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EDUCATION & PROFESSIONAL

Doctor of Philosophy: Physics, Queen's University at Kingston, 1991
Master of Science: Physics, Queen's University at Kingston, 1987
Bachelor of Science: Engineering Physics, Queen's University at Kingston, 1984
Professional: Licensed professional engineer in BC (APEGBC) and Ontario (PEO)

ACADEMIC

Adjunct Assistant Professor, Department of Pathology and Molecular Medicine, Queen's University, 2007-2013
Adjunct Assistant Professor, School of Computing, Queen's University, 2000-2005
Adjunct Assistant Professor, Department of Physics, Queen's University, 1995
Post-doc, Physics, Queen's, 1993-1996. SNO calibration & simulation
Post-doc, Medical Physics, Manitoba, 1992. Mega-voltage imaging, screen physics.
Post-doc, Physics, Caltech, 1991. Reactor neutrino detector design & simulation.

AWARDS

2016 Breakthrough Prize for Fundamental Physics: I was one of 1380 physicists honoured with this award, in my case for work on the Sudbury Neutrino Observatory.

CAREER HIGHLIGHTS

August 2012-present: Writer, Speaker
Bespoke poetry for all occassions (weddings, retirements, funerals, events, including vows and ceremony design). Novelist. Screenwriter. Non-fiction focused on technology, science, religion, and mysticism, looking at the various ways people have answered the question: How do we best understand the world and our place in it? Available for speaking engagements on the intersections between art, science, religion, and mysticism, and their various strengths and weaknesses in addressing human physical and emotional needs.

August 1997-present: Freelance Scientific and Software Consultant
Embedded development, software design and implementation, data science, and machine learning. Current clients include embedded and desktop applications for instrument management and calibration, and data analysis.

August 2015-April 2018: Director of Engineering/VP of Engineering/Strategic Advisor, ActiveState Software Inc.
Reporting to the CEO, led an entirely new development team through successful post-company-sale transition from multiple undocumented legacy build systems to a unified system that covers Perl, Python, Tcl, Go, and Ruby on multiple platforms. I was heavily involved in strategic planning for the company's future, and engaged in deep collaboration with marketing and sales to encourage revenue growth, including

blogging and speaking at conferences and events. Innovative lead generation technology I created using data mining of logs from instrumented installers resulted in significant new sales. After successfully setting the company up for future growth I left on good terms to pursue personal and artistic goals.

March 2003-2013: President and Founder, Predictive Patterns Software Inc
Scientific and software consulting firm focused on algorithm design and implementation, embedded development, data analysis, and simulation. Handled all aspects of operations, from marketing and sales to implementation and delivery. Projects included development of fast 2D/3D multi-modal image registration algorithms for real-time (intra-operative) cardiac imaging and spinal imaging, genomic data analysis using supervised and unsupervised machine learning algorithms including novel statistical approaches, and design of new surgical procedures for orthpaedic implants.

August 2009-July 2015: Software Manager/Engineer, PDS, Inc.
Development of embedded software for automated water testing. All phases of software life-cycle. Embedded Linux (C++), PIC32 (C), algorithm design, UI/UX design, and data analysis (Python). Support. Managed team. Worked closely with hardware/electronics/optics team and university-based biochemistry research group.

March 2002 - March 2003: Director of Software Development, MMC
Reporting to the President, managed multi-functional team that produced MMC's award-winning GeneLinker data mining software. Dealt with difficult situations including downsizing and eventual dissolution of the company during dot-com crash.

April. 1996- April 2002 : Commercial software positions.
Senior developer/designer at several software companies, including established enterprises (Hummingbird Communications) and startups (iGO Technologies Inc.)

SELECTED PUBLICATIONS & PATENTS

Xiao Zhang, Jiamin Chen, Tom Radcliffe, Dave P. LeBrun, Victor A. Tron and Harriet Feilotter, An Array-Based Analysis of MicroRNA Expression Comparing Matched Frozen and Formalin-Fixed Paraffin-Embedded Human Tissue Samples, J Mol Diagn. 2008; 10: 513-519

U.S. Patent 6,990,220, Apparatuses and methods for surgical navigation: Ellis, R. and Radcliffe, T., granted January 24, 2006

Q.R. Ahmad et al (SNO Collaboration), Measurement of the rate of nu(e) + d --> p + p + e(-) interactions produced by (8)B solar neutrinos at the Sudbury Neutrino Observatory. Phys. Rev. Lett. 2001;87(7):071301

T. Radcliffe, S. Shalev and R. Rajapakshe, Pseudo-Correlation: a Fast, Robust, Absolute, Gray Level Image Alignment Algorithm, Medical Physics 21 (1994) 761

M. Chen, T. J. Radcliffe, D. A. Imel, H. Henrikson and F. Boehm, New Limits on the

17 keV Neutrino, Phys. Rev. Lett. 69 (1992) 3151

Fiction, Poetry, Screenplays

Vancouver B-Movie Factory Short Films, 2013-2017: Man With a Cape; Milk... Gone Bad!; Maplewood Magic; Animal, Vegetable...; Plenty of Frogs; The Flower of Battle; Harrison Harry; Black Hills; A Place Apart; Circus World; Waiting Room

Vancouver B-Movie Factory Full-Length Features: Shadow Rule the Light (contributed several scenes to what may be the worst film ever made); The Other Odyssey (Head Writer, currently in production)

Vancouver B-Movie Factory Web Series: The Odyssey (Head Writer, sole writer for Season 1)

Independent Film: AlphaMem (full length screenplay, currently in development)

Selected Short Stories and Poetry: "Casandra" in "Machine of Death", 2010, D. Malki!, R. North, M. Bernardo eds. (trans. into German, Japanese, Spanish, etc);

"The Revenge of Hillier's Belle", appeared in Mythic Delerium Fall 2016;

"Jane Blonde", appeared in "16 One Sentence Stories", M. Bernardo ed., 2014

OTHER SKILLS

Expert: C++, Python2/3, C. Intermediate: MATLAB, Fortran, Java, Perl, SQL, various other languages. Experienced with PIC32, PIC18 in C. Expert in image processing, Bayesian statistics, machine learning, simulation (deterministic and Monte Carlo), radiation transport physics, radiation detection, numerical methods, XML, tkinter, wxWidgets and VTK. Windows and Linux experience. I also know which end of a soldering iron to hold.

OTHER ACTIVITIES AND INTERESTS

Sailing, canoeing, kayaking, hiking. Past mentor with FIRST Robotics Team 2809. Stage acting. Voice acting. Improv and musical improv performer.

REFERENCES

Available on request.