, February 4). Group wants atheist ads on city buses. Retrieved from <http://metronews.ca/news/vancouver/80494/group-wants-atheist-ads-on-city-buses/>.

<sup>158</sup> Randi, J. (2009, February 5). Next, They'll Be Hunting Witches in Nova Scotia!. Retrieved

from <http://archive.randi.org/site/index.php/swift-blog/424-next-theyll-be-hunting-witches-in-nova-scotia.html>.

<sup>159</sup> CBC News (2009, February 3). 'Good without God' ad campaign raises questions in Vancouver. Retrieved from <http://www.cbc.ca/news/canada/british-columbia/good-without-god-ad-campaign-raises-questions-in-vancouver-1.833983>.

<sup>160</sup> Kiely, B.J. (2009, January 25). Atheism II- Humanism. Retrieved from [http://www.ucc.ca/ministry/sermon\\_archive/other/20091025Atheism%20II-%20Humanism.pdf](http://www.ucc.ca/ministry/sermon_archive/other/20091025Atheism%20II-%20Humanism.pdf).

<sup>161</sup> O'Brien, P. (2007, January 17). Restructuring HAC. Retrieved from <http://www.americanhumanist.org/hnn/archives/?id=283&article=9>.

<sup>162</sup> O'Brien, P. (2006, August 2). Morality Into Wine. Retrieved from <http://www.americanhumanist.org/hnn/archives/?id=254&article=1>.

<sup>163</sup> Rau, K. (2009, March 24). Religious believers less likely to notice own mistakes: study. Retrieved from <http://www.dailyxtra.com/canada/religious-believers-less-likely-notice-mistakes-study-52764>.

<sup>164</sup> AsianPost (2009, February 19). Outloud! With Gurpreet Singh. Retrieved from <http://www.southasianpost.com/article/2653-outloud-gurpreet-singh.html>.

<sup>165</sup> Akkad, O.E. (2009, April 10). This is your brain on religion. Retrieved from <http://www.theglobeandmail.com/technology/science/this-is-your-brain-on-religion/article1149526/>.

<sup>166</sup> Laidlaw, S. (2008, march 15). Darwin exhibit survives thanks to unlikely backers. Retrieved from [http://www.thestar.com/news/gta/2008/03/15/darwin\\_exhibit\\_survives\\_thanks\\_to\\_unlikely\\_backers.html](http://www.thestar.com/news/gta/2008/03/15/darwin_exhibit_survives_thanks_to_unlikely_backers.html).

<sup>167</sup> Tam, C. (2013, December 7). Atheism group says ad rejected by Vancouver billboard company. Retrieved from <http://globalnews.ca/news/1016292/atheism-group-says-ad-rejected-by-vancouver-billboard-company/>.

<sup>168</sup> O'Brien, P. (2014, August 12). On Atheists. Retrieved from <http://www.companyofdisciples.com/on-atheists-by-pat-obrien-of-cfi-canada/>.

title)/The Committee for Skeptical Inquiry (CSI, the new title) publishes *Skeptical Inquirer*.<sup>169,170,171</sup> What importance do flagship publications, such as *Skeptical Inquirer*, have for the “no religious affiliation” individuals and groups?<sup>172</sup>

They are very important. It is vital that our point of view is out there in the public. Magazines, TV and radio programs are essential to both creating a sense of community and as a means of education, without being pedantic.

Interviewer: Scott Douglas Jacobsen  
Title: In-Sight: Independent Interview-Based Journal

<sup>169</sup> Frazier, K. (2006, December 4). It's CSI Now, Not CSICOP.

<sup>170</sup> The Committee for Skeptical Inquiry (2015). The Committee for Skeptical Inquiry. Retrieved from <http://www.csicop.org/>.

<sup>171</sup> The Committee for Skeptical Inquiry (2015). *Skeptical Inquirer*. Retrieved from <http://www.csicop.org/si>.

<sup>172</sup> The Committee for Skeptical Inquiry (2015). *Skeptical Inquirer*. Retrieved from <http://www.csicop.org/si>.

Place of Publication: Langley, British Columbia, Canada  
 Name of Publisher: In-Sight Publishing  
 Numbering: Issue 10.A, Idea: Outliers & Outsiders (Part Six)  
 Individual Publication Date: March 1, 2016 (2016-03-01)  
 Issue Publication Date: May 1, 2016 (2016-05-01)  
 Frequency: Three Times Per Year  
 Web Domain: [www.in-sightjournal.com](http://www.in-sightjournal.com)  
**ISSN 2369-6885**

### Abstract

**An interview with Pat O'Brien. He discusses: role of exemplars for movements without direct religious affiliation; relationship with religious belief systems connected to humanist proclivities with secular humanist movements in history; interrelationship of theistic and non-theistic humanisms and their mutual futures; the importance of the absolute division between church and state; evidences and arguments that make a transcendental being seem impossible, implausible, or unreasonable; and evidences and arguments that might make a transcendental entity possible, plausible, or reasonable.**

**Keywords:** British Columbia Humanist Association, Center for Inquiry Canada, Humanist Canada, Pat O'Brien.

### An Interview with Pat O'Brien (Part Three)<sup>173,174,175</sup>

*\*Footnotes throughout the interview, and bibliography and citation style listing after the interview.\**

- 16. Exemplars manifest themselves under the umbrella of "no religious affiliation," at least in standard interpretations such as a lack of formal religion. An array of unmentioned artists, columnists, scientists, and writers.<sup>176</sup> What role do exemplars perform for these movements without direct religious affiliation?**

Unfortunately we live in a world where the "cult of personality" influences many people. By creating our own "stars" we are better able to communicate our message. But when an existing star such as Ricky Gervais or Bill Nye take up the cause, people listen. Some in our community see this as a bit of a sell out. I disagree, as long as the message is consistent and not dumbed down, using famous people and TV and Movie stars is a very good way to give your message some credibility.

**plural manifestations, under the banner of Humanism, singular concept, some religious formulations ground themselves, in socio-cultural and ethical life, in belief systems translatable into humanism. An argument articulated by Dr. Susan Hughson, another past president of the British Columbia Humanist Association, in conversation with David Berner about Judaism, which could**

- 17. Apart from non-theistic - e.g. agnostic, atheistic, deistic, and so weiter - humanisms,**

<sup>173</sup> Board Vice-Chair, Center for Inquiry Canada (CFIC/CFI Canada); Past President, Humanist Canada; Past President, British Columbia Humanist Association.

<sup>174</sup> Individual Publication: March 1, 2016 at [www.in-sightjournal.com/an-interview-with-pat-obrien-part-two](http://www.in-sightjournal.com/an-interview-with-pat-obrien-part-two); Full Issue Publication: May 1, 2016 at [www.in-sightjournal.com/an-interview-with-pat-obrien-part-two](http://www.in-sightjournal.com/an-interview-with-pat-obrien-part-two).

<sup>175</sup> Bachelor of Science & Bachelor of Education, Science, Biology, and Education.

<sup>176</sup> Exemplars including, but not limited to, (the late) Dr. Albert Einstein, Ann Druyan, Ayaan Hirsi Ali, (the late) Dr. Bertrand Russell, (the late) Betty Friedan, Bill Nye, (the late) Dr. Carl Sagan, Dr. Carol Tavris, Dr. Daniel Dennett, Dr. E.O. Wilson, Dr. Elizabeth Loftus, Dr. Eugenie C. Scott, Dr. Gloria Steinem, (the late) Dr. Isaac Asimov, James "The Amazing" Randi, (the late) Dr. Jonas Salk, (the late) June Callwood, Dr. Lawrence Krauss, Margaret Atwood, Dr. Neil deGrasse Tyson, (the late) Dr. Paul Kurtz, (the late) Pearl S. Buck, (the late) Dr. R. Buckminster "Bucky" Fuller, Dr. Richard Dawkins, (the late) Simone de Beauvoir, Dr. Steven Weinberg, Dr. Susan Blackmore, and (the late) Dr. Victor J. Stenger.

**extend to others, as noted.<sup>177,178,179,180,181</sup> What relationship do religious belief systems connected to humanist proclivities have with the secular humanist movements in history?**

For most of recorded history the concept of an atheist did not exist. It was taken for granted that there was an unseen world inhabited by goblins, ghosts, gods etc. It was not until relatively recently that the idea of a world view that carried no supernatural baggage was even possible. There were pockets of it, some Greek philosophers are a good example but mostly the world was made up of people who had some kind of supernatural belief. So it was the religious, looking for something more, who began the slow intellectual march towards Humanism, Erasmus is a good example. Today he would be considered a religious person but in his day he had many ideas that did not endear him to either the Catholic or the burgeoning Protestant church. He is considered by many to be the founder of Humanism. Today, most religious Humanists seem to come from the Jewish tradition. Jews have a history of doubt and questioning so this does not come as a surprise, in fact the Humanist Chaplaincy at Harvard University is almost exclusively the product of Jewish Humanists.

**18. With respect to their positive or negative interrelationship, the theistic and non-theistic humanisms, how might their mutual futures turn out to you?**

If you are talking about theistic Humanism, I find that a contradiction. I don't use the term as I think it has outlived its usefulness. Either you believe in God and are a theist or you do not and you are an atheist, many atheist adopt the Humanist worldview but Humanism and atheism do not necessarily go together. So I see a conflict between theists and Humanist and so the term Theistic Humanist is meaningless to me.

**19. You noted, astutely, the separation of church and state in the United States of America, but not by necessity in Canada.<sup>182</sup> *Preaching the Word of Atheism* notes the forceful nature of creationism into Canadian schools and bias against atheists in the family court system too.<sup>183</sup> What remains the highest importance about this separation, the absolute division between church and state?**

Religion is a personal matter as are family and personal relationships. In a free and democratic society, the only guarantee that you can keep your personal religious beliefs or your family structure or maintain the relationships that are important to you is by keeping government and by extension, laws out of those areas. When someone tells me that their religion should inform how we are governed my first questions is, which of the thousands of versions of your religion do you want? Which interpretation of you scripture do you want to live under. Religion is something not even the religious can agree on how on earth could we form a societal structure that at its core is purely personal and introspective? The only way to design a society and laws so as to serve the most number of people is to base them on the things we have in common, not those things that divide us and religion is the great divider. The problem we secularists face is that the religious have had it their way for thousands of years. They do not want to give up any ground, this is understandable. But when someone asks for the same rights you have, it is not taking away your rights, many religious people see it this way and we need to fight this notion.

**20. Dr. Carl Sagan gets quoted a lot. A great science communicator who carved the paths for numerous artists, fellow science communicators, professional scientists, and public intellectuals to express personal**

<sup>177</sup> [David Berner] (2015, April 8). Episode #151, DR. SUE HUGHSON, SHAW TV, David Berner April 8, 2015. Retrieved from <https://www.youtube.com/watch?v=u9ukJ1hDcJ0>.

<sup>178</sup> Society for Humanistic Judaism (2015). Society for Humanistic Judaism. Retrieved from <http://www.shj.org/>.

<sup>179</sup> Unitarian Universalist Association (2015). Unitarian Universalist Association. Retrieved from <http://www.uua.org/>.

<sup>180</sup> Flynn, T. (2012, August 23). What Is Religious Humanism- Really?. Retrieved from [http://www.centerforinquiry.net/blogs/entry/what\\_is\\_religious\\_humanism--\\_really/](http://www.centerforinquiry.net/blogs/entry/what_is_religious_humanism--_really/).

<sup>181</sup> Too many to provide a comprehensive list of the organizations and individuals involved in this endeavour of theistic humanism.

However, these should provide sufficient information for the ideas contained within this extension and adaptation of humanism for the transformation of standardized theist beliefs and theological concepts.

<sup>182</sup> Egan, D (2007, January 17). Preaching the Word of Atheism. Retrieved from <http://theyee.ca/Life/2007/01/12/Atheism/>.

<sup>183</sup> The Vancouver Sun (2006, April 6). 2) No God, no good. When it comes to intolerance, America's a match for Afghanistan. Retrieved from <http://www.canada.com/vancouversun/columnists/story.html?id=92ae2eb3-7d80-42b9-befb-7a207192f1f1&p=3>.

wonder for the universe. One quote, attributed to him, became immortalized about extraordinary claims with the need for proportioned evidence, which states, “Extraordinary claims require extraordinary evidence,” even quoted in the CFI Canada updates, for instance.<sup>184,185</sup> An adaptation from Marcello Truzzi’s quotation, which states, “An extraordinary claim requires extraordinary proof.”<sup>186,187</sup> You typed one coda sentence, and in other forms throughout the article *On Atheists*:

*Claiming there is an unseen transcendental being who is outside space and time and created the entire universe is a pretty extraordinary claim so the evidence had better be pretty extraordinary.*<sup>188</sup>

**What evidences and arguments make a transcendental being seem impossible, implausible, or unreasonable to you?**

It is not the evidence or arguments for the existence of god that are unreasonable, it is the lack of evidence and sound argument that makes gods highly improbable. I have read dozens of books both for and against, seen dozens of hours of debates with brightest and the best of both sides and after all that I have yet to hear a convincing argument in favour of a god. The arguments in favour of a god could fill an encyclopaedia and after all that human effort, no one has proved anything, every argument seems to end with “well ya gotta have faith”, that to me is an admission of defeat.

**21. What evidences and arguments might make a transcendental entity or object with some, most, or all of the traditional “divine attributes” appear possible, plausible, or reasonable to you?**<sup>189</sup>

I have given this a lot of thought over the years and every bit of evidence that I can think of that might convince me that there is a god, I can think

<sup>184</sup> CFI Canada (2015, May 12). Critical Links 2015/05/12: CFIC’s Updates and News on Science and Secularism. Retrieved from <https://extraordinarybus.wordpress.com/2015/05/12/critical-links-20150512-cfics-updates-and-news-on-science-and-secularism/>.

<sup>185</sup> CFI Canada (2015, June 16). Critical Links 2015/06/16 CFIC News and Updates. Retrieved from <https://extraordinarybus.wordpress.com/2015/06/16/critical-links-20150616-cfic-news-and-updates/>.

<sup>186</sup> Even further backward in the historical record, David Hume in *An Enquiry Concerning Human Understanding* (1748) - Section X, Of Miracles. Part I. - enunciates a synonymic principle, as follows:

*Nothing is so convenient as a decisive argument of this kind, which must at least silence the most arrogant bigotry and superstition, and free us from their impertinent solicitations. I flatter myself, that I have discovered an argument of a like nature, which, if just, will, with the wise and learned, be an everlasting check to all kinds of superstitious delusion, and consequently, will be useful as long as the world endures. For so long, I presume, will the accounts of miracles and prodigies be found in all history, sacred and profane. Though experience be our only guide in reasoning concerning matters of fact; it must be acknowledged, that this guide is not altogether infallible, but in some cases is apt to lead us into errors. One, who in our climate, should expect better weather in any week of June than in one of December, would reason justly, and conformably to experience; but it is certain, that he may happen, in the event, to find himself mistaken. However, we may observe, that, in such a case, he would have no cause to complain of experience; because it commonly informs us beforehand of the uncertainty, by that contrariety of events, which we may learn from a diligent observation. All effects follow not with like certainty from their supposed causes. Some events are found, in all countries and all ages, to have been constantly conjoined together: Others are found to have been more variable, and sometimes to disappoint our*

*expectations; so that, in our reasonings concerning matter of fact, there are all imaginable degrees of assurance, from the highest certainty to the lowest species of moral evidence. A wise man, therefore, proportions his belief to the evidence. In such conclusions as are founded on an infallible experience, he expects the event with the last degree of assurance, and regards his past experience as a full proof of the future existence of that event. In other cases, he proceeds with more caution: He weighs the opposite experiments: He considers which side is supported by the greater number of experiments: to that side he inclines, with doubt and hesitation; and when at last he fixes his judgement, the evidence exceeds not what we properly call probability. All probability, then, supposes an opposition of experiments and observations, where the one side is found to overbalance the other, and to produce a degree of evidence, proportioned to the superiority. A hundred instances or experiments on one side, and fifty on another, afford a doubtful expectation of any event; though a hundred uniform experiments, with only one that is contradictory, reasonably beget a pretty strong degree of assurance. In all cases, we must balance the opposite experiments, where they are opposite, and deduct the smaller number from the greater, in order to know the exact force of the superior evidence.*  
[Emphasis, bolded, added.]

<sup>187</sup> Hume, D. (1748). *An Enquiry Concerning Human Understanding*: Section X, Of Miracles. Part I. Retrieved from <https://www.gutenberg.org/files/9662/9662-h/9662-h.htm>.

<sup>188</sup> O’Brien, P. (2014, August 12). *On Atheists*. Retrieved from <http://www.companyofdisciples.com/on-atheists-by-pat-obrien-of-cfi-canada/>.

<sup>189</sup> Divine attributes tend to emerge in the theological literature about an architect, creator, or designer to the universe. Some include all-good, all-loving, all-knowing, all-powerful, and so on.



of a naturalistic explanation. In other words, I honestly cannot think of any evidence that could convince me. But that does not mean there isn't any, other wise I am guilty of the argument from ignorance fallacy. No, if there really is a god who literally created my mind, then that god would know exactly what kind of evidence could convince me. So if there is a god, the evidence is trivial for it to produce. The fact that this evidence is not forthcoming gives me comfort that there is none. Of course the theists would say "Ya gotta have faith", and that, QED, is the worst kind of evidence.

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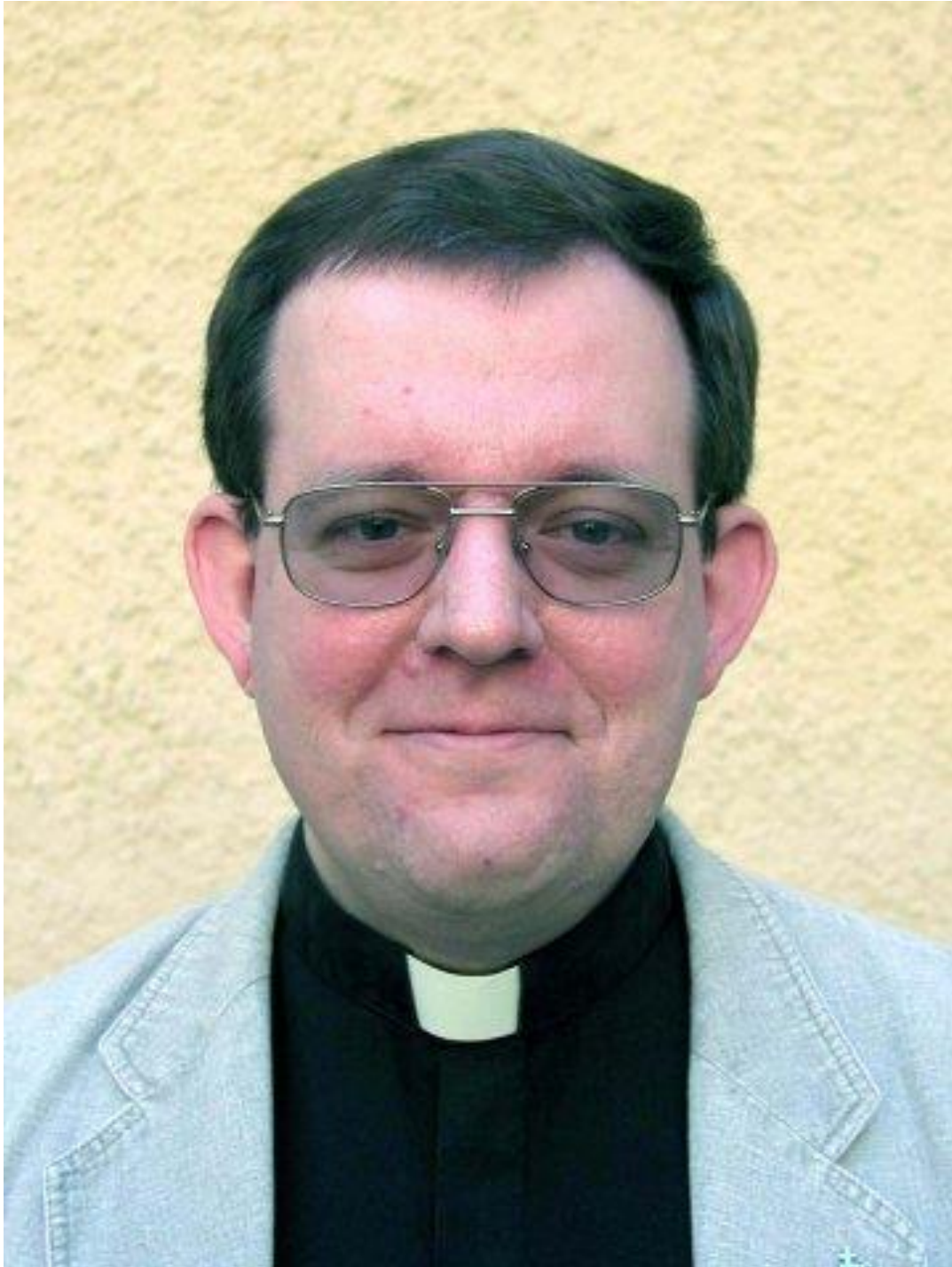


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# Dr. Fr. Paul Gabor, S.J.





Interviewer: Scott Douglas Jacobsen  
 Title: In-Sight: Independent Interview-Based Journal  
 Place of Publication: Langley, British Columbia, Canada  
 Name of Publisher: In-Sight Publishing  
 Numbering: Issue 10.A, Idea: Outliers & Outsiders (Part Six)  
 Individual Publication Date: March 8, 2016 (2016-03-08)  
 Issue Publication Date: May 1, 2016 (2016-05-01)  
 Frequency: Three Times Per Year  
 Web Domain: [www.in-sightjournal.com](http://www.in-sightjournal.com)  
 ISSN 2369-6885

### Abstract

**An interview with Dr. Fr. Paul Gabor, S.J. He discusses: childhood and adolescence trajectory influence on him, pivotal moments in personal development towards an interest in science and theology, the gains from the research and professional experiences; motivation for interest in philosophy and theology; the way that the priesthood entered and benefits personal life, and the greatest intellectual stimulation from within the Jesuits; origin of interest in physics, the physics of the small scale, and the instrumental side of particle physics; PhD work and entailed work, explanation for the lay person, and the esoteric aspects of this research.**

**Keywords:** CERN, Fr. Paul Gabor, Košice, Particle Physics, science, Society of Jesus, theology, Vatican Observatory.

### An Interview with Dr. Fr. Paul Gabor, S.J. (Part One)<sup>190,191,192</sup>

*\*Footnotes throughout the interview, and bibliography and citation style listing after the interview.\**

1. You were born and raised in Košice, Slovakia<sup>193</sup>. You studied Particle Physics<sup>194</sup> at Charles University<sup>195</sup> in Prague, Czech Republic<sup>196</sup> from 1988 to 1995<sup>197</sup>. You did instrumental work and participated in the development of the *A Toroidal LHC Apparatus*<sup>198</sup> (ATLAS) detector of the *Large Hadron Collider*<sup>199</sup> (LHC) at The European laboratory for Particle Physics<sup>200,201</sup> (CERN) in Geneva, Switzerland<sup>202</sup>.<sup>203</sup> How did childhood and adolescence influence this trajectory? What pivotal events in personal development lead to an interest in science and theology? What did you most gain from these research and professional experiences?

I must have had a vocation to priesthood since childhood. Growing up behind the Iron Curtain, however, meant that I had a very convenient excuse not to do anything about it. You see, the avenue to public ministry passed through a couple of secret police-controlled seminaries. And so, in 1987, following in the footsteps of the Prophet Jonah, I applied to study particle physics at Charles University in Prague instead of heeding my vocation.

2. Furthermore, and with specifics, how did this interest in physics, physics of the small scale,

<sup>190</sup> Vice Director, Vatican Observatory Research Group.

<sup>191</sup> Individual Publication: March 8, 2016 at [www.in-sightjournal.com/an-interview-with-fr-paul-gabor-sj-part-one](http://www.in-sightjournal.com/an-interview-with-fr-paul-gabor-sj-part-one); Full Issue Publication: May 1, 2016 at [www.in-sightjournal.com/an-interview-with-fr-paul-gabor-sj-part-one](http://www.in-sightjournal.com/an-interview-with-fr-paul-gabor-sj-part-one).

<sup>192</sup> MSc (1988-1994), particle physics, Charles University in Prague; BA (1997-1999), philosophy, Ignacjanum; BA (2000-2003), theology, Centre Sèvres; and PhD (2005-2009), Astrophysics, Université Paris Sud (Paris XI).

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<sup>201</sup> CERN (2014). About CERN. Retrieved from <http://home.web.cern.ch/about>.

<sup>202</sup> Geneva. (2014). In *Encyclopædia Britannica*. Retrieved from <http://www.britannica.com/EBchecked/topic/229000/Geneva>.

<sup>203</sup> Vatican Observatory Foundation (2014). Paul Gabor, S.J.. Retrieved from <http://vaticanobservatory.org/about-us/personnel-and-research/73-personnel-and-research/paul-gabor-sj/332-paul-gabor-sj>.

### and the instrumental side of Particle Physics enter your life?

Unlike Jonah whose detour was not very pleasant (he was thrown overboard and swallowed by a sea monster which then took him where the Lord had intended), my sojourn among particle physicists was unexpectedly pleasant. The Iron Curtain fell, and I found myself working in Geneva and Grenoble as well as in Prague among research scientists whom I discovered to be, by and large, very generous and great people.

3. **Upon completion of this research and work, you entered the *Company of Jesus*<sup>204,205,206</sup> in 1995.<sup>207</sup> You completed a two-year novitiate in Kolin, Czech Republic<sup>208, 209</sup> You studied Philosophy for two years in Cracow, Poland<sup>210</sup>, and taught philosophy for one year in Olomouc, Czech Republic<sup>211, 212, 213</sup> In addition to this extensive training, you studied Theology in Paris, France and had ordination in the Priesthood in 2004.<sup>214</sup> What motivated interest in Philosophy and Theology?**

By 1995, however, God's nagging became so overwhelming that I joined the Jesuits. The moment I stepped foot into the novitiate, the nagging stopped, and I felt a profound peace that comes from knowing that things have fallen into place. The novitiate itself was fairly depressing but, despite the turmoil and frustration of the more superficial strata of my being, there was an underlying peace. As for science, I thought that joining the Jesuits put an end to that. I thought that with my background I might perhaps be suited to do some apostolic work among scientists but that my days in the laboratory were over.

After novitiate, I was sent to Cracow to study philosophy. I spent two years there, 1997/1999.

Looking for intellectual stimulation, I soon found a unique seminar, held by Michael Heller (Templeton Prize 2008), a diocesan priest, philosopher and mathematical physicist. The participants were undergraduates as well as professors, from a very broad range of disciplines – from logic and mathematics, through physics to psychology. One spring day in 1999, Professor Heller told me, “The Church needs you at the Vatican Observatory.” It came out of the blue, and I did not really think it realistic, considering the priorities of my immediate superiors.

I returned to Czechia to teach philosophy for a year in Olomouc. After that, in 2000, I went to do my theological studies in Paris. In January 2001, I received an invitation from Fr. George Coyne, Director of the Vatican Observatory, to come for an extended visit in the summer, ostensibly for the 4-week VOSS (Vatican Observatory Summer School; held typically every two years since 1986). I got permission and went. It was a very positive experience. In C. P. Snow's terms, most Jesuits are firmly attached to the culture of humanities, and Jesuit scientists stand out in our communities as exceptions to the rule.

4. **How did the Priesthood enter your life? How does the Priesthood benefit you? Where do you find the greatest intellectual stimulation within the Jesuits?**

During my early years in the Society of Jesus, I had come across a few Jesuit scientists who worked in research institutes while leading somewhat isolated lives in Jesuit communities, with the divide between Snow's Two Cultures running deep across the common room. The Vatican Observatory, however, represents a Jesuit community where a scientist can feel at home. I saw that these Jesuits did scientific

<sup>204</sup> A religious order founded by Saint Ignatius of Loyola given the original appellation “The Company of Jesus.”

<sup>205</sup> Jesuit. (2014). In *Encyclopædia Britannica*. Retrieved from <http://www.britannica.com/EBchecked/topic/302999/Jesuit>.

<sup>206</sup> Society of Jesus (2014). The Jesuit Curia in Rome. Retrieved from <http://www.sjweb.info/>.

<sup>207</sup> Vatican Observatory Foundation (2014). Paul Gabor, S.J.. Retrieved from <http://vaticanobservatory.org/about-us/personnel-and-research/73-personnel-and-research/paul-gabor-sj/332-paul-gabor-sj>.

<sup>208</sup> Czech Republic. (2014). In *Encyclopædia Britannica*. Retrieved from <http://www.britannica.com/EBchecked/topic/149085/Czech-Republic>.

<sup>209</sup> Czech Republic. (2014). In *Encyclopædia Britannica*. Retrieved from <http://www.britannica.com/EBchecked/topic/149085/Czech-Republic>.

<sup>210</sup> Republic of Cracow. (2014). In *Encyclopædia Britannica*. Retrieved from <http://www.britannica.com/EBchecked/topic/141562/Republic-of-Cracow>.

<sup>211</sup> Olomouc. (2014). In *Encyclopædia Britannica*. Retrieved from <http://www.britannica.com/EBchecked/topic/427902/Olomouc>.

<sup>212</sup> Olomouc. (2014). In *Encyclopædia Britannica*. Retrieved from <http://www.britannica.com/EBchecked/topic/427902/Olomouc>.

<sup>213</sup> VOS Caritas Olomouc (2014). VOS Caritas Olomouc. Retrieved from <http://www.caritas-vos.cz/en>.

<sup>214</sup> VOS Caritas Olomouc (2014). VOS Caritas Olomouc. Retrieved from <http://www.caritas-vos.cz/en>.



apostolate and had daily support of others sharing their mission.

Back in Prague, when I spoke to my Provincial, I did not tell him that I wanted to join the Vatican Observatory staff but my description of the Observatory's apostolate must have been so enthusiastic that the Provincial told me straight away to looking into attending some classes in astrophysics during my spare time in Paris. By November 2001, it was decided that my formation will continue under the assumption that I would be joining the Vatican Observatory. That meant going back to Olomouc in 2003, ordination to the priesthood in 2004, exercise of pastoral duties in the University parish, return to Paris in 2005 for a "refresher" in physics which took the form of a second M.Sc. in 2006, and then a doctorate in astrophysics in 2009.

My Jesuit formation was then rounded off by seven months of tertianship (an Ignatian repetition of the novitiate, with another 30-day retreat, lots of prayer and reflection) in Australia in January-August 2010. I joined the Observatory in September 2010 and pronounced my final solemn vows in the presence of Father General Nicolas at the Roman Church of Il Gesu` (the Name of Jesus) where St Ignatius is buried on December 8, 2010.

Speaking of my formation as a member of a religious order, I must touch upon one additional point. When I was twelve, I went through few very dark months resulting in my first conversion. It was very similar to Pascal's wager, and as such, it was an intellectual conversion. Fifteen years later, my philosophical studies in Cracow brought about a second dark period when I realized that in spiritual matters, intellect cannot provide the level of certainty which I had attributed to it. It was not until my theological training in Paris, another five years down the road, that I admitted to myself that my faith had been a form of intellectual conviction. At about the same time, I began to realize that for decades I had been overlooking something precious and important. When I was fifteen, I had a mystical encounter with God's mercy. It

was not until 2010, during my tertianship in Australia, that I started drawing from this source. The moral of the story is that the most important things can take surprising amounts of time, that even decades of formation in a religious order can be a very slowly acting remedy, and that perhaps many people mistake the significance of their various encounters with God's grace.

5. **You entered a PhD program in Astrophysics with Alain Léger<sup>215</sup>, the individual that proposed the Darwin space observatory<sup>216</sup>, after ordination and earned the PhD in 2009.<sup>217</sup> You chose instrumentation and research at the *Institut d'Astrophysique Spatiale*<sup>218</sup>, University of Paris XI<sup>219</sup>. You focused on "two optical test beds, SYNAPSE and NULLTIMATE." What did this work entail? How can you explain this for the lay person? (In particular, the two optical test beds.) What count as the more esoteric aspects of this research?**

Exoplanets. Astrobiology. Nulling interferometry.

Since the discovery of the first exoplanet (planets orbiting other stars than our Sun) in 1995, thousands have been found. Apart from a handful which are very large and very far from their host star, we cannot take pictures of them. In fact, we only discover them by carefully analyzing the light of their host stars. For instance, if we see that the star grows periodically fainter, it may be an indication that there is a transiting planet and it obscures a part of the star's light when passing between us and the star.

These indirect methods allow us to learn interesting things about the exoplanets but we would like to learn more. In particular, we would like to be able to measure the chemical composition of atmospheres of Earth-size exoplanets to see whether there is anything hard to explain by pure inorganic chemistry. In other words, to find biosignatures. If alien astronomers are studying the Earth they may wonder why there is water vapour, carbon dioxide, and

<sup>215</sup> Ollivier, M. & Léger, A. (2006). Darwin: A Space Observatory for the Direct Detection of Exoplanets. Retrieved from <http://adsabs.harvard.edu/full/2006ESASP1306..505O>.

<sup>216</sup> Ollivier, M. & Léger, A. (2006). Darwin: A Space Observatory for the Direct Detection of Exoplanets. Retrieved from <http://adsabs.harvard.edu/full/2006ESASP1306..505O>.

<sup>217</sup> LinkedIn (2014). Paul Gabor: Vice Director, Vatican Observatory. Retrieved from <https://www.linkedin.com/pub/paul-gabor/16/469/171>.

<sup>218</sup> Institut d'Astrophysique Spatiale (2014). Institut d'Astrophysique Spatiale. Retrieved from <http://www.ias.fr/en>.

<sup>219</sup> University of Paris XI (2014). University of Paris XI. Retrieved from <http://www.u-psud.fr/en/index.html>.

oxygen in our atmosphere. Oxygen is so highly reactive that it cannot remain in an atmosphere in such abundance without being replenished constantly by some production mechanism. Otherwise, it would form oxides with various minerals on the planet's surface, and free oxygen would soon disappear from the atmosphere. Therefore, the simultaneous presence of water vapour, carbon dioxide, and oxygen is a biosignature. The alien astronomer could deduce from it the existence of life on Earth. If we find an exoplanet with such biosignatures, then we would have a target that might mobilize enough interest in the world that nations would agree to go to have a closer look.

In order to do that we need to learn how to distinguish the light coming from the exoplanet from the much brighter light coming from its host star. When seen from a distance, say by a hypothetical alien astronomer, the Earth is 10 billion times fainter than the Sun in the visible light. What is more, the Earth would be so close to the Sun that, from the point of view of the alien astronomer, the two would blur into a single point of light. It is like looking at the headlights of a distant vehicle: you cannot tell how many there are; they blur into a single source of light. The huge contrast plus the tiny separation between the planet and its host star represent two of the major obstacles to learning more about exoplanets. It can be done, though. One approach is interferometry.

The idea of "beams of light" focused by the eye's lens is how geometrical optics describes vision. With this simple model of how lenses work, optical astronomers produce images and work with them. When optical astronomers want to know the size of a galaxy, they take a picture, measure the apparent size and multiply it by the scale factor. Radio astronomers, on the other hand, cannot really obtain classical images in this way. Radio waves and light waves obey the same physics but the wavelengths are very different: radio waves are more than a million times longer. This means that if a radio telescope was to have the same resolving power as your eye it would have to be at least a couple of miles across! So, if radio astronomers want to know the size of a galaxy, instead of taking a picture and measuring it, they use a trick called interferometry. It has to do with comparing the time of arrival of the wave at different locations. Instead of one impossibly large radio telescope, with a dish spanning hundreds of miles, radio astronomers use arrays of small dishes separated by large distances. Then they compare the arrival times and other properties of the wave measured in those separate locations and this allows them to measure properties of radio sources, e.g., sizes of galaxies. In a way, they bypass taking pictures and obtain the desired quantities directly from the properties of the waves.

Interviewer: Scott Douglas Jacobsen

Title: In-Sight: Independent Interview-Based Journal

Place of Publication: Langley, British Columbia, Canada

Name of Publisher: In-Sight Publishing  
 Numbering: Issue 10.A, Idea: Outliers & Outsiders (Part Six)  
 Individual Publication Date: March 15, 2016 (2016-03-15)  
 Issue Publication Date: May 1, 2016 (2016-05-01)  
 Frequency: Three Times Per Year  
 Web Domain: [www.in-sightjournal.com](http://www.in-sightjournal.com)  
**ISSN 2369-6885**

### Abstract

**An interview with Dr. Fr. Paul Gabor, S.J. He discusses: description of research areas and the reason for personal interest in these areas; entering the ranks of the Vatican Observatory, and the main misconception about the purpose of the Vatican Observatory's Research Group in Tucson, Arizona and the Vatican Observatory in general; source of ability to speak eight languages and the ability's assistance in current work; convictions in Roman Catholicism, and arguments and evidences for the truth of Christianity in general and Roman Catholicism in particular; and the current activities at the Vatican Observatory at the moment and the aim of research in the future.**

**Keywords:** Fr. Paul Gabor, Roman Catholicism, Vatican Observatory.

### An Interview with Dr. Fr. Paul Gabor, S.J. (Part Two)<sup>220,221,222</sup>

*\*Footnotes throughout the interview, and bibliography and citation style listing after the interview.\**

6. **Your research interests lie in “tests of achromatic phase shifters, stabilization (through optical path dithering), wave front filtering (with single mode fibers), polarization and other issues regarding the implementation of nulling interferometry, techniques and instrumentation that can be used to discover planets orbiting other stars.”<sup>223</sup> In brief, could you describe each of these areas? Furthermore, could you provide the reason for your personal interest in this research?**

Interferometry can be used also with optical telescopes. It is very hard, though. Since radio waves have wavelengths of inches or even miles, the instruments needed to manipulate them are of comparable size and the quality of the machining (tolerance of bumpy surfaces) suffices to be at a similar level. In optical astronomy, wavelengths are about one hundredths of a human hair, and therefore the quality of the surfaces needs to be a million times better than with radio instruments. This is one reason why optical interferometry is so much harder than radio interferometry.

Let's return to exoplanets. In order to learn more about them we need to develop techniques allowing us to separate the exoplanet's light from its host star's. This can be done using a particular interferometric method, called nulling. A nulling interferometer makes the star appear much fainter than it is, while leaving the exoplanet at full brightness. It does it by cleverly combining the troughs and crests of optical waves. Since we need to overcome a contrast of ten orders of magnitude (1 unit to 10 billion), the level of control we need to have over the optical waves needs to be on a corresponding level. In other words, the instrument needs to control the geometric lengths of all optical paths within it (usually hundreds of meters) with an accuracy of a thousandth of a wavelength, i.e., a thousandth of a hundredth of a human hair: that is about the size of a single atom. It can be done. In fact, it was one of the things I did to earn my Ph.D.

Several ways of separating planet light from starlight are currently studied. Nulling interferometry is just one them. What remains to be seen is which of these methods is best and

<sup>220</sup> Vice Director, Vatican Observatory Research Group.

<sup>221</sup> Individual Publication: March 15, 2016 at [www.in-sightjournal.com/an-interview-with-fr-paul-gabor-sj-part-one](http://www.in-sightjournal.com/an-interview-with-fr-paul-gabor-sj-part-one); Full Issue Publication: May 1, 2016 at [www.in-sightjournal.com/an-interview-with-fr-paul-gabor-sj-part-one](http://www.in-sightjournal.com/an-interview-with-fr-paul-gabor-sj-part-one).

<sup>222</sup> MSc (1988-1994), particle physics, Charles University in Prague; BA (1997-1999), philosophy, Ignacjanum; BA (2000-2003), theology, Centre Sèvres; and PhD (2005-2009), Astrophysics, Université Paris Sud (Paris XI).

<sup>223</sup> Vatican Observatory Foundation (2014). Paul Gabor, S.J.. Retrieved from <http://vaticanobservatory.org/about-us/personnel-and-research/73-personnel-and-research/paul-gabor-sj/332-paul-gabor-sj>.

decide a plan of action, building advanced facilities on the surface of the Earth and in orbit.

7. **In the September of 2010, you entered the ranks of the Vatican Observatory<sup>224, 225</sup>. You had assignment to the Vatican Observatory's Research Group in Tucson, Arizona<sup>226</sup>, and became the Vice Director in September 2012.<sup>227</sup> What do you consider the main misconception about the purpose of the Vatican Observatory's Research Group in Tucson, Arizona and the Vatican Observatory in general?**

The Vatican Observatory is a standard research institute in the field of astrophysics. It is an institution of the Vatican City State, and its research staff are members of the clergy. The Observatory's activity, however, is quite ordinary astrophysical research. There are numerous misconceptions about the Observatory's work. People sometimes think we make horoscopes for the Pope or that we have been charged with resolving the enigma of the Star of Bethlehem. None of this is true.

And speaking of misconceptions, the word "observatory" itself is somewhat misleading. Literally, it designates a place where observation is conducted. Many astrophysical research institutes are called "observatories" because in the past they truly were places of observation. The institutions, still called "observatories" by inertia, conduct observations today in remote locations where they have placed their telescopes and other observing facilities to escape light pollution. The institution's headquarters remain in the original locations, often with some historical instruments still on the premises. This is also the case of the Vatican Observatory. The institution has two sites with offices, libraries, meeting rooms, etc. One is at the Papal summer residence of Castel Gandolfo, and the other is in the main building of the Department of Astronomy of the University of Arizona in Tucson. Currently we operate only one telescope.

It is on Mt Graham in Arizona, about 3 ½ hour drive from campus.

8. **You speak eight languages at various proficiencies with great proficiency in English, Polish, Czech, Slovak, and French, and elementary proficiency in Italian, German, and Hungarian.<sup>228</sup> Where does this polyglot<sup>229</sup> ability source itself? How does this assist in your current work?**

I am very fortunate that I was exposed to multiple languages at an early age. My mother was an English teacher, and we had English friends who would spend time at our home. She taught me English in such a natural way that I do not recall learning it. I have only vague snippets of memories of playing with my mother, and, as she told me later, she would sometimes use English, and of listening to a recording of Alice Through the Looking Glass over and over (I don't know why it held such a sway over me). I believe that exposure to languages at an early age is a necessary, although not sufficient, condition for good aural comprehension and good pronunciation. I grew up hearing Slovak, Czech, Hungarian, and English on a daily basis. When I learned Russian, German, French, Polish and Italian, comprehension and pronunciation came to me easily. A Czech friend of mine in Paris did some research into the issue because she wanted to know how to bring up her children to be bilingual. She found that exposure to several languages at an early age may cause some children problems. I would say that it is well worth the risk. Each language is a new world and if you master it, it is a new home.

9. **In terms of the relationship between science and theology, much writing, and modern discourse emerges with rediscovery of prior theologians, religions, and irreligious thinkers, and some in groups such as the The New Atheists, where does your conviction in Roman Catholicism lie? In particular, what arguments and evidences most convince you**

<sup>224</sup> Vatican Observatory Foundation (2014). History. Retrieved from <http://vaticanobservatory.org/about-us/history>.

<sup>225</sup> Vatican Observatory Foundation (2014). Paul Gabor, S.J.. Retrieved from <http://vaticanobservatory.org/about-us/personnel-and-research/73-personnel-and-research/paul-gabor-sj/332-paul-gabor-sj>.

<sup>226</sup> Tucson. (2014). In *Encyclopædia Britannica*. Retrieved from <http://www.britannica.com/EBchecked/topic/608409/Tucson>.

<sup>227</sup> Vatican Observatory Foundation (2014). Paul Gabor, S.J.. Retrieved from <http://vaticanobservatory.org/about-us/personnel-and-research/73-personnel-and-research/paul-gabor-sj/332-paul-gabor-sj>.

and-research/73-personnel-and-research/paul-gabor-sj/332-paul-gabor-sj.

<sup>228</sup> LinkedIn (2014). Paul Gabor: Vice Director, Vatican Observatory. Retrieved from <https://www.linkedin.com/pub/paul-gabor/16/469/171>.

<sup>229</sup> An individual with knowledge of multiple language. Someone with an aptitude for acquisition of languages, i.e. someone capable of speaking many languages with fluency.

### of the truth of Christianity in general and Roman Catholicism in particular?

Raymond of Sabunde in the early 15<sup>th</sup> century developed the doctrine of the Two Books. The roots of this teaching may be found already in St Paul (Rom 1:20) and several Church Fathers. The idea is simple: In his desire to reveal himself to us, God gave us two books, the Book of Nature and the Book of Scripture. Neither are an easy read but both are from the same Author, and therefore cannot be in contradiction. Galileo embraced the idea and developed it further, noting that the language of the Book of Nature is mathematics.

This doctrine implies that the faithful should not be leery of science. People often confuse Science herself with what the Enlightenment, French positivism and other philosophical currents mistakenly ascribed to her: an assault on Mystery. It is true that philosophy in general, and natural philosophy in particular have demythologized the educated person's view of the world. But the demise of animism, hylozoism and ancient mythologies among ordinary people must be attributed to the disproportionate effectiveness of the Gospel in transforming human hearts and societies.

Unlike myth, however, Mystery is an irreducible reality. It cannot be reduced to simpler terms. It is a dimension of reality. Either you perceive it or you do not. And most scientist do perceive it and marvel at it, regardless of their religious confession. Let me quote Richard Feynman, whom nobody would accuse of religious belief, "Why nature is mathematical is a mystery. [...] the fact that there are rules [laws of nature] at all is a kind of miracle." Mystery with a capital "M" cannot be explained away. Scientists feel it as a subtle and intriguing beckoning. Rudolph Otto called this aspect of Mystery, *mysterium fascinans*. Science is a dialogue between attentive students of the Book of Nature and its Author. It is a path leading ever deeper into Mystery.

Look at those who undertake the journey and at its effects on them. They feel incredibly privileged that Mystery invites them to its intimate presence. Galileo wrote, "I am infinitely grateful to God who has deigned to choose me alone to be the first to observe such marvelous things which have lain hidden for all ages past." Gratitude is the foundation of all true religion.

Creator, the Author of the Book of Nature, wants to be known. The God of Israel reveals Himself, "I [Wisdom] was daily his [God's] delight, rejoicing always before him; rejoicing in the habitable part of his earth; and my delights were with the sons of men. [...] Wisdom] has killed her beasts; she has mingled her wine; she has also furnished her table [...] She cries upon the highest places of the city, 'Come, eat of my bread, and drink of the wine which I have mingled'." (Prov 8:30-31; 9:2-5) Science would be consummate impiety, presumptuous vanity and odious sacrilege if God chose to stay hidden. Faith in a God who wants to be known, who goes to extreme ends to be known, who "came down from heaven, and was incarnate by the Holy Spirit of the Virgin Mary, and was made man", is in perfect harmony with the adventurous undertaking we call science.

Science also implies a certain ethics. Here are a few examples. Science can be done only in a society valuing truth above courtesy. Those who are too arrogant and egocentric cannot do science. At some point in their career, their expectations will be frustrated, the experiments will falsify their hypotheses, empirical facts will contradict them. When that happens, the arrogant and egocentric ultimately have only two choices: become humble or leave science. The Czech poet Otakar Brezina called science "asceticism most sublime". It is the enthusiastic and spontaneous asceticism of children at play, immersed in their game, forgoing and forgetting everything else. If aliens come in spaceships, conquering cosmic distances, we can be sure that we will have a lot in common because their society, like ours, will have engaged in science. Assiduous reading of the Book of Nature (like that of the Book of Scripture) transforms individuals and societies – very slowly and painfully but inexorably.

### 10. What current research activities does the Vatican Observatory conduct at the moment? What does the group aim to research in the near and far future?

Most people think that a research institute is like an enterprise, with some strategic plan of activity. Some institutes have one, but this is not particularly useful. In our case, research at the Vatican Observatory is multiple and varied. It is not because we have some clever plan to cover key areas of current research but rather because



we have a limited pool from which we can recruit research staff. Leo XIII in 1891 wanted to show clergy doing science, and therefore our research staff is exclusively clergy. As a result, our research is a function of the individuals and their interests.

We do have two major assets representing the Observatory's research infrastructure. The first one is the Vatican collection of meteorites. Meteorites are samples of Solar-System bodies, of asteroids and comets, and some are also samples of the Moon and Mars. Some contain grains that have been unaltered since the time before the formation of the Solar System. Meteorites are an incredibly rich source of information for planetary science.

The second is the Vatican Advanced Technology Telescope (VATT) on Mt Graham in Arizona. Its primary is the prototype spin-cast mirror, made by Roger Angel and his team in the mid 1980s. It is parabolic, with a diameter of 1.8 metres and an equal focal length. Using the same technology, the Mirror Laboratory has since produced a number of 6.5-metre and 8.4-metre mirrors, the largest monolithic mirrors ever produced. VATT was dedicated in September 1993, and in order to produce good science for a few more decades, we decided to automate it together with University of Arizona's two other telescopes, creating a robotic telescope network.

Classic telescope-time management implied that scientists would submit observing proposals, and then telescope time would be allocated to them as a number of whole nights because observing meant going up to the telescope, operating it and acquiring data. This meant that each night the telescope would serve only one science case.

With larger, more costly and more complicated facilities, the system is different. The telescope is operated by a specialist operator. Data acquisition is sometimes conducted by the scientists themselves but increasingly also this is done by specialized personnel. There are major advantages to such a system. The facilities are exclusively in the hands of people who are efficient at what they are doing. Several science cases can be accommodated in a single night, adapting the programme to the conditions. The disadvantage is the cost.

Smaller telescopes cannot afford to employ the necessary specialists. The answer is robotic

operation. What is more, it turns out that robotic facilities are more efficient at certain types of tasks, such as repetitive monitoring of a large number of targets. Even the best trained humans cannot be expected to hop from one target to another after only a couple of minutes all night long, every night. The robot reduces the overhead time between data acquisitions (e.g., slewing and pointing) to a minimum. As a result, robotic facilities can conduct research programmes that have not been thinkable with human operators.

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# Alana Westwood



Interviewer: Scott Douglas Jacobsen  
Title: In-Sight: Independent Interview-Based Journal  
Place of Publication: Langley, British Columbia, Canada  
Name of Publisher: In-Sight Publishing

Numbering: Issue 10.A, Idea: Outliers & Outsiders (Part Six)

Individual Publication Date: March 22, 2016 (2016-03-22)

Issue Publication Date: May 1, 2016 (2016-05-01)

Frequency: Three Times Per Year

Web Domain: [www.in-sightjournal.com](http://www.in-sightjournal.com)

ISSN 2369-6885

## Abstract

**An interview with Alana Westwood. She discusses: background in science; national research coordinator position for Evidence for Democracy and its tasks and responsibilities; importance of public scientific organizations; research informing professional work; purposes of Evidence for Democracy; summary statement on published articles; hypothetical worst case scenario for Canadian citizens without accurate scientific information; hypothetical best case scenario for Canadian citizens without accurate scientific information; technological assistance in prevention of animal extinction; Canada becoming the next great nation in the middle and latter half of the twentieth century; observed impacts of E4D on policy and decision-making; and E4Ds near and far goals.**

*Keywords:* Alana Westwood, Canada, E4D, Evidence for Democracy, science.

## An Interview with Alana Westwood<sup>230, 231, 232, 233</sup>

*\*Footnotes throughout the interview, and bibliography and citation style listing after the interview.\**

### 1. What is your background in science growing up and into the present?

In terms of science formal training, I have an undergraduate degree in science from the University of Winnipeg. As well, I am almost finished my PhD at the University of Dalhousie department of biology in conservation biology with a focus on endangered species research. Informally, I've been doing science and science-related field work for over ten years now. It started as a young teenager: my summer job was counting mosquitoes, taking them out of traps, and sorting them into a genus. It's been a long experience with hands-on field-based science, particularly in conservation biology and the study of the environment.

### 2. You have the position of national research coordinator for Evidence for Democracy (E4D).<sup>234</sup> What responsibilities and tasks come with this position?

E4D is an organization that has been around for over two years. We are a young organization. We have four staff members and hundreds of volunteers. My position involves administration and development for the research program, and work with volunteers. We have volunteers leading research projects. Each has volunteers to work on these projects. Other projects are led by me. E4D is small. Even so, I write, work with media, and so on.

### 3. Why are public scientific organizations with the intent to inform public policy important to you?

It is a needed voice. An unheard voice in Canada. Scientists, those involved in science, have a training, expertise, and unique perspectives and insights – not to mention the opportunities to discover more. Before E4D, no cohesive voice existed for scientists and science in Canada. We need a healthy environment, healthy population, good science, good support for science, and good evidence-based decision-

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<sup>231</sup> Individual Publication Date: March 22, 2016 at [www.in-sightjournal.com](http://www.in-sightjournal.com); Full Issue Publication Date: May 1, 2016 at [www.in-sightjournal.com](http://www.in-sightjournal.com).

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<sup>233</sup> Photograph courtesy of Alana Westwood.

<sup>234</sup> Evidence for Democracy. (2016). Evidence for Democracy. Retrieved from <https://evidencefordemocracy.ca/en>.

making for an innovative nation. We had a vacuum before. There were fringe organizations. No one on the national stage said, “We need public policies backed by evidence-based decision-making.” There is a huge demand for this. We see this as supporters and volunteers. They come from every unlikely place, politically and occupationally.

**4. You are a PhD candidate on avian species at risk in forest landscapes at Dalhousie University under the supervision of Dr. Cindy Staicer. You have four refereed publications in relation to biology, ecology, and geoinformatics. Therefore, you have developed the relevant professional skills and knowledge for professional work in Evidence for Democracy. How does this research inform professional work at Evidence for Democracy?**

You need to understand science to be an advocate and voice for science. You need to understand collection, dissemination, researcher collaboration, basic research consequences into areas of innovation, and monitoring and baseline characterizations for understanding the next steps in the research. To be honest, I never felt right in science. Other scientists seem more curious curiosity-driven and passionate for natural systems in their research, not me. I was coming from a point of view of conservation and pragmatics. I derive means of informing decision-making for practical applications. In my case, I am working with endangered species. I

wanted to do research to address the declines of these species. I wanted to do a Ph.D. in science as opposed to environmental studies or philosophy. I needed to understand science. I needed to understand data gathering, data validation, and peer-review. *If you do not know that information, how can you tell good science from bad science?* When presented with facts, how can you evaluate conflicts of interest, even mistakes? It’s important to examine data sources and conclusions. I’ve worked with amazing scientists. I see the work, and the linkages and connections in their work. I work with federal scientists too. I have insight into their working conditions. It is something E4D is highly vocal about: wanting to change working conditions and the funding situation for federal scientists. For those reasons, especially with E4D for me, it would be impossible without the foundation in more traditional science.

**5. What are the purposes of Evidence for Democracy?**<sup>235</sup>

To promote evidence-based decision-making at all levels of government. To advocate for scientists for access to stable funding, and to communicate their research. We serve to educate and inform the public.

**6. You wrote articles such as *We need a national debate on science, Stephen Harper’s Blatant Hypocrisy on Science, and The need for evidence-based policies*.<sup>236,237,238,239,240,241,242,243,244</sup> An obvious**

<sup>235</sup> [TheRealNews]. (2015, October 22). Trudeau Pledge Tracker: Reinstating 40 Million in Science Funding and Appointing a Chief of Science. Retrieved from <https://www.youtube.com/watch?v=4Wozj-lPhno>.

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<sup>238</sup> Westwood, A. (2015, August 12). We need a national debate on science. Retrieved from <http://www.thestar.com/opinion/commentary/2015/08/12/we-need-a-national-debate-on-science.html>.

<sup>239</sup> Westwood, A. (2015, November 13). Over the past 10 years this deadly fungus has nearly wiped out North America’s bats. Retrieved from <http://community.lovenature.com/2015/11/13/over-the-past-10-years-this-deadly-fungus-has-nearly-wiped-out-north-americas-bats/>.

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<sup>244</sup> Westwood, A., Conciatori, F., Tardif, J., Knowles, K. 2012. Effects of *Armillaria* root rot disease on the growth of *Picea mariana* in the boreal plains of central Canada. *Forest Ecology and Management* 266: 1-10. Retrieved from <http://www.sciencedirect.com/science/article/pii/S0378112711006815>.



**stream of concern to do with evidence-based information innervating the world of public policy.<sup>245</sup> What is the summary statement on these, and other, published articles?**

I write more broadly (such as nature journalism and fiction). However, my E4D work into this previous election has been focused making sure Canadians know science is an important election issue. We have faced serious challenges to science with the past government. I want to ensure Canadians had the information necessary to their decision about support for science by the time of polling.

**7. Hypothetical worst case scenario: if Canadian citizens do not have accurate science information when making decisions about public policy, how would this affect their everyday lives?**

It would be hard to draw an immediate connection to a particular reduction and say, “Okay, this is the effect.” However, we would see severe indirect effects. For example, public-funded science is responsible for monitoring food safety and inspection, water quality, ocean health, and toxicology. We lost people from every department. If you do not have these checks and balances, problems will occur. When you cut science and stifle science, people think, “Okay, we’ll have less research for new discoveries.” However, a lot is maintaining the baseline, figuring out where we are, and tasks needing doing to keep people safe and healthy. It is important to ensure that the environment is not degraded to the point of inability to provide necessary ecological services.

**8. Hypothetical best case scenario: if Canadian citizens do have accurate science information when making decisions about public policy, how will this affect their everyday lives?**

Let’s say all governmental levels embrace evidence-based decision-making, parliamentary debate will become slow in the development of legislation. Why? Government would need to evaluate more facts and reports. We would need a Parliamentary Science Officer. The Liberals pledged to create one. Policies would receive further study with eventual implementation in

solid evidence. A good example is crime. Global consensus is increasing punishment for less serious offences increases recidivism. Other countries are moving from this model. Canada ignored the evidence for the previous four years. We saw minimum sentencing move *up*. On the flip side, if you were to have evidence-based decision-making, you would see reduction in small crime imprisonment, and increased focus on better health outcomes and better family outcomes for offenders.

**9. With respect to species at risk, for instance, bird species at risk, how can technology assist in preventing extinction of species that are risk such as various avian species?**

Technology assists comprehension. For example, we utilize advanced geo-spatial mapping methods, modelling methods, to understand bird migration and habitats. All of the time we are putting geo-locator tags on birds. As the technology improves, the tags get smaller. We track migration patterns and find at-risk habitats. Technology provides an idea of the needed conservation action. Ultimately, it comes down to the political realm whether conservation efforts happen, or not. Whether land is protected from development, climate policy, and climate change is a serious factor facing multiple bird species. Evidence-based decision-making commitment becomes a necessity. Indeed, technology can support more information. Even so, one’s use of the information is equally important, if not more important. In general, for bird extinction, technology will not save them. Only we develop the better relationship with resource efficiency and utilization.

**10. Could Canada become the next great nation in the middle and latter half of the twentieth century with respect to improvements in ecological and environmental science policy?**

It depends on if the social and political will is there. The way that we’ve seen things go in the last ten years has been the opposite. It will remain within the direction this new majority Liberal government takes for Canada.

**11. What have been the observed impacts of E4D on policy and decision-making?**

<sup>245</sup> [LegacyTVLive]. (2014, May 23). The Evidence for Democracy Alana Westwood (May 7 14) Host Parkland Institute. Retrieved from <https://www.youtube.com/watch?v=Yn7bjef4rMg>.



One big impact is raising consciousness and awareness. Science became an election issue. We were able to mobilize hundreds of volunteers. Thousands attended events and educational evenings, candidate debates, and panels organized by E4D and partner groups over the last few years. *It highlights the importance of science to citizens of Canada, evidence-based decision-making, and what this means for a democracy.* Every major newspaper covered the issue. The international community is aware. It catapulted into the public, which has never been seen before in Canada, ever.

## 12. What are its near and far goals?

We accomplished one major goal with the recent election. We focused information for citizens to scientifically-informed election choices. Future goals include holding the majority Liberal government to their promises with respect to science, support for science, and evidence-based decision-making. We want to continue work on this at other levels - at other organizational and governmental levels, to do a lot more public education. *Canadians do want evidence-based public policy decision-making.*

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# Dr. Katie Gibbs



Interviewer: Scott Douglas Jacobsen  
Title: In-Sight: Independent Interview-Based Journal  
Place of Publication: Langley, British Columbia, Canada  
Name of Publisher: In-Sight Publishing  
Numbering: Issue 10.A, Idea: Outliers & Outsiders (Part Six)  
Individual Publication Date: April 1, 2016 (2016-04-01)  
Issue Publication Date: May 1, 2016 (2016-05-01)

Frequency: Three Times Per Year  
 Web Domain: [www.in-sightjournal.com](http://www.in-sightjournal.com)  
 ISSN 2369-6885

### Abstract

**An interview with Dr. Katie Gibbs. He discusses: background in science; self-definition as a “scientist, organizer, and advocate for science and evidence-based policies”; social and political campaigning; tasks and responsibilities as the executive director for Evidence for Democracy; public scientific organizations with the intent to inform public policy personal importance; organization for the “Death of Evidence” rally; professional research background influence on work at E4D; purposes of E4D; core message for the public; responsibilities to the public, scientific, and public policy communities with exposure in the media as a central representative of E4D; observed impacts of E4D on policy and decision-making; and E4Ds near and far goals.**  
*Keywords:* Death of Evidence, Dr. Katie Gibbs, Evidence for Democracy, E4D.

### An Interview with Dr. Katie Gibbs<sup>246,247,248,249</sup>

*\*Footnotes throughout the interview, and bibliography and citation style listing after the interview.\**

#### 1. What is your background in science growing up and into the present?

I did my Ph.D. at the University of Ottawa in biology, but more specifically in conservation biology through looking at factors that affect endangered species. I did work on assessing legislation that aimed to protect endangered species, what aspects were working and what ones were not working.

#### 2. You self-define as a “scientist, organizer, and advocate for science and evidence-based policies.”<sup>250</sup> What does each title mean to you?

That’s a great question. The science is very much my background, my education. The thing is doing a Ph.D. in science is that it changes the way you think, even if you don’t go on to actually actively do science. You still always think like a scientist. I think there’s a lingering effect of thinking like a scientist – always being critical in a good way. Always trying to second-guess yourself, push yourself on really trying to look at evidence. The organizer, for me, that is really about organizing other people. It is about getting other people excited. For the past four years, E4D has really been to try and organize the scientific community. So, I have enjoyed work with them and letting scientists know there

is nothing wrong in standing up for science. It doesn’t make you any less of a scientist. Advocate, it is really similar. It is about pushing on these issues: funding for science, muzzling of government scientists, and putting them in a more political way.

#### 3. Your background extends into social and political campaigning.<sup>251</sup> What kind of social and political campaigning?

Actually, I did most of my organizing and political background in volunteering for the Green party for many years. While I was doing my Ph.D., I did a lot of volunteering. I was the co-chair of the first youth wing of the Green Party. A lot of work building the youth wing of the party for many years. I was the President of my local riding association in Ottawa, and in the 2011 election, I took a break from my studies and worked in the central Green Party office in Ottawa in attempting to get Elizabeth May elected.

#### 4. You founded Evidence for Democracy (E4D).<sup>252</sup> You are its Executive Director. What responsibilities and tasks come with this position?

<sup>246</sup> Gibbs: Executive Director, Evidence for Democracy; Westwood: Research Coordinator, Evidence for Democracy.

<sup>247</sup> Individual Publication Date: April 1, 2016 at [www.in-sightjournal.com](http://www.in-sightjournal.com); Full Issue Publication Date: May 1, 2016 at [www.in-sightjournal.com](http://www.in-sightjournal.com).

<sup>248</sup> PhD, University of Ottawa.

<sup>249</sup> Photographs courtesy of Dr. Katie Gibbs.

<sup>250</sup> Evidence for Democracy. (2015). Katie Gibbs. Retrieved from <https://evidencefordemocracy.ca/en/users/katie-gibbs>.

<sup>251</sup> LinkedIn. (2016). Katie Gibbs. Retrieved from <https://ca.linkedin.com/in/katie-gibbs-30997917>.

<sup>252</sup> Evidence for Democracy. (2015). Evidence for Democracy. Retrieved from <https://evidencefordemocracy.ca/>.

Pretty much everything, when you're the Executive Director of a small organization, you end up with a lot on your plate, and a big diversity in the things that you do. There are the things that you'd expect such as doing media interviews, travelling and giving talks around the country - both things I enjoy. Monitoring communication, making sure that the tone of everything that goes out fits with our work. Emails that go to our supporters, what goes into social media, when we put out op-eds and having a hand in crafting those. Other things include fundraising, administration stuff such as bookkeeping and governance are all in order, organizing board meetings, and all of that stuff.

**5. Why are public scientific organizations with the intent to inform public policy important to you?**

Part of what happens during my Ph.D. was that I was very interested in science for the sake of informing policy, and grew more frustrated that most science is never used, much less even seen by policy makers; I always found that very frustrating. We have all of these crisis issues facing humanity, and I think that science and evidence, and research, is really our best way to find solutions to those problems. We have the research. The science is already done, but the policy makers do not actually use it. That seems very frustrating to me. I was interested in forming an organization that really was pushing for the role of science and evidence in public policy-making.

**6. As a Ph.D. student, you were one of the lead organizers for the "Death of Evidence" rally.<sup>253</sup> What took place there?**

We had a mock funeral procession to commemorate the Death of Evidence in Canada. It was in response to a number of recent bills in motion that the Conservative government put through that really cut science funding and closed some really important science institutions and changed a bunch of pieces of science legislation. The science community was quite outraged over this. We want to demonstrate that outrage in a public and visible way. We had a mock funeral where we walked through downtown Ottawa from starting near campus here down to Parliament. Then, we had a bunch

of speakers on the hill. It was a huge success. We were expecting a few hundred people. We ended up getting a few thousand.

**7. In addition, on the Ph.D. front, how does this professional research background assist in work at E4D?**

I think a lot of what we're asking for is science. I would not have this same passion for science and its essential role if I didn't have that science background. That instilled the value and appreciation for science in me. I think there is bit of a credibility factor there too. I work a lot on science issues. I do have that background and with the Ph.D. after my name that it shows I do know the science and do know what I'm talking about. It really influences the way that I think. I think that sometimes we're more rigorous in some ways than other non-profit organizations and that because through a science base we have to be so, so, careful that everything we put out is based on facts and that we have the evidence to back up what we're saying. That really comes from having a science background as well.

**8. What are the purposes of E4D?**

We are trying to create the public and political demand for evidence-based decision-making. We're trying to mobilize the scientific community, get people who aren't scientists to understand why these issues are important, and then try to harness and mobilize that support into political action.

**9. You have been featured in numerous media outlets such as CBC, The Globe and Mail, The Hill Times, and the National Post, and**

<sup>253</sup> Death of Evidence. (2016). Death of Evidence. Retrieved from <http://www.deathofevidence.ca/>.



others.<sup>254,255,256,257,258,259,260,261,262</sup> **What core message do you wish to get to the public?**

(Laughs) It's kind of hard to boil down to one key message. The key message is recognizing and appreciating that science is one of the strongest forces in our lives. It is science that keeps our food supply, our drinking water, safe. It is science that develops new medicines that your doctor can prescribe to you. It is science that creates the new technology including powering your smart phone. A lot of it is behind the scenes.

**10. What responsibilities to the public, scientific, and public policy communities comes with this exposure as the central representative of E4D?**

I think part of it is being really clear when I'm representing E4D and when I'm giving my personal opinion on something. It is about us making sure our work is evidence-based. That is really something that is a core value of ours.

**11. What have been the observed impacts of E4D on policy and decision-making?**

I think the biggest thing is looking at the last election period and, normally, there is almost no discussion of science during the election period. The biggest thing we were trying to impact during this last election was to influence the conversation and try to get Canadians and Candidates and the party leaders talking about science. I think we were hugely successful at that. We saw almost every outlet covering science issues. We saw so many candidates tweeting about science, mentioning science in the debates. We saw people going to the local

debates and talking about science. We were really able to influence the conversation around the election. The policy changes we're really going to see those with the new government. Part of the work that we did before the election was really trying to push for the parties to include some of our recommendations in their platforms, and the Liberals did take our recommendations, and made them part of their election promises.

**12. What are its near and far goals?**

The near goals are continuing our work at the federal government level, working to get a new communication policy that makes it clear that scientists can talk to the public and the media, and making sure that the long-form census gets re-instated, working with the government to create a Chief Science Officer position. Those are all of the short-term goals. I think the long-term goals are more about *shifting the culture in Canada to one that values science and its role in public policy in our democracy*.

**Thank you for your time, Dr. Gibbs.**

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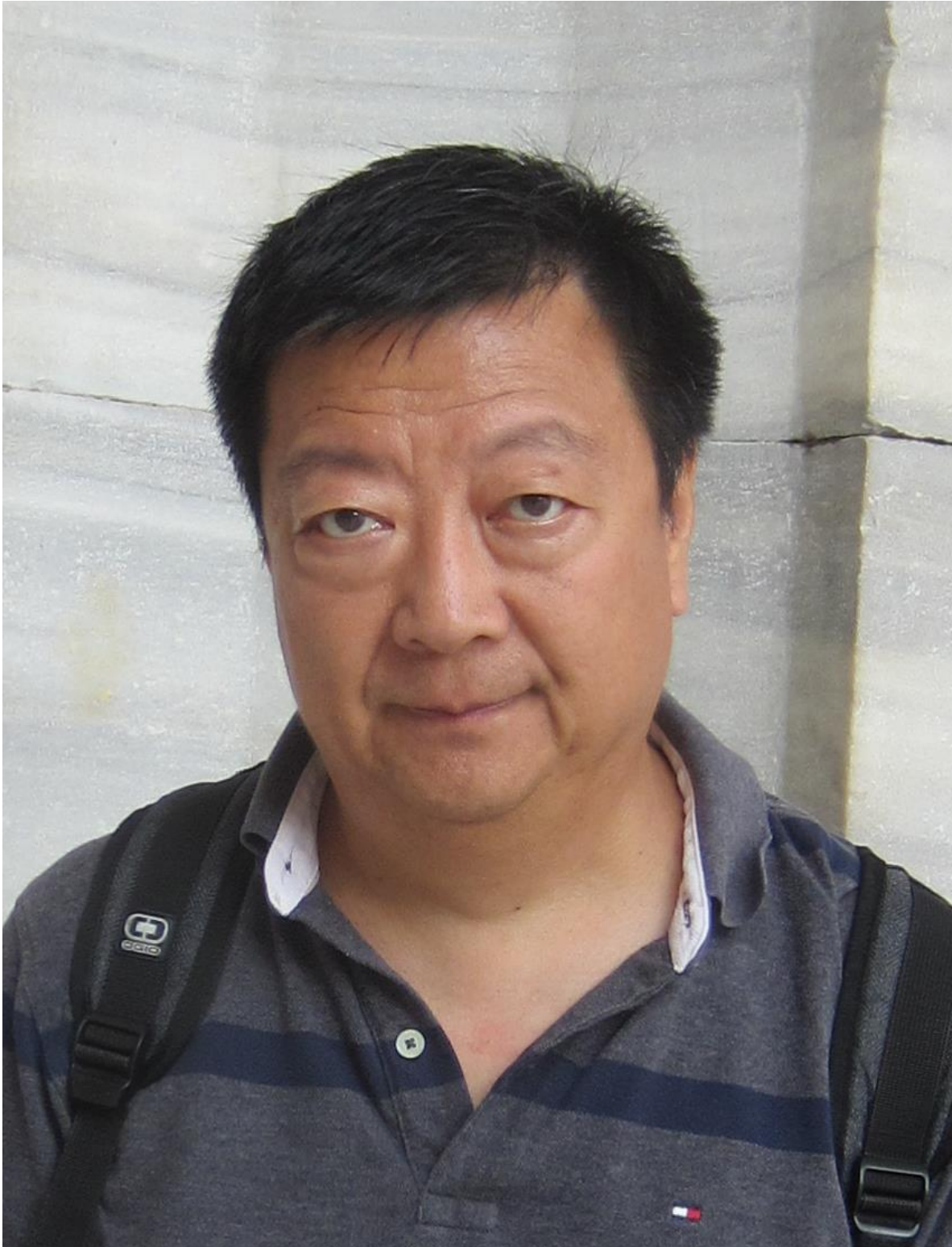
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# Associate Professor Pei Wang



Interviewer: Scott Douglas Jacobsen

Title: In-Sight: Independent Interview-Based Journal

Place of Publication: Langley, British Columbia, Canada

Name of Publisher: In-Sight Publishing

Numbering: Issue 10.A, Idea: Outliers & Outsiders (Part Six)

Individual Publication Date: April 8, 2016 (2016-04-08)

Issue Publication Date: May 1, 2016 (2016-05-01)

Frequency: Three Times Per Year

Web Domain: [www.in-sightjournal.com](http://www.in-sightjournal.com)

ISSN 2369-6885

## Abstract

**An Interview with Associate Professor Pei Wang. He discusses: geographic, cultural and linguistic background; influence on development; influences and pivotal moments; origination of interest in computer science; appealing sciences in youth; interest in human intelligence; differentiation of “human thinking” from current “artificial intelligence” (A.I.); philosophical assumptions surrounding A.I. and consciousness; interest in A.I.; science fiction genre and stories of possible future possible A.I.; recommended authors; interest in the convergence of human intelligence and A.I.; tools provided by the qualifications; “Mathematical Logic” and “Operating System” influence on the “research oath”; Peking University provisions over other universities; advice to young researchers; Ph.D. under Professor Douglas Hofstadter; “Hofstadter’s “love of intellectual freedom” and the methodology’s limitations; *Outstanding Dissertation Award*; unique strengths of the Cognitive Science program at Indiana University; doctoral dissertation topic; law, or laws, of thought from the first milestone; the second milestone; the present status of the “laws of thought”; distinguishing traits of Professor Hofstadter; “thinker” status of Professor Hofstadter; “unique manner” of Professor Hofstadter; big lesson in personal and professional life from Professor Douglas Hofstadter; director of research at Webmind Inc. and the position’s tasks and responsibilities; and Ben Goertzel’s personality, talents and abilities, and approach to “making computers think”.**

*Keywords: A.I., Ben Goertzel, computers, laws of thought, Pei Wang, Douglas Hofstadter.*

## An Interview with Associate Professor Pei Wang (Part One)<sup>263,264,265,266</sup>

*\*Footnotes throughout the interview, and bibliography and citation style listing after the interview.\**

1. **In terms of geography, culture, and language, where does your family background reside?**

I am a Chinese in all these aspects.

2. **How did this influence development?**

I came to the USA when I was already 33 years old, so my Chinese background remains dominant in my life.

3. **What about influences and pivotal moments in major cross-sections of early life including kindergarten, elementary school, junior high**

**school, high school, and undergraduate studies (college/university)?**

That period can be roughly divided into two parts. Before entering into Peking University as an undergraduate student in 1979, my beliefs were strongly shaped by the “Cultural Revolution”, which means I believed in all the “truths” told to me. I began to form my own opinions in all domains (political, scientific, personal, etc.) in the early 1980s in Peking University, so those are the defining years of my life.

<sup>263</sup> Associate Professor (2008-Present), Temple University; Director of Research (2000, January-2001, April), Webmind Inc.

<sup>264</sup> Individual Publication Date: March 8, 2016 at [www.in-sightjournal.com](http://www.in-sightjournal.com); Full Issue Publication Date: May 1, 2016 at [www.in-sightjournal.com](http://www.in-sightjournal.com).

<sup>265</sup> Ph.D. (1991, September-1995, December), Computer Science and Cognitive Science, Indiana University; M.S. (1983-1986), Computer Science, Peking University; B.S. (1979-1983), Computer Science, Peking University.

<sup>266</sup> Photograph courtesy of Associate Professor Pei Wang.



**4. Where did interest in computer science in general originate for you?**

As a child, I had an interest in science. Later, that interest gradually focused on electrical devices, then further on computers when I selected computer science as a major.

**5. As a child, what science appealed the most to you – for the transition into electrical devices and computer science?**

Mathematics, physics, and chemistry.

**6. What about interest in human intelligence in particular?**

I was curious about how humans think a long time ago, but my study on this topic only began in my college years, driven by my interest in artificial intelligence.

**7. What differentiates “human thinking” from current “artificial intelligence” (A.I.)?**

The current mainstream A.I. aims at solving practical problems, and does not pay much attention to the principles governing the human thinking process.

**8. What philosophical assumptions appear to have tacit assertion in conversation, discussions, media representations, and publications in the possibility for A.I. having consciousness?**

One major assumption is that consciousness is something outside the cognitive processes, is something “additional”.

**9. What about interest in A.I.?<sup>267</sup>**

<sup>267</sup> *artificial intelligence* (2015) states:

Artificial intelligence (AI), the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings. The term is frequently applied to the project of developing systems endowed with the intellectual processes characteristic of humans, such as the ability to reason, discover meaning, generalize, or learn from past experience. Since the development of the digital computer in the 1940s, it has been demonstrated that computers can be programmed to carry out very complex tasks—as, for example, discovering proofs for mathematical theorems or playing chess—with great proficiency. Still, despite continuing advances in

As a long-term fan of science fiction, I was exposed to the notion of A.I. many years ago before I decided to pursue it as a career. The possibility of building a thinking machine, especially the first one that “really thinks”, is too strong an attraction compared to all the other career opportunities that have been opened to me. It remains true even after I found my conception of A.I. is fundamentally different from the mainstream, including the cited definition of *Encyclopædia Britannica*.

**10. What science fiction genre and stories portray possible future A.I. in an entertaining and accurate way?**

Asimov’s stories and novels on robotics and Kubrick’s movie “2001: The space odyssey” are among the classics that are both insightful and entertaining, though I won’t call any of them “accurate”.

**11. Any recommended authors?**

Beside Isaac Asimov, I want to recommend “The Mind’s I: Fantasies and Reflections on Self & Soul” by Daniel Dennett and Douglas Hofstadter.

**12. What about interest in the convergence of human intelligence and A.I.?**

In terms of application, I am sure in the future we will witness a convergence of human intelligence and A.I. as the best way to solve many problems, and I look forward to it. However, my current research is not directly oriented or driven by this vision. Instead, it is about how to build an A.I. that is fully autonomous, that is, it does not depend on human intervention, though can still be influenced, or even controlled, by human beings.

computer processing speed and memory capacity, there are as yet no programs that can match human flexibility over wider domains or in tasks requiring much everyday knowledge. On the other hand, some programs have attained the performance levels of human experts and professionals in performing certain specific tasks, so that artificial intelligence in this limited sense is found in applications as diverse as medical diagnosis, computer search engines, and voice or handwriting recognition.

artificial intelligence (AI). (2015). In *Encyclopædia Britannica*. Retrieved from <http://www.britannica.com/technology/artificial-intelligence>.



- 13. You earned a B.S. (1979-1983) in Computer Science from Peking University, M.S. (1983-1986) in Computer Science from Peking University, and a Ph.D. (1991, September-1995, December) in Computer Science and Cognitive Science from Indiana University.<sup>268,269</sup> Based on the interest in human intelligence and artificial intelligence, and their correspondence with computer science and cognitive science, respectively, what tools did these qualifications provide for research into the convergence of these areas?**

These two universities gave me experiences that are very different, and even complementary in a sense.

As mentioned above, Peking University taught me to think using my own mind, as well as providing me a solid foundation in computer science and mathematics, among other knowledge. However, in my college years, A.I. was not even in the curriculums of Chinese universities – it was very new, so there was few faculty doing it. “Cognitive science” was mostly unheard of, though I managed to audit a cognitive psychology course in the psychology department. The courses that have the strongest influence to my research path are “Mathematical Logic” and “Operating System”.

On the other hand, Indiana University has one of the best Cognitive Science Programs in the world, which is truly interdisciplinary. Through this training, I learned how to approach a problem from different perspective, as well as how to combine the knowledge from different backgrounds and traditions.

- 14. How did “Mathematical Logic” and “Operating System” influence this personal, long-term, and in-depth “research path”?**

Influenced by my study of mathematical logic, my approach toward A.I. is to summarize the “laws of thought” observed in the human mind into a “formal logic” to govern the problem solving in a computer system. Operating system, on the other hand, includes ideas about how to let a computer to manage its own resources, such as processor time and storage space.

- 15. What experience did Peking University seem to provide at the time compared to other possible universities for your B.S. and M.S. degrees in computer science?**

The most important lesson I learned from Peking University is that I should study the very fundamental problems in a domain, and that it is OK to challenge authority if I have enough reason to do so.

- 16. “I should study the very fundamental problems in a domain” seems like good advice to young researchers. Any further comments on it?**

Young researchers are often told that they should “start with small problems, then gradually move to big problems”. For example, if you want to study A.I., you should accept the existing opinion on what intelligence is and how it should be achieved, and try to make progress on the path most people are taking. This advice of course makes a lot of sense, but it also has the effect that after following other people’s steps, your ideas are restricted by the traditional assumptions whose validity has not been carefully checked.

On the contrary, the students of Peking University has the tradition of attacking the “big problems” in a domain at the very beginning, without depending on the tradition. In my case, I began my work by considering how “intelligence” should be understood in this context and what the most promising approach toward it is, instead of accepting the majority opinions on these issues as my starting point.

- 17. What about Indiana University for the Ph.D. under Professor Douglas Hofstadter in Computer Science and Cognitive Science?**

The most important influence I got from Indiana University, especially from Professor Douglas Hofstadter, is the love of intellectual freedom, that is, a researcher should pursue research topics according to personal passion, rather than to pragmatic considerations such as funding opportunity, career path, etc.

- 18. Does Professor Hofstadter’s “love of intellectual freedom” have limitations in its methodology, or philosophical considerations**

<sup>268</sup> Peking University. (2015). Peking University. Retrieved from <http://english.pku.edu.cn/>.

<sup>269</sup> Indiana University. (2015). Indiana University. Retrieved from <http://www.iu.edu/>.

– something which limits absolute consideration of intellectual subjects outside standard limitations of time, monetary resources, and talent and ability?

Of course, each methodology has its strength and weakness. If intellectual freedom is stressed too much, the results are often unrealistic or unpractical. For the health of a research community, it is necessary to have different types of researchers.

**19. You earned the *Outstanding Dissertation Award* in the Cognitive Science Program at Indiana University in March, 1996.<sup>270</sup> What does this award mean to you?**

It means a lot. Unlike most Ph.D. dissertations, including most of them from Hofstadter's group, my dissertation topic and most of the main ideas in it had been formed before I became a Ph.D. student – I had worked on those ideas for about 8 years in China. Professor Hofstadter did not fully agree with me on those ideas – he considered some of them brilliant, though did have deep doubts about some others. Even so, he gave me full support to pursue those ideas. I was very happy when I saw that my dissertation not only got his approval, but also the acknowledgement of the prestigious program.

**20. What unique strengths come from the Cognitive Science Program at Indiana University compared to others before 1996 and after it into the present?**

Cognitive Science is handled very differently in different universities over the world. One extreme is to have a "Cognitive Science Department", just like other traditional departments. Another extreme is to take it as a cooperation of several departments by allowing the students to enroll in courses offered by the other disciplines. The Cognitive Science Program at Indiana University is somewhere in between. It is still a cooperation of the participated departments, though the Program offers courses specially designed for students with different backgrounds. Also, the faculty members from different disciplines have close relationship in their research.

**21. What was your doctoral dissertation research topic?**

It is the same topic that I've devoted my whole career to, that is, to find the "laws of thought" for all forms of intelligence, including human and A.I., and then to build computer systems accordingly. My first milestone in this research was my Master Thesis finished in Peking University in 1986, and my doctoral dissertation in 1995 was the second major milestone.

**22. Your "first milestone" and "second major milestone" represent the discovery of aspects of the "laws of thought." What law, or laws, of thought emerged from the first milestone?**

In my Master Thesis I defined "intelligence" as the ability of adaptation with insufficient knowledge and resources, and designed a very simple reasoning system to achieve this possibility. The system was primitive, though it shows the possibility of taking such an approach.

**23. What about the second milestone?**

My doctoral dissertation includes a much more powerful system, with detailed discussions of the related issues and ideas.

**24. Where do the "laws of thought" stand now?**

I published two monographs and many papers, and turned the system into an open source project. Most of the materials on this project can be accessed at the project's homepage at <https://sites.google.com/site/narswang/home>.

**25. What distinguished Professor Hofstadter from other researchers?**

He is more of a "thinker" in the original sense than a "researcher" in the current academic world. His works are completely driven by his personal interest, while most other researchers are more and more driven by funding, promotion, peer pressure, etc. Though he has been a legend in the field for decades, he does not really belong to the research community of either A.I. or cognitive science, but has been doing everything in his own unique manner.

<sup>270</sup> LinkedIn. (2015). Pei Wang. Retrieved from <https://www.linkedin.com/in/pei-wang-3a46241>.

- 26. Two things ‘stand out’ to me. One, his “thinker” status; two, his “unique manner.” What defines this Professor Hofstadter as a thinker?**

His attention is always on conceptual problems he considered as interesting and essential, rather than on technical details.

- 27. What characterizes Professor Hofstadter’s unique manner, or methodology for problem solving and creativity?**

He relates many problems to each other, rather than follows the common practice of focusing on narrowly specified problems in a limited domain and described using special jargons.

- 28. What big lesson in personal and professional life stuck with you through the supervision of Professor Douglas Hofstadter?**

His passion for pure intellectual pleasures.

- 29. You were director of research at Webmind Inc. from January, 2000 to April, 2001. What tasks and responsibilities came with this position?**

I joined the company in April 1998 (when its name was IntelliGenesis) as its first paid employee. I was attracted to it by an opening announcement requiring for “a passion for making computers think”. Then I met the founder of the company, Ben Goertzel, and immediately started our collaborator-and-competitor relationship, which has lasted until the present. From 1998 to 2001, my title in the company had changed a few times, while my responsibility remained more or less the same, that is, to combine my research results into the company’s software, as well as to contribute to the conceptual designs of the software on other topics.

- 30. What defines Goertzel’s personality, talents and abilities, and approach to the “making computers think” to you?**

He is a very smart person, and learns new ideas quickly. He considers “intelligence” as the ability to “solve complex problems in complex environments”, and attempts to build A.I. by integrating many techniques together into a single system.

Interviewer: Scott Douglas Jacobsen  
 Title: In-Sight: Independent Interview-Based Journal  
 Place of Publication: Langley, British Columbia, Canada  
 Name of Publisher: In-Sight Publishing  
 Numbering: Issue 10.A, Idea: Outliers & Outsiders (Part Six)  
 Individual Publication Date: April 15, 2016 (2016-04-15)  
 Issue Publication Date: May 1, 2016 (2016-05-01)  
 Frequency: Three Times Per Year  
 Web Domain: [www.in-sightjournal.com](http://www.in-sightjournal.com)  
**ISSN 2369-6885**

### Abstract

**An Interview with Associate Professor Pei Wang. He discusses: resources from the department and position; self-summarization and its relationship to A.I.; mainstream opinion on A.I.; ultimate goal; membership in professional organizations; Non-Axiomatic Reasoning System (NARS) and its contribution to computer science; *Three fundamental misconceptions of Artificial Intelligence* (2007); probability of the Singularity; immortality; good and bad news for thinking beings with A.I.; powerful A.I. reflecting on human thought; social and legal structure changes with A.I.; humans replaced or combined with A.I.; remnants of humanity with long-term A.I.; other civilizations in the galaxy; constructs of these other civilizations; ‘wants’ of A.I.s; weirdest aspect of living with A.I.; things that might not become weird; possible fragmentation caused by A.I.; percent chance on an A.I. takeover; future political controversies over A.I.; personal heroes; collaborative projects; and solo projects.**

**Keywords:** A.I., Non-Axiomatic Reasoning System, *Pei Wang*, *Singularity*.

### An Interview with Associate Professor Pei Wang (Part Two)<sup>271,272,273,274</sup>

*\*Footnotes throughout the interview, and bibliography and citation style listing after the interview.\**

**31. Now, you hold an associate professorship (2008-Present) at Temple University in the department of computer and information sciences.<sup>275</sup> What resources does this department and position provide for research into cognitive science and computer science?**

I joined this department in 2001 after Webmind bankrupted, mostly because my home was at Philadelphia, so a local job made things easier. In these years my title changed a few times, though the position has been non-tenure track and teaching-oriented. Officially my current full title is “Associate Professor (Teaching/Instructional)”, which means my duty is full-time teaching, and there is little resource provided to my research, though in these years

the department has been supportive to my research.

**32. You self-summarize, as follows:**

“My research goal is to build a thinking machine (also known as “artificial general intelligence” or “human-level artificial intelligence”). The approach I take is to design and implement a reasoning system, which unifies various cognitive facilities, such as reasoning, learning, categorizing, planning, problem-solving, decision-making, etc. The current achievements of this project can be found at <http://nars.wang.googlepages.com/>

Specialties: Artificial Intelligence and

<sup>271</sup> Associate Professor (2008-Present), Temple University; Director of Research (2000, January-2001, April), Webmind Inc.

<sup>272</sup> Individual Publication Date: April 15, 2016 at [www.in-sightjournal.com](http://www.in-sightjournal.com); Full Issue Publication Date: May 1, 2016 at [www.in-sightjournal.com](http://www.in-sightjournal.com).

<sup>273</sup> Ph.D. (1991, September-1995, December), Computer Science and Cognitive Science, Indiana University; M.S. (1983-1986), Computer Science, Peking University; B.S. (1979-1983), Computer Science, Peking University.

<sup>274</sup> Photograph courtesy of Associate Professor Pei Wang.

<sup>275</sup> Wang, P. (2015). Dr. Pei Wang. Retrieved from <http://cis-linux1.temple.edu/~pwang/>.

Cognitive Science in general, and especially on

- \* foundation of intelligence,
- \* reasoning under uncertainty,
- \* learning and adaptation,
- \* knowledge representation,
- \* decision making under time pressure.”<sup>276</sup>

**A.I. research studies the ability of a digital computer to perform tasks associated with intelligent beings. Cognitive science studies the mind and its processes. How does A.I. and cognitive science research relate to “foundation of intelligence,” “reasoning under uncertainty,” “learning and adaptation,” “knowledge representation,” and “decision making under time pressure”?**

Though it is intuitive to identify “intelligence” as the ability to solve certain problems, in my opinion such an understanding fails to reveal the fundamental difference between the human mind and the conventional computer systems.

One consequence of this understanding of intelligence is that it suggests a “divide-and-conquer” strategy in A.I. research, which is responsible for the fragmentation of the field. For instance, “reasoning”, “learning”, “planning”, “decision making”, “natural language understanding”, and so on, have been traditionally treated as separated tasks to be performed using different theories and techniques, while in the human mind they may actually be different aspects of the same underlying process.

Another consequence is that “the problems solved by intelligent beings” is too broad and vague a notion. For instance, before computer was invented, only the human mind could carry out arithmetic operations on arbitrary numbers. If this task were also associated with intelligence, then a pocket calculator would be considered as an intelligent system. Since all these tasks are carried out by very different methods, it is difficult to find a common theoretical foundation on how intelligence works.

To resolve these issues, I define “intelligence” as “the ability of adaptation under insufficient knowledge and resources”, which is an attempt

to provide a unified foundation for A.I., as well as to interpret various cognitive processes, such as reasoning, learning, decision making, etc., in a consistent manner.

Since the aim of my theory is not only to guide the development of A.I., but also to explain how human thinking works, it is a theory of cognitive science, too. However, since currently this field is dominated by cognitive psychology, where the focus are humans, not machines, my work is also out of the mainstream, since my model does not intend to describe the human mind in details, but to capture its basic principles. I do not think an A.I. will be identical to the human mind in all details.

### **33. What characterizes the “mainstream” opinion in A.I.?**

To me, the mainstream A.I. is characterized by two opinions:

- (1) “Intelligence” is the ability to solve certain problems that are solvable by the human mind.
- (2) The problems associated with intelligence can be solved in the same way as how computers are traditionally used in problem solving.

### **34. What remains the ultimate goal with these convergent, and unified, interests in research?**

The objective of my research is to get three results altogether: (1) a theory of intelligence, cognition, and mind (which are more or less the same thing in this context) in general, in the sense that it is not only applicable to humans, (2) a formal model of the theory, with all the details accurately specified, and (3) a computer implementation of the model, as a general-purpose thinking machine that is comparable to, though not identical with, the human mind in all major aspects.

### **35. You remain a member in the Artificial General Intelligence Society, Association for the Advancement of Artificial Intelligence, and Cognitive Science Society.<sup>277</sup> What does membership in these organizations - society and association, respectively - provide for you?**

<sup>276</sup> LinkedIn. (2015). Pei Wang. Retrieved from <https://www.linkedin.com/in/pei-wang-3a46241>.

<sup>277</sup> Artificial General Intelligence Society. (2015). Artificial General Intelligence Society. Retrieved from <http://www.agi-society.org/>.



I was one of the founders of the field of Artificial General Intelligence (AGI), and it is the community I am mostly associated with. At the same time, I am still related to the mainstream A.I. community (represented by the Association for the Advancement of Artificial Intelligence) and the cognitive science community (represented by the Cognitive Science Society), mainly to keep track of their progress and trends.

36. **You have involvement in the Non-Axiomatic Reasoning System (NARS) or the “general-purpose reasoning system.”**<sup>278</sup> You have described the ability of NARS to learn from experience based on insufficiency in both resources and knowledge.<sup>279</sup> Its purpose is to reproduce cognitive faculties too. All research intersects on “a theory of intelligence, a formal model of the theory, and a computer implementation of the model.”<sup>280</sup> How does NARS contribute to the discipline of computer science and some researchers’ dreams of the development and foundation of artificial general intelligence?

NARS aims to become the “logic core” of intelligent systems that must handle questions and goals that are beyond their current capability in terms of knowledge and time-space resources. It will directly contribute to artificial intelligence and cognitive science, while also have impact on computer science and many other disciplines.

37. **Three fundamental misconceptions of Artificial Intelligence (2007) described the nature of artificial intelligence in prominent**

**conceptualizations, which remain wrong, and provides the correctives to these mis-conceptions.**<sup>281</sup> These mis-conceptions relate to an A.I. identification with “**an axiomatic system, a Turing machine, or a system with a model-theoretic semantics.**”<sup>282</sup>

Even though, as the paper notes, the functional utility in these three core notions for A.I. systems, these three attract legitimate criticisms from individuals external to the discipline of artificial intelligence research and create problems for the field itself. In addition to these points of critique and response, the paper introduces a hypothetical, and example, intelligent system entitled NARS. NARS does not use any of the three previous core notions in the discipline of artificial intelligence research. Nonetheless, it provides the theoretical bases for its implementation – in spite of this common triplet rejection – in a standard digital computer, an “ordinary computer.”<sup>283</sup>

**All of these conceptualizations, wrong ones by the paper’s analysis, derives from the treatment of empirical reasoning as mathematical reasoning in numerous instances. Nonetheless, what solutions does NARS bring to bear on the problem of the construction of a digital architecture capable of artificially and generally intelligent operations?**

The solution proposed in NARS consists of several levels.

<sup>278</sup> NARS: an AGI Project (2015) states:

NARS (Non-Axiomatic Reasoning System) is a general-purpose reasoning system, coming from my study of Artificial Intelligence (AI) and Cognitive Sciences (CogSci).  
What makes NARS different from conventional reasoning systems is its ability to learn from its experience and to work with insufficient knowledge and resources.  
NARS attempts to uniformly explain and reproduce many cognitive facilities, including reasoning, learning, planning, reacting, perceiving, categorizing, prioritizing, remembering, decision making, and so on. The research results include a theory of intelligence, a formal model of the theory, and a computer implementation of the model.  
The ultimate goal of this research is to fully understand the mind, as well as to build thinking machines. Currently this research field is often called “Artificial General Intelligence” (AGI).

Wang, P. (2015). NARS: an AGI Project. Retrieved from <https://sites.google.com/site/narswang/>.

<sup>279</sup> WANG P. PROBLEM SOLVING WITH INSUFFICIENT RESOURCES. *International Journal Of Uncertainty, Fuzziness & Knowledge-Based Systems* [serial online]. October 2004;12(5):673-700. Available from: Academic Search Complete, Ipswich, MA. Accessed December 3, 2015.

<sup>280</sup> Wang, P. (2015). NARS: an AGI Project. Retrieved from <https://sites.google.com/site/narswang/>.

<sup>281</sup> Pei, W. (2007). Three fundamental misconceptions of Artificial Intelligence. *Journal Of Experimental & Theoretical Artificial Intelligence*, 19(3), 249-268. doi:10.1080/0952813060114310

<sup>282</sup> Pei, W. (2007). Three fundamental misconceptions of Artificial Intelligence. *Journal Of Experimental & Theoretical Artificial Intelligence*, 19(3), 249-268. doi:10.1080/0952813060114310

<sup>283</sup> Pei, W. (2007). Three fundamental misconceptions of Artificial Intelligence. *Journal Of Experimental & Theoretical Artificial Intelligence*, 19(3), 249-268. doi:10.1080/09528130601143109

At the conceptual and philosophical level, it is the idea that A.I. is not computer science extended, but a separate discipline with its own fundamental assumptions. Roughly speaking, computer science is about how to solve problems with *sufficient* knowledge and resources, that is, it is the designer of the system who solves the problems, and the computer simply repeats the solution on each instance of the problem; artificial intelligence, on the contrary, should be about how to solve problems with *insufficient* knowledge and resources, that is, the system is not given all the relevant knowledge for the problems, and nor can the system afford the processing time and memory space to exhaustively try every possible solution, but has to learn to solve the problems on its own.

At the technical level, I formulated a new logic, called “Non-Axiomatic Logic”, to accurately specify the working process of a system that has to work with insufficient knowledge and resources. Concretely speaking, it answers questions like “If there is no way to get an answer that is absolutely correct, which answer is the best?” and “If it is impossible to consider all relevant knowledge when solving a problem, which knowledge should be considered?”, and so on.

### 38. What seems like the probability of the Singularity?

If “singularity” indicates a time after that A.I. becomes completely incomprehensible, I do not think it will ever happen at all. I believe A.I. can be built to follow the same principles and mechanisms as human intelligence, and it will show all kinds of cognitive functions and capabilities. In applications, A.I. will do many things better than us. However, this can be achieved exactly because we understand how “intelligence” and “cognition” work, so A.I. will be comprehensible in principle, even though we probably will not be able to exactly predict or explain the details in the behavior of an A.I. Actually we often cannot do that already for an ordinary (unintelligence) computer.

Unlike Ray Kurzweil and many other people, I do not see A.I. systems as conventional computer systems with stronger and stronger problem-solving power. Instead, I see it as a different type of computer systems, whose problem-solving power will indeed increase unbounded, but its governing principles (which is where

“intelligence” is) remains more or less the same. In the current discussion about A.I., one fundamental confusion is between these two levels of capability. For example, are the present-time scholars “more intelligent” than those lived in the ancient Greek, like Socrates, Plato, and Aristotle? We surely have much higher problem-solving ability, but to me, our “intelligence” is more or less the same as them, which is not about “what one can do”, but “what one can learn”. In this way, future A.I. may be like human beings of future generations – more capable, but remains comprehensible to us, at least in principle.

### 39. Does immortality as argued by Dr. Ray Kurzweil seem reasonable – even with an extended timeline – to you?

No. I have not seen a convincing argument on this topic yet.

### 40. As we figure out A.I., what good and bad news will it have for us as thinking beings?

Like any major technical breakthrough in history, A.I. will be both an opportunity and a challenge at the same time. For pure intellectual considerations, the good news will be that we have reached a major milestone in the understanding of how “thinking” works, while the bad news is that we will lose our monopoly on this ability, and have to deal with the undesired consequences.

### 41. Will powerful A.I. show us that human thinking is sloppy and threadbare?

Probably not, since many negative aspects of human thinking are inevitable in all intelligent systems, so we will see them in A.I., too. For example, “forgetting” is often taken as a defect of the human mind, but according to my theory, it is a phenomenon that is certain to occur in an adaptive system working with insufficient knowledge and resources. A.I. will make all kinds of human-like errors.

### 42. How will social and legal structures change to accommodate non-human beings that are as smart as or smarter than humans?

We will not know for sure until we are close to our objective in this research, so now is too early to speculate the details, except that such changes will surely become necessary.

**43. Will humans be replaced by or combine with A.I.?**

I do not believe humans will be replaced by A.I. At least I have not seen any argument for that possibility that is not based on a misconception of A.I. It is certainly possible to “combine” human and A.I. in various ways. It is just like some people already cannot live without their cellphones.

**44. What remnants will exist of humanity in the long-term if A.I. pans out?**

Since human beings will continue to exist after A.I. has been achieved, there is no “remnants” to talk about.

**45. Do you think there are other civilizations in our galaxy?**

I think that is a valid possibility.

**46. What constructs might these civilizations produce for themselves?**

I have no idea.

**47. What will A.I.s ‘want’ in the future?**

I discussed this topic in my AGI-12 paper (Motivation Management in AGI Systems) in detail.<sup>284</sup> Roughly speaking, an A.I.’s initial goals or motivations are specified by humans (designers or users), then some derived goals are generated from them and the system’s knowledge, which wholly or partly comes from the system’s experience. Therefore, what an A.I. wants will be determined both by its *nature* and its *nurture*, but not by either of the two *alone*. Furthermore, in deciding what action to take, the system will usually consider all active goals, rather than any single one of them, even the initial one.

A common misconception about the motivation/goal of A.I. is to assume that the system’s actions will all be fully decided by a single initial goal, as exemplified by Bostrom’s “paperclip maximizer”. A truly intelligent system will not do that.

**48. What will be the weirdest aspect of living with A.I.?**

I do not know that yet.

**49. What things might not become weird?**

Most of them.

**50. Will A.I. put pressure on society to fragment into those collectives which embrace A.I. and avoid A.I.?**

That may happen, if the situation is not properly handled by politicians and scientists, though I do not see it as an inevitable scenario.

**51. What percent would you assign to the risk of an A.I. takeover?**

It depends on the definition of “A.I. takeover”. I do not believe it is possible for A.I. to completely take over the world, though it will surely take over certain aspects of our life, such as a large part of traffic control.

**52. Will future political controversies over A.I. become as heated as the current enflamed political scene in The United States of America?**

I hope not, and will try to avoid that scenario, though cannot guarantee that it cannot happen.

**53. When will we elect the first A.I.-augmented politician?**

Again, it depends on how “A.I.-augmented” is defined. When a politician depends on computer in decision making, I do not think it is too different if the function is provided by an implant chip or a smartphone.

**54. What personal heroes exist in history, in the present, and who most influenced you?**

None too special to be singled out.

**55. Any upcoming collaborative projects?**

<sup>284</sup> Wang, P. (2012). Motivation Management in AGI Systems. Retrieved from <http://cis-linux1.temple.edu/~pwang/Publication/motivation.pdf>.

The Jet Propulsion Laboratory (of NASA and Caltech) is cooperating with my team to apply my results into their system.

#### 56. Any upcoming solo projects?

Nothing major planned, as my current research has already taken all of my time.

**Thank you for your time, Professor Wang.**

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# Farouk A. Peru





Interviewer: Scott Douglas Jacobsen

Title: In-Sight: Independent Interview-Based Journal

Place of Publication: Langley, British Columbia, Canada

Name of Publisher: In-Sight Publishing

Numbering: Issue 10.A, Idea: Outliers & Outsiders (Part Six)

Individual Publication Date: April 22, 2016 (2016-04-22)

Issue Publication Date: May 1, 2016 (2016-05-01)

Frequency: Three Times Per Year

Web Domain: [www.in-sightjournal.com](http://www.in-sightjournal.com)

ISSN 2369-6885

### Abstract

**An interview with Farouk A. Peru. He discusses: geographic, cultural, and linguistic background; source of personal interest in Islam; *Quranology Blog*; Islam's entrance into personal life; Qur'an's personal meaning; authenticity and veracity of the text; Prophet Muhammad other prophets in Islam; Islam's eschatology; Quranism definition of the soul; Quranism definition of the whole person; Quranism definition of relationship of humanity to Allah; Quranism statement about the sexes; Quranism definition of marriage; daily inspiration through the Qur'an; definition of Quranism; definition of Muslim; Quranism stance on evolution, creationism, and intelligent design; general Islamic stance on evolution, creationism, and intelligent design; possibility of understanding the world as Allah's work; things Muslims and non-Muslims can do about those giving religion a bad name; reconciliation of human specialness in light of human beings as common productions of natural processes; ways the media can give accurate views of those within the faith community; forces influencing future directions of Islam; whether science denies Allah or not; other plausible interpretations of the scientific evidence; whether religion can survive without faith; whether religions survive increasingly persuasive scientific explanations for natural phenomena; repairing the schisms in the Islam; whether they should be or not; and means for those with in an interest in becoming involved with the Quranists Network or Islam.**

*Keywords: Islam, Muslim, Quranism, Quranists Network, religion, science.*

## An Interview with Farouk A. Peru<sup>285,286,287,288</sup>

*\*Footnotes throughout the interview, and bibliography and citation style listing after the interview.\**

*\*Note from Mr. Peru: “[www.quranists.net](http://www.quranists.net) is about all quranists. It does not have any official views but rather would strive to host all views and debates. [www.quranology.name](http://www.quranology.name) is a space for my personal views and research. it's quranist by definition but follows only one approach which is my own”\**

### 1. In terms of geography, culture, and language, where does your family background reside?

I am from a Malay background. We are the majority ethnic group in Malaysia and my family specifically comes from Penang, an island state in northern Malaysia. We speak English as our first language but are also fluent in Malay.

### 2. Where does personal interest in Islam source itself?<sup>289</sup>

My grandfather and uncle who both had a keen interest in Islam. Both were into Islamic mysticism and I grew up reading books on the subject. I suppose my cultural origin as a Muslim gave me a means through which I sought my place in the world. I now see it as a vehicle towards the destination of self-actualization as a human being.

### 3. You run the *Quranology Blog*.<sup>290</sup> In a number of short posts – *What is Quran?* (2015), *What is Quranology?* (2015), *Sections of Quranology* (2015), and *How I Arrived Here* (2015), you provide the basis and reasons for the Qur'an, Quranology, and personal arrival into the work.<sup>291,292,293,294</sup> What inspired its development into the present status as an online resource?

Since the late 90ies, I have ventured into creating websites and blogs in the past. However, during that time, my thoughts had not yet formed in the way it is now. What was missing back then was a strong theoretical foundation.

The essays you mentioned above represents a map through which a reader may start as a human being and venture forth into the world of Quran (mapped out in the ‘sections of Quranology’). It is important that he starts out from this existential position rather a religious one because, in my view, Quran is not a religious text but an existential one. It speaks to what I call ‘the facticity of existence’ which is the reality of our being as humans.

### 4. How did Islam come into your life?

My family are culturally and religiously Muslim so the natural familiarity helped form my identity as a Muslim. However I have a deeper involvement as I am involved socially and politically as well. However, I am now on the left side of the Islamic political spectrum. An Islamic liberal, if you will.

### 5. What does the Qur'an mean to you?<sup>295</sup>

The Quran to me is a text inspired by the divine force to the historical personality Muhammad son of Abdullah. In this text, we may find the essential truths of human being.

### 6. What argument and evidences attest to its authenticity and veracity to you?

I see the Quran as a legacy left by the historical Muhammad to his community. The community was encouraged to memorise the text as a cultural practice and in my observation, they

<sup>285</sup> Founder, *Quranology Blog*; Administrator, Quranist Network.

<sup>286</sup> Individual Publication Date: April 22, 2016 at [www.in-sightjournal.com](http://www.in-sightjournal.com); Full Issue Publication Date: May 1, 2016 at [www.in-sightjournal.com/insight-issues](http://www.in-sightjournal.com/insight-issues).

<sup>287</sup> Ph.D. Candidate, King's College, London.

<sup>288</sup> Photograph courtesy of Farouk A. Peru.

<sup>289</sup> Islam. (2015). In *Encyclopædia Britannica*. Retrieved from <http://www.britannica.com/topic/Islam>.

<sup>290</sup> Peru, F.A. (2015). *Quranology Blog*. Retrieved from <https://quranology.wordpress.com/author/faroukaperu/>.

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<sup>293</sup> Peru, F.A. (2015). Sections of Quranology. Retrieved from <https://quranology.wordpress.com/introduction/an-explanation-of-the-sections-of-quranology/>.

<sup>294</sup> Peru, F.A. (2015). How I arrived Here. Retrieved from <https://quranology.wordpress.com/introduction/this-blog/>.

<sup>295</sup> Qur'an. (2015). In *Encyclopædia Britannica*. Retrieved from <http://www.britannica.com/topic/Quran>.

have done so immaculately. The contents of the texts are also agreed upon by the Sunni and Shia factions of Islam which attests to its early date of codification. That is my understanding of authenticity.

On the question of veracity, the Quran promotes an experiment to verify that its statements about the human condition are, in fact, true (Chapter 41, Verse 53). I have and am still performing this experiment and am satisfied that the Quran is veracious in this regard.

### 7. What about Prophet Muhammad?<sup>296</sup>

Prophet Muhammad in my understanding was the historical personality who first received the Quran. He interpreted and applied it in his own personal subjectivities. I am not obligated to follow these interpretations and applications, even if I do agree about their authenticity.

### 8. Other Prophets exist in Islam: Adam, Noah, Abraham, Moses, Solomon, and Jesus.<sup>297,298,299,300,301,302</sup> What status does Islam give them?

They are historical personalities, some of those histories are codified in the Quranic text. The purpose of their codification is to provide archetypes for humanity to evolve (as per Quran Ch 11 Vs 120 and Ch 12 Vs 111).

### 9. Eschatology relates to the “last things.”<sup>303</sup> Judaism and Christianity assert and study them through the *Torah*, *Old Testament*, and *New Testament*. Muslims study the texts of the People of the Book in addition to the Qur'an and the Hadith. What is Islam's eschatology?

As a point of interest, I do not accept the ‘people of the book’ to be Jews and Christians but rather

people bound to a certain law or code. Neither do I accept the OT or NT as divinely inspired texts.

In my understanding of the Quran, the last day is when humanity is gathered and their deeds are weighed. Those who pass will go through to the next stage of infinite Being where they rejoin universal consciousness.

### 10. How does Quranism define the soul?

I can only speak for my organization (Quranology Institute) and not for other Quranists. To me, the soul is the human personality which is our vehicle in this world. Like any vehicle, it needs to be upkept and even improved upon and ultimately after death, it will take us on the journey of reunion with the Divine.

### 11. How does Quranism define the whole person?

I can only speak for my organization (Quranology Institute) and not for other Quranists. The whole person, in my understanding of the Quran, is the soul (nafs), heart (qalb) and sadr (projection). The heart acts as a compass, the soul as a vehicle. This leads to our projected selves into the world which expands and brings peace (salam).

### 12. How does Quranism define the relationship of humanity to Allah?

I can only speak for my organization (Quranology Institute) and not for other Quranists. Our fundamental relationship is that of servitude (a matter of choice). When we serve Allah, we imbue ourselves with his baptism (the realization of His attributes). We then actualize these attributes in the world.

<sup>296</sup> Muhammad. (2015). In *Encyclopædia Britannica*. Retrieved from <http://www.britannica.com/biography/Muhammad>.

<sup>297</sup> Adam and Eve. (2015). In *Encyclopædia Britannica*. Retrieved from <http://www.britannica.com/biography/Adam-and-Eve-biblical-literary-figures>.

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<sup>302</sup> Jesus Christ. (2015). In *Encyclopædia Britannica*. Retrieved from <http://www.britannica.com/biography/Jesus-Christ>.

<sup>303</sup> In *eschatology* (2015):

*...the doctrine of the last things. It was originally a Western term, referring to Jewish, Christian, and Muslim beliefs about the end of history, the resurrection of the dead, the Last Judgment, the messianic era, and the problem of theodicy (the vindication of God's justice). Historians of religion have applied the term to similar themes and concepts in the religions of nonliterate peoples, ancient Mediterranean and Middle Eastern cultures, and Eastern civilizations. Eschatological archetypes also can be found in various secular liberation movements.*

*eschatology*. (2015). In *Encyclopædia Britannica*. Retrieved from <http://www.britannica.com/topic/eschatology>.

**13. Numerous quotations in the Qur'an delineate the quality of the sexes.<sup>304</sup> What does Quranism state about the sexes?**

I can only speak for my organization (Quranology Institute) and not for other Quranists. In my understanding, there is no delineation in social roles with the exception of family law and reproduction where the woman who nurses her child needs to be cared for.

**14. How does Quranism define marriage?**

I can only speak for my organization (Quranology Institute) and not for other Quranists. In my understanding, a marriage is a social contract which recognizes the romantic/sexual relationship between two individuals. This contract must define the terms of their lives together.

**15. What inspiration comes from daily life through the Qur'an for you?**

In my daily life, I work with the underprivileged from time to time and when I do so, verses of the Quran which relate to this issue resonate with me deeply. The Quran gives a special position to charity work, placing it right next to worship in

no less than four places (2/83, 4/36, 6/151 and 17/23).

**16. The Quranists Network's vision states with clarity its purpose to express the "vision of islam itself."<sup>305</sup> In the *Introduction* (2015) to the Quranists Network, the collective describes Quranism as "a major stream in Islam along with Sunnism and Shiaism."<sup>306</sup> In *Quranists and the term 'Quranists'* (2015), you clarify the definition further.<sup>307</sup> In that, you note Quranism does not equate to another sect of Islam and the necessity of shirking *hawa* or delusions to become monotheists. In that, one does not develop into a monotheist by dint of accepting the Qur'an or becoming Muslim. What defines Quranism to you?**

Quranism should be seen as a space wherein there are unending discussions about the Quran. Any person can enter this space and can take whatever he or she wishes from it. Quranism must never force dogma upon anyone. The idea is to fertilise thinking and benefit from reading and applying the text.

**17. What defines a Muslim to you?**

I define a muslim in two ways. One, a Muslim (with a capital 'M') part of the world of Islam,

<sup>304</sup> Appendix I: *Qur'an Quotes on the Spiritual Equality of the Sexes*.

<sup>305</sup> *Vision* (2015) states:

*The primary vision of Quranism is none other than the vision of islam itself. The meaning of 'islam' when articulated by the Quran is 'attaining peace' and 'peace' here is holistic, that is to say peace in all aspects of our lives. If we think about it, all human beings seek a state of peace. We are the same in that respect and only different in how we go about seeking that peace.*

*What makes Quranism distinct from the other ideologies is that it seeks to extract from the Quran a philosophy which will bring the above effect. It is different from other forms of Islam in the sense that it tries to make the Quran the sole source of that philosophy whereas the others acknowledge other sources as divine sources.*

*Quranists seek to bring into the world a state of peace. We would like to see justice and equality in the world and an end to corruption, exploitation and oppression. We hope to do this by articulating and disseminating our understandings of the Quran so that anyone may practise those principles in however manner they choose. We hope to help humanity discover the earthly garden.*

*Our secondary vision is to have Quranism recognised as a legitimate form of Islam. At present, Quranism is seen as either heretical or worse still, totally irrelevant to Islamic discourse. Quranists, we believe, have a*

*legitimate claim to be recognised as a form of Islam. We will therefore promote Quranist Islam through our activities.*

Quranists Network. (2015). Quranists Network: Vision. Retrieved from Quranists Network. (2015). Quranists Network. Retrieved from <http://www.quranists.net/>.

<sup>306</sup> *Introduction* (2015) states:

*Quranism is a major stream in Islam along with Sunnism and Shiaism. Quranism approaches Islam in a unique way compared to the others in that it rejects or at least questions the role of Islamic Traditions. In doing so, Quranists have had to engage with the Quran through fresh eyes and have become a type of Islam which is unusual to most people. However, in recent years with the popularisation of the internet, Quranism has become very high-profile. This website hopes to promote Quranism as a form of Islam.*

*The Quranists Network is an association of individuals and institutions who promote Quranism. It is not the owner of the term of Quranists or Quranism. Quranism and Quranists is a public term.*

Quranists Network. (2015). Quranists Network: Introduction. Retrieved from <http://www.quranists.net/sample-page/introduction/>.

<sup>307</sup> Peru, F.A. (n.d.). Quranists and the term 'Quranists'. Retrieved from <http://www.quranists.net/2011/04/13/quranists-and-the-term-quranists/>.

which is a religious culture known to the world as Islam. A Muslim in this sense is affiliated by birth or conversion to that culture and practices Islam to varying levels.

Another way I see 'muslim' (with a small 'm') is in the existential sense (which I gather from the Quran). A muslim is one who promotes wholeness and soundness of self and society. He does not have to be religious or even a theist. This definition of muslim is ironically found more in the Western world than the Muslim one.

**18. Some religions, or sects within the, reject evolution and accept creationism, or an adapted from entitled intelligent design. Where does the Quranist movement stand with respect to evolution, creationism, and intelligent design?**

As a matter of fact, Quranists seem to be pro-evolution and intelligent design. I have hardly seen Quranists who are also creationists. This is probably due to the fact that the Quran does not incline to the literal interpretation of adam. In my reading, it sees adam as a human prototype (as per 7/11)

**19. What about the general Islamic world – believers, Islamic states, Arab League, and so on?**

The Islamic world tends to be creationists and also very hostile to Traditional Muslims who say otherwise. A friend of mine, one Usama Hassan, received a huge backlash for stating his pro-evolution views.

**20. The future of faith and religion as humans become more powerful at controlling and explaining the world. Is trying to understand the world doing Allah's work?**

I believe it is. I believe that the world is a manifestation of our collective souls and in the evolution of souls, we may bring peace to the world. That is Allah's work. Religion cannot or at least should not be dissociated from our human experience.

**21. What can Muslims and non-Muslims about those giving religion a bad name?**

I believe that all of humanity needs to bring about a state wherein people can self-actualize. This can be done through overcoming stagnation

which happens through poverty. This program would lead to closer human relations and those who give religion a bad name would have the rug pulled from under them

**22. How does one present faith in human beings as special in light of scientific knowledge presenting human beings as common productions of natural processes – cosmic, geologic, evolutionary, socio-cultural, and so on?**

Faith is an internal experience which should bring about a feeling of peace and security. Scientific knowledge is an external experience. I do not feel that one can do without the other but neither does one compromise the other.

**23. With disproportionate time apportioned to the extremists within religion, how can the media present an accurate view of those within the faith community?**

If the media were inclined to do so (which I do not think the mainstream media are), they should focus on the social activism of Muslims. There are Muslim organizations which are passionate about battling poverty and they should receive media focus.

**24. What forces might push Islam in different directions in the future?**

The force of Islamic Reform, I believe, can return Islam to its original trajectory, to become a living tradition which feeds into human evolution. However, Islamic Reform is not an idea which is very proliferant in the Muslim just yet.

**25. Does science deny Allah?**

Science can neither confirm or deny anything. Like a computer, science can process hypotheses and produce a deduction. The set up of the system is dependent upon the person and hence is subjective. Therefore science can justify both theism and atheism.

**26. What other plausible interpretations of the scientific evidence exist to you?**

I believe scientific evidence shows that there is a force which pushes the universe to more complex levels of consciousness as opposed to entropy which seems to permeate the universe.



This is what the Quran calls 'rabubiyah' (lordship) and should be accessed by humanity.

## 27. Can religion survive without faith?

If by 'faith', you mean 'blind faith', then I believe it is only way religion can survive – without blind faith. Rather, religion must use reason in order to verify its own internal experience.

## 28. Can religion survive increasingly persuasive scientific explanations for natural phenomena?

Science can only explain the physical properties of natural phenomena. The metaphysics which underpin reality is something science cannot talk about by definition. This is where our internal faculties are needed. Religion provides vehicles for this internal journey.

## 29. Can the schisms within Islam be repaired?

I am not optimistic because the rift has widened into a chasm. The identities of the Sunni and Shia sects have become cultures in their own right. While the hostilities can be repaired, I do not think the schisms can.

## 30. Should they be?

Not necessarily because any sect can be employed to provide a means for spiritual betterment.

## 31. For those with an interest in subscribing, resources exist such as announcements, bookshop, events, Kindle Books, mp3 audio files, news, QNetTV, Quranists Network Forum, and the subscriber list.<sup>308,309,310,311,312,313,314,315,316</sup> What other means exist for those with an interest in becoming involved in the Quranists Network or Islam?

They should join our facebook groups – Quranists Reverts, Quranists.net and Quranist Space.

**Thank you for your time, Mr. Peru.**

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#### **Appendix I: Qur'an Quotes on Male and Female Spiritual Equality**

1. (Qur'an 16:97) Anyone who works righteousness, male or female, while believing, we will surely grant them a happy life in this world, and we will surely pay them their full recompense (on the Day of Judgment) for their righteous works."
2. (Qur'an 4:124) As for those who lead a righteous life, male or female, while believing, they enter Paradise; without the slightest injustice."
3. (Qur'an 33:35) The submitting men, the submitting women, the believing men, the believing women, the obedient men, the obedient women, the truthful men, the truthful women, the steadfast men, the steadfast women, the reverent men, the reverent women, the charitable men, the charitable women, the fasting men, the fasting women, the chaste men, the chaste women, and the men who commemorate GOD frequently, and the commemorating women; GOD has prepared for them forgiveness and a great recompense.
4. (Qur'an 40:40) Whoever commits a sin is requited for just that, and whoever works righteousness - male or female - while believing, these will enter Paradise wherein they receive provisions without any limits.
5. (Qur'an 4:124) As for those who lead a righteous life, male or female, while believing, they enter Paradise; without the slightest injustice."
6. (Qur'an 49:13) O people, we created you from the same male and female, and rendered you distinct peoples and tribes, that you may recognize one another. The best among you in the sight of GOD is the most righteous. GOD is Omniscient, Cognizant."
7. (Qur'an 3:195) "Their Lord responded to them: "I never fail to reward any worker among you for any work you do, be you male or female - you are equal to one another. Thus, those who immigrate, and get evicted from their homes, and are persecuted because of Me, and fight and get killed, I will surely remit their sins and admit them into gardens with flowing streams." Such is the reward from GOD. GOD possesses the ultimate reward."
8. (Qur'an 3:195) "I shall not lose sight of the labor of any of you who labors in My way, be it man or woman; you proceed one from another..."
9. (Qur'an 4:124) "If any do deeds of righteousness,- be they male or female - and have faith, they will enter Heaven, and not the least injustice will be done to them."
10. (Qur'an 16:97) "Whoever works righteousness, man or woman, and has Faith, verily, to him will We give a new Life, a life that is good and pure, and We will bestow on such their reward according to the best of their actions." (Quran 16:97)
11. (Qur'an 49:13) "O mankind! We have created you from a male and a female, and made you into nations and tribes, that you may know one another. Verily, the most honorable of you with God is the most pious. Verily, God is All-Knowing, All-Aware."
12. (Qur'an 2:228) "... Wives have the same rights as the husbands have on them in accordance with the generally known principles."

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