

Bruce Spencer

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Highlights

- 35+ years' research and development, publishing scientific literature, mentoring, project management, administration, and teaching.
- Directly led 61 staff over 7 successful information technology R&D projects total worth \$9M, with small, medium and large firms including McCain Foods, Bell Canada, Agfa Healthcare, Kibboko.
- Leveraged 5x funding for partners from NSERC, CANARIE and Growthworks.
- Collaborated with academia, including Univ New Brunswick, Carleton Univ, Northern Ontario School of Medicine, Univ of Philippines, South East Univ, China.
- Network with government research labs NRC, IRAP, ACOA, NSERC, MITACS, and CANARIE.
- Provided startups with technical prototypes adapting modern AI tools to meet their needs.
- Excellent communication development skills, machine learning, statistical modeling, R, java.
- Dissemination: 80 papers, 40 talks, 50 courses. Highly qualified personnel: 17Masters, 5 Ph.D.

Expertise

Automated Reasoning	Electronic Commerce	Artificial Intelligence	Mentoring
Description Logic	Social Networks Analysis	Machine Learning	Networking
Semantic Web	Software as a Service	Data Mining	Project Management
		Predictive Analytics	

Professional Experience

National Research Council of Canada Fredericton, NB

Senior Research Officer (March 2019-Present)

- IoT Sensor technology,

Eyesover Technology Fredericton, NB

Head of Research (March 2017 – Present)

- Designed, developed and deployed a high capacity social media classification, which analyses rapid streams of micropublications and enhances existing subject classification ontology

IPSNP Technology Saint John and Fredericton, NB

Senior Consultant (July 2016 – Present)

- Designed, developed and deployed open data solution for precision agriculture and nutrition.

Energy Research (Independent) Fredericton, NB

Oct 2016– Present

- Developed temperature forecasting technology, publications in journals and conferences.

Fiddlehead Technology Moncton and Fredericton, NB

Lead Data Scientist (April 2014 – Oct 2015)

- Designed and developed demand forecast system for frozen food using predictive analytics
- Improved forecasting by using non-linear solver to tune time series models

UNB Faculty of Computer Science Fredericton, NB

Senior Research Scientist and Lecturer (Sept 2013 – April 2014)

- Designed, implemented visualization showing Twitter data by topic on map
- Created, taught Social Network Analyses course, collaboration with Faculty of Business, NRC

Introhive Fredericton, NB

Research and Architecture Team Lead (Feb – August 2013)

- Co-developed technology, acquired funding for advanced analytics project

Senior Research Officer (Sept 2001– Feb 2013)

- Founded and led the Internet Logic group, and led the following projects:
- **2009-12** Radiation Exposure Monitoring and dose registry project monitors ionizing radiation from diagnostic tests, profiles dose history, assesses patient risk, classifies rare and high doses, assesses guideline compliance, analyzes textual reports. 30 months, \$4M.
Tasks: Led 34 NRC staff. Procured and managed staff, analyzed customer requirements, sole creator of initial design, coordinated detailed designs, designed knowledge-based system, designed guideline compliance system, analyzed open source licenses, coordinated all documentation, liaised with client, ethics board, professional healthcare associations and government bodies.
Impact: Allows physicians to assess risk associated with cumulative radiation, draws attention to high and/or rare doses. Agfa converted our prototype to commercial product IMPAX-REM within 8 months.
- **2008-11** Health Services Virtual Organization project provides immersive multisite collaborative medical training. 24 months. NRC rec'd \$0.5M of CANARIE \$2.0M.
Tasks: Led 8 NRC staff. Procured and managed staff, analyzed requirements, collaborated on design of underlying SOA system, liaised with client, partners & ethics board, analyzed open source licenses, oversaw lightpath integration, prepared and delivered papers, demos and documentation.
Partners: Northern Ontario School of Medicine, Communications Research Ctr, McGill Univ, Univ of Wisconsin, consulting companies, four medical schools.
Impact: Training sessions integrated six sites in Canada, USA, Ireland (82 faculty and students), open source release of code that provides training sessions. Master's thesis.
- **2008-9** Business Domain Ontology Development Framework provides tools to extract business ontology from documents. ACOA \$3.6M. NRC under contract.
Tasks: Led one staff. Created ontology validation prototype for closed-world reasoning.
Partners: UNB Computer Science with Exigen Corp.
Impact: Client withdrew. Completed prototype used in Master's and two PhD theses.
- **2007** ReCIRC project recommends promotional material, based on customer intelligence, ratings and behavior, addresses cold start problem, defines and tracks product niches.
Tasks: Led 5 NRC staff. Procured, educated and managed staff, performed competitive scan, developed original concept, procured initial funding, supervised two Master's theses.
Impact: 90% prediction accuracy. PinpointSelling, rebranded as Kibboko, adopted our business direction, licensed code, hired students, raised \$5M VC, released two online marketing products.
- **2005-7** Eucalyptus project: collaborative participatory design studio, integrates software from Autodesk and IBM, videoconferencing over CANARIE's lightpaths. NRC rec'd \$0.2M of CANARIE \$1.2M.
Tasks: Led 5 staff. Procured and managed staff, original architecture, prepared publications, demos.
Partners: Carleton University, Communications Research Ctr.
Impact: collaborative design studio provided virtual old Montreal to architects. ORION Award. Licensed to Carleton. Code was adopted by our HSVO project.
- **2004-6** inDiscover / inCommune projects provide tools to support independent music industry, helping musicians find fans. NRC rec'd \$0.4M and licensing revenue.
Tasks: Led 8 staff. Hardened initial collaborative filtering prototype to meet client's traffic requirements, generated bilingual version, incorporated fuzzy clustering of fans and crowd sourcing tools for composing playlists, managed development through four releases to client.
Partners: Bell/Sympatico MSN.
Impact: inDiscover sponsored the Canadian Independent Music awards, was licensed and run by Bell Canada, now by Orange Records. Also licensed to companies Kibboko and GreenNexus.

Professor of Computer Science**Fredericton, NB**

Professor (Sept 1990 – Present) Full Professor in 1999. Adjunct professor since 2002.

- Supervised 17 Master's and 5 PhD students, supported by my \$226,605 NSERC grants.
- 1991-1993 Contracts with Martin-Marietta \$209K and Bell-Northern Research, \$30K.

Bell-Northern Research (Nortel)**Ottawa, Ontario**

Bell-Northern Research Computing Technology (August 1983 – August 1986)

- Developed artificial intelligence tools, and BNR LISP and BNR Prolog systems.

University of Waterloo**Waterloo, Ontario**

Teaching and Research Assistant (Sept 1986- August 1990, Sept 1981- Dec 1982)

Dalhousie University**Halifax, NS**

Lecturer in Computer Science, Dalhousie (Jan-April 1983)m Research Assistant (May 1980 – Aug 1981)

- Statistical modeling and estimation in climatology, IMSL programming.

Education

1986-90 PhD Waterloo, artificial intelligence, plan recognition, automated reasoning, belief revision.**1981-83** Master's Waterloo, natural language, knowledge representation, logic programming.**1976-80** Bachelor's Dalhousie, mathematics, automated theorem proving.**Professional Development**

2014 Data Mining with R (3 days)**2012** Coursera Social Networks Analysis (8 weeks)**2011** SADI: Web Publishing of Scientific Data and Services, semantic web and web services (2 days)**2010** Google Web Toolkit (3 days)**2006** Canada School of Public Service Leading Scientific Teams (3 days)**2005** IBM Websphere (5 days)**Academic Service Highlights**

- **2018** General Chair, Int'l Conference on Sustainable Energy Information Technology, Porto, Portugal.
- **1990-2014** taught 50 regular UNB Computer Science courses
- **2012** Initiated cooperation btwn Computer Science at UNB and University of the Philippines Diliman
- **2010** Defined Joint Master's program between South East Univ China & UNB, 15 enrolled.
- **2007-11** Board member for VENUS and NEPTUNE ocean floor observatories, U of Victoria.
- **2007-9** Grant Selection Committee for NSERC Discovery Grants.
- **2006** General chair International Conference on Electronic Commerce, Fredericton.
- **2003-present** Editorial Board of Computational Intelligence.
- **2002-5** President of Canadian Artificial Intelligence Society CSCSI.
- **1998-9** developed and delivered *Java for Experienced Programmers*, three-day course to industry.
- **1997-8** 16 weeks invited researcher: Max Planck Institute for Informatics, Technical Univ Darmstadt, and Univ of Koblenz-Landau. Funded by DAAD German Academic Exchange Service.
- Program chair 12 conferences and workshops, including CASCON 2007, Intl Conf on E-Commerce 2006, Canadian AI 2003.

Publications, Editorships, Prototypes, Talks and Awards

- 20 journal and 80 peer-reviewed conference publications, H-index 14. 19 publications past 3 years.
- Editor for special issues: Electronic Commerce Research & Applications, Computational Intelligence.
- Published prototype on SourceForge: jDREW, 3500 downloads since 2002, sole developer.
- Talks: 40 invited talks in Asia, North America and Europe, including keynote at 2013 IEEE ICCKE.
- **2013** Winner Ontology Classification Live competition, 2013 OWL Reasoner Evaluation Workshop
- **2011** Best Paper Award Canadian Artificial Intelligence Graduate Student Symposium
- **2009** Finalist for Knowledge Industry Research Award, Fredericton: SAVOIR
- **2007** Ontario Research and Innovation Optical Network (ORION) Discovery Award
- **2006** and **2004** NRC IIT Award: Industrial Partnership and General.
- **1998** UNB Merit Award, three teaching award nominations
- **1986-90** Industrial Academic Award, Bell Northern Research, supported PhD studies.

See <http://www.cs.unb.ca/~bspencer/Resume.pdf>