Bruce Spencer

Computer Scientist, Research and Development Leader, Professor, Mentor

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- Profound understanding of Automated Reasoning, Semantic Web and Data Mining.
- Directly led 61 staff over 7 successful information technology R&D projects worth $9M, with academia, multinational and small-to-medium sized firms.
- Strategic leader with broad perspective, accurately predicted market and research trends, influenced organizations' directions.
- Leveraged 5x funding for partners from CANARIE and Growthworks.
- Extensive network in government research labs and funding agencies: NRC IRAP, ACOA, NSERC, MITACS, and CANARIE.
- Inspiring mentor and leader of collaborative, focused and productive teams.
- Outstanding written and verbal communication, coaching skills.
- Deep technical knowledge, up to date skills in web and enterprise architectures.
- Sets and exemplifies high performance and professional standards.
- Excellent record of dissemination, teaching, service, developing highly qualified personnel.

Areas of Expertise:

Automated Reasoning	Electronic Commerce	Artificial Intelligence	Mentoring
Description Logic	Social Networks Analysis	Machine Learning	Networking
Semantic Web	Social Commerce	Data Mining	Project Management
Service-oriented Architectures		Software Engineering	

Professional Experience

2013 Sept – present: Senior Research Scientist, University of New Brunswick
Feb – August: Research and Architecture Team Lead, Introhive, Fredericton

2001-2012 Senior Research Officer, National Research Council of Canada

- Founding group leader of the Internet Logic group, cited for its industrial relevance.

- **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, documented components, coordinated all documentation, accommodated midstream changes to required deliverables, 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 in 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 (SAVOIR), liaised with client, partners & ethics board, analyzed open source licenses, oversaw lightpath integration, specified format and semantics of messages, 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 150,000 lines of code. 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 using 2-dimensional co-clustering to define niches, and online learning to track changing interests. NRC rec'd licensing revenue and $0.05M from MITACS. Client rec'd $1.5M from Growthworks.
  Tasks: Led 5 NRC staff. Procured, educated and managed staff, performed competitive scan, developed original concept, procured initial funding, compressed 15 month project into 9 months, supervised two Master's theses.
  Impact: 90% prediction accuracy. PinpointSelling, rebranded as Kibboko, adopted our business direction, licensed our code, hired my students, ran for 5 years in Toronto.

- **2005-7** Eucalyptus project provides collaborative participatory design studio which integrates software from Autodesk, visualization services from IBM, videoconferencing from Pleora, 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, documentation.
  Partners: Carleton Univ, 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, 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 Kibboko and GreenNexxus.

1990-present Professor of Computer Science at the University of New Brunswick

- Full professor from 2000. Adjunct from 2002.
- 17 Master's students, 5 PhD students, supported by my $226,605 NSERC grants.
- 1991-1993 Contracts with Martin-Marietta $209K and Bell-Northern Research, $30K.

1983-6 Bell-Northern Research Computing Technology.
- Developed artificial intelligence tools, and BNR LISP and BNR Prolog systems.

1986-90, 1981-82 Teaching and Research Assistant, Waterloo.
1983 Lecturer in Computer Science, Dalhousie (4 months)
1980-81 Research Assistant, Dalhousie
- 16 months full time statistical modeling and estimation in climatology, IMSL programming.

Education

1986-90 PhD Waterloo, artificial intelligence, plan recognition, automated reasoning, belief revision.
1981-3 Master's Waterloo, natural language, knowledge representation, logic programming.
1976-80 Bachelor's Dalhousie, mathematics, automated theorem proving.

2012 Coursera Social Networks Analysis (8 weeks)
2011 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

- **1990-2008** taught 49 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. Funds basic research in universities across Canada. Reviewed over 100 Computer Science proposals.
- **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, Univ of Koblenz-Landau. Funded by 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

- 75 peer reviewed publications, including 11 journal papers, H-index 13, i10-index 15
- Editor for 3 special issues: Electronic Commerce Research & Applications, Computational Intelligence, Journal of Business & Technology.
- Published prototype on SourceForge: jDREW, 3500 downloads since 2002, sole developer.
- Talks: 40 invited talks in Asia, North America and Europe (See CV)
- **Awards**
  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.