

CURRICULUM VITAE

Ken Barker

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Employment

September 2005	<i>University of Texas at Austin</i>	<i>Research Scientist</i>
to present	Department of Computer Science	
July 2000	<i>University of Texas at Austin</i>	<i>Research Associate</i>
to August 2005	Department of Computer Science	
July 1998	<i>University of Ottawa</i>	<i>Assistant Professor</i>
to June 2000	School of Information Technology and Engineering	
September 1993	<i>University of Ottawa</i>	<i>Research Assistant</i>
to June 1998	Intelligent Information Access group, Text Summarization subgroup Text Analysis for Knowledge Acquisition project Machine Learning and Text Analysis for Semi-Automatic Knowledge Acquisition	
September 1995	<i>University of Ottawa</i>	<i>Lecturer</i>
to December 1997	Computer Science Department	
May 1990	<i>The Software Operation</i>	<i>Partner</i>
to December 1991	Development of Megatext® Information Retrieval Software	
March 1989	<i>Megalith Technologies, Inc.</i>	<i>Systems Engineer</i>
to April 1990	Text Retrieval and CD-ROM publishing	

Teaching

September 2000	<i>University of Texas at Austin</i>	<i>Guest Lecturer</i>
to April 2009	CS 343: <i>Artificial Intelligence</i> CS 388: <i>Natural Language Processing</i> CS 394F: <i>Knowledge Representation and Reasoning</i>	
September 1998	<i>University of Ottawa</i>	<i>Assistant Professor</i>
to April 2000	CSI 2131: <i>File Management</i> CSI 3125: <i>Concepts in Programming Languages</i> CSI 4900: <i>Projects</i> CSI 5386: <i>Natural Language Processing</i> CSI 5901: <i>Directed Studies</i>	
September 1995	<i>University of Ottawa</i>	<i>Lecturer</i>
to December 1997	CSI 2165: <i>Prolog Concepts</i> CSI 2115: <i>Concepts in Programming Languages</i>	

Education

January 1994 *University of Ottawa* *Ph.D. Computer Science*
to June 1998 *Semi-Automatic Recognition of Semantic Relationships in English Technical Texts*

September 1991 *University of Ottawa* *Master's Computer Science*
to December 1993 transferred to the Ph.D. program

September 1987 *University of Ottawa* *Bachelor of Science, Computer Science*
to April 1991 graduated first in class (9.6 CGPA)

June 1986 *Royal Conservatory of Music, University of Toronto* *Associateship (A.R.C.T.)*
piano performance

Awards/Grants

2009 to present Machine Reading Program (Grant from DARPA subcontract through IBM) Co-Principal Investigator

2009 Project Halo - 2009 (Grant from Vulcan, Inc., subcontract through SRI International) Principal Investigator

2004 to 2009 Project Halo - II (Grant from Vulcan, Inc., subcontract through SRI International) Co-Principal Investigator

2006 to 2008 The Learning by Reading Program (Grant from DARPA subcontract through SRI International) Co-Principal Investigator

2003 to 2007 The PAL Program (Grant from DARPA subcontract through SRI International) Co-Principal Investigator

2002 to 2004 Project Halo (Grant from Vulcan, Inc., subcontract through SRI International) Co-Principal Investigator

1999 to 2002 NSERC Individual Research Grant

1999 Included on the "Most Popular Professors in Canada" list in the Maclean's Magazine Annual University Rankings

1998 Included on the "Most Popular Professors in Canada" list in the Maclean's Magazine Annual University Rankings

1998 University of Ottawa Research Fund

1998 SITE and Faculty of Engineering Development Funds

1998 NSERC Postdoctoral Fellowship (declined)

1998 Best paper award at *The Twelfth Canadian Conference on Artificial Intelligence*

1998 Canadian Advanced Technology Association Award for Excellence in Graduate Student Research: Computing Science/Software Engineering category

1995 to 1997 Ontario Graduate Scholarship

1995 to 1997 University of Ottawa Research Grant Awards; Excellence scholarships

1991 to 1993 NSERC Postgraduate Scholarship

1991 to 1993 University of Ottawa Research Grant Awards; Tuition equivalence scholarships

1987 to 1991 University of Ottawa Merit Scholarships

1990 Chosen to attend "Target" Conference (University of British Columbia/Simon Fraser University)

Professional Activities

- Program committee: *Empirical Methods in Natural Language Processing (EMNLP 2011)*. Edinburgh
- Program committee: *Learning by Reading and its Applications in Intelligent Question-Answering (FAM-LbR/KRAQ 2011)*. Barcelona
- Program committee: *the Sixth International Conference on Knowledge Capture (K-CAP 2011)*. Banff
- Program committee: *Workshop on Web Scale Knowledge Extraction (Wekex 2011)*. Banff
- Program committee: *NAACL 2011 Workshop on Relational Models of Semantics (RELMS 2011)*. Portland
- Program committee: *the 23rd International Conference on Computational Linguistics (COLING 2010)*. Beijing
- Program committee: *the 48th Annual Meeting of the Association for Computational Linguistics (ACL 2010)*. Uppsala
- Program committee: *NAACL 2010 Workshop on Formalisms and Methodology for Learning by Reading*. Pasadena
- Program committee: *the 21st International Joint Conference on Artificial Intelligence (IJCAI-09)*. Pasadena
- Program committee: *the Fifth International Conference on Knowledge Capture (K-CAP 2009)*. Redondo Beach
- Program Chair: *the Fourth International Conference on Knowledge Capture (K-CAP 2007)*. Whistler
- Technical Program Software Chair: *the 22nd National Conference on Artificial Intelligence (AAAI-07)*. Vancouver
- Technical Program Software Chair: *the 21st National Conference on Artificial Intelligence (AAAI-06)*. Boston
- Nectar Papers Program committee: *the 21st National Conference on Artificial Intelligence (AAAI-06)*. Boston
- Program committee: *the 20th National Conference on Artificial Intelligence (AAAI-05)*. Pittsburgh
- Program committee: *the Third International Conference on Knowledge Capture (K-CAP 2005)*. Banff
- Program committee: *the 19th National Conference on Artificial Intelligence (AAAI-04)*. San Jose
- Program committee: *the Second International Conference on Knowledge Capture (K-CAP 2003)*. Florida
- Program committee: *the 14th Canadian Conference on Artificial Intelligence (2001)*. Ottawa
- Program committee: *the 13th Canadian Conference on Artificial Intelligence (2000)*. Montréal
- Research grant reviewer: *the Natural Sciences and Engineering Research Council of Canada*.
- Reviewer: *Artificial Intelligence Journal*.
- Reviewer: *the Journal of Natural Language Engineering*.
- Member: *the American Association for Artificial Intelligence*
- Member: *the Canadian Society for Computational Studies of Intelligence*

Languages

- fluently bilingual English and French

Research Interests

- Knowledge Acquisition
- Knowledge Representation and Reasoning
- Computational Linguistics
- Machine Learning
- Artificial Intelligence

Personal Interests

- music, recording
- ice hockey, running, golf
- words, languages
- craft beer

Publications

Papers in Refereed Journals

David Gunning, Vinay K. Chaudhri, Peter Clark, Ken Barker, Shaw-Yi Chaw, Mark Greaves, Benjamin Grosf, Alice Leung, David McDonald, Sunil Mishra, John Pacheco, Bruce Porter, Aaron Spaulding, Dan Tecuci & Jing Tien (2010). "Project Halo Update — Toward Digital Aristotle". *AI Magazine* 31(3), Fall 2010, 33-58.

Fan, James, Ken Barker & Bruce Porter (2009). "Automatic interpretation of loosely encoded input". *Artificial Intelligence* 173(2), February, 2009, 197-220.

Friedland, Noah S., Paul G. Allen, Gavin Matthews, Michael Witbrock, David Baxter, Jon Curtis, Blake Shepard, Pierluigi Miraglia, Jürgen Angele, Steffen Staab, Eddie Moench, Henrik Oppermann, Dirk Wenke, David Israel, Vinay Chaudhri, Bruce Porter, Ken Barker, James Fan, Shaw Yi Chaw, Peter Yeh, Dan Tecuci & Peter Clark (2004). "Project Halo: Towards a Digital Aristotle". *AI Magazine* 25(4), Winter 2004, 29-47.

Barker, Ken, Terry Copeck, Sylvain Delisle & Stan Szpakowicz (1997). "Systematic Construction of a Versatile Case System". *Journal of Natural Language Engineering* 3(4), December, 1997, 279-315.

Copeck, Terry, Ken Barker, Sylvain Delisle, Stan Szpakowicz & Jean-François Delannoy (1997). "What is Technical Text?" *Language Sciences* 19(4), 391-424.

Delisle, Sylvain, Ken Barker, Terry Copeck & Stan Szpakowicz (1996). "Interactive Semantic Analysis of Technical Texts". *Computational Intelligence* 12(2), May, 1996, 273-306.

Invited Contributions

Barker, Ken (2008). "Learning by Reading." Invited talk in *The Hunter Lab Seminar Series*. School of Medicine, University of Colorado, Denver.

Barker, Ken (2007). "Building Models by Reading Texts." Invited talk at *the AAAI Spring Symposium on Machine Reading*. Stanford.

Barker, Ken (2007). "Modular Knowledge Engineering using the Component Library." Invited talk at *the Second International Workshop on Modular Ontologies (WoMO 2007)*. Whistler.

Barker, Ken (2001). "U.S. Defense/Intelligence Funding of AI (or: How I Learned to Stop Worrying and Love DARPA)". Invited talk at *the Fourteenth Canadian Conference on Artificial Intelligence*. Ottawa.

Barker, Ken (2000). "Semantic Annotation of Complex Noun Phrases". Invited talk to the Computational Linguistics group at the Department of Computer Science, University of Toronto.

Barker, Ken (1999). "Learning to Uncover the Black Soup Pot". Invited feature for *Canadian AI Magazine* No. 43.

Papers in Refereed Conferences

Kim, Doo Soon, Ken Barker & Bruce Porter (2010). "Improving the quality of text understanding by delaying ambiguity resolution." *Proc. of the 23rd International Conference on Computational Linguistics (COLING 2010)*. Beijing.

Kim, Doo Soon, Ken Barker & Bruce Porter (2010). "Building an end-to-end text reading system based on a packed representation." *NAACL Workshop on Formalisms and Methodology for Learning by Reading*. Pasadena.

Chaw, Shaw-Yi, Ken Barker, Bruce Porter, Dan Tecuci & Peter Yeh (2009). "A Scalable Problem-Solver for Large Knowledge-Bases" *Proc. of the 21st International Conference on Tools with Artificial Intelligence*. Newark.

Glass, Michael, Ken Barker, Rekha Kumar, Guhan Ravi & Bruce Porter (2009). "Constructing a semantic interpreter using distributional analysis." *Proc. of the 8th Conference of the Pacific Association for Computational Linguistics*. Sapporo.

Kim, Doo Soon, Ken Barker & Bruce Porter (2009). "Knowledge integration across multiple texts." *Proc. of the 5th International Conference on Knowledge Capture (K-CAP 2009)*. Redondo Beach.

Kim, Doo Soon, Ken Barker & Bruce Porter (2009). "Knowledge integration across multiple texts." *Proc. of the 5th International Conference on Knowledge Capture (K-CAP 2009)*. Redondo Beach.

Clark, Peter, Shaw-Yi Chaw, Ken Barker, Vinay Chaudhri, Philip Harrison, James Fan, Bonnie John, Bruce Porter, Aaron Spaulding, John Thompson & Peter Yeh (2007). "Capturing and answering questions posed to a knowledge-based system." *Proc. of the 4th International Conference on Knowledge Capture (K-CAP 2007)*. Whistler, 63-70.

Barker, Ken, Bhalchandra Agashe, Shaw-Yi Chaw, James Fan, Noah Friedland, Michael Glass, Jerry Hobbs, Eduard Hovy, David Israel, Doo Soon Kim, Rutu Mulkar, Sourabh Patwardhan, Bruce Porter, Dan Tecuci & Peter Yeh (2007). "Learning by Reading: A Prototype System, Performance Baseline and Lessons Learned." *Proc. of the 22nd National Conference on Artificial Intelligence (AAAI 2007)*. Vancouver.

Yeh, Peter, Bruce Porter & Ken Barker (2006). "Flexible Semantic Matching for Link Analysis: A Proposal." *AAAI Fall Symposium Workshop Capturing and Using Patterns for Evidence Detection*. Washington, D.C., October, 2006.

Yeh, Peter, Bruce Porter & Ken Barker (2006). "A Unified Knowledge Based Approach for Sense Disambiguation and Semantic Role Labeling." *Proc. of the 21st National Conference on Artificial Intelligence (AAAI 2006)*. Boston.

Fan, James, Bruce Porter & Ken Barker (2005). "Indirect Anaphora Resolution as Semantic Path Search." *Proc. of the 3rd International Conference on Knowledge Capture (K-CAP 2005)*. Banff, 153-160.

Yeh, Peter, Bruce Porter & Ken Barker (2005). "Matching Utterances to Rich Knowledge Structures to Acquire a Model of the Speaker's Goal." *Proc. of the 3rd International Conference on Knowledge Capture (K-CAP 2005)*. Banff.

Yeh, Peter, Bruce Porter & Ken Barker (2004). "Mining Transformation Rules for Semantic Matching." *Proc. of the Workshop on Mining Graphs, Trees and Sequences (MGTS'04)*. Pisa, 83-94.

Barker, Ken, Shaw Yi Chaw, James Fan, Bruce Porter, Dan Tecuci, Peter Yeh, Vinay K. Chaudhri, David Israel, Sunil Mishra, Pedro Romero, & Peter E. Clark (2004). "A question-answering system for AP Chemistry: Assessing KR&R Technologies." *Proc. of the 9th International Conference on the Principles of Knowledge Representation and Reasoning (KR 2004)*. Whistler, 488-497.

Friedland, Noah S., Paul G. Allen, Michael Witbrock, Jürgen Angele, Steffen Staab, David Israel, Vinay Chaudhri, Bruce Porter, Ken Barker & Peter Clark (2004). "Towards a Quantitative, Platform-Independent Analysis of Knowledge Systems." *Proc. of the 9th International Conference on the Principles of Knowledge Representation and Reasoning (KR 2004)*. Whistler, 507-515.

Clark, Peter, Vinay Chaudhri, Sunil Mishra, Jerome Thomere, Ken Barker & Bruce Porter (2003). "Enabling Domain Experts to Convey Questions to a Machine: A Modified, Template-Based Approach." *Proc. of the 2nd International Conference on Knowledge Capture (K-CAP 2003)*. Florida, 13-19.

Yeh, Peter Z., Bruce Porter & Ken Barker (2003). "Using Transformations to Improve Semantic Matching." *Proc. of the 2nd International Conference on Knowledge Capture (K-CAP 2003)*. Florida, 180-189.

Barker, Ken, Jim Blythe, Gary Borchardt, Vinay Chaudhri, Peter Clark, Paul Cohen, Julie Fitzgerald, Ken Forbus, Yolanda Gil, Boris Katz, Jihie Kim, Gary King, Sunil Mishra, Clayton Morrison, Kenneth Murray, Charley Otsott, Bruce Porter, Robert Schrag, Tomas Uribe, Jeff Usher & Peter Yeh (2003). "A knowledge acquisition tool for course of action analysis." *Proc. of the Innovative Applications of Artificial Intelligence Conference (IAAI-2003)*. Acapulco.

Fan, James, Ken Barker & Bruce Porter (2003). "The Knowledge Required to Interpret Noun Compounds." *Proc. of the 18th International Joint Conference on Artificial Intelligence (IJCAI-03)*. Acapulco, 1483-1485.

Thoméré, Jérôme, Ken Barker, Vinay Chaudhri, Peter Clark, Michael Eriksen, Sunil Mishra, Bruce Porter & Andres Rodriguez (2002). "A Web-based Ontology Browsing and Editing System." *Proc. of the 14th Innovative Applications of Artificial Intelligence Conference (IAAI-2002)*. Edmonton.

Barker, Ken, Peter Clark & Bruce Porter (2001). "A Library of Generic Concepts for Composing Knowledge Bases." *Proc. of the 1st International Conference on Knowledge Capture (K-CAP 2001)*. Victoria, 14-21.

Clark, Peter, John Thompson, Ken Barker, Bruce Porter, Vinay Chaudhri, Andres Rodriguez, Jérôme Thoméré, Yolanda Gil & Pat Hayes (2001). "Knowledge Entry as the Graphical Assembly of Components: The SHAKEN System." *Proc. of the 1st International Conference on Knowledge Capture (K-CAP 2001)*. Victoria, 22-29.

- Fan, James, Ken Barker, Peter Clark & Bruce Porter (2001). "Representing Roles and Purpose." *Proc. of the 1st International Conference on Knowledge Capture (K-CAP 2001)*. Victoria, 38-43.
- Barker, Ken & Nadia Cornacchia (2000). "Using Noun Phrase Heads to Extract Document Keyphrases." *Proc. of the 13th Canadian Conference on Artificial Intelligence (LNAI 1822)*. Montréal, 40-52.
- Copeck, Terry, Ken Barker, Sylvain Delisle & Stan Szpakowicz (2000). "Automating the Measurement of Linguistic Features to Help Classify Texts as Technical". *Proc. of TALN 2000*. Lausanne, 101-110.
- Copeck, Terry, Ken Barker, Sylvain Delisle & Stan Szpakowicz (1999). "More Alike than Not--An Analysis of Word Frequencies in Four General-Purpose Text Corpora". *Proc. of the 4th Conference of the Pacific Association for Computational Linguistics*. Waterloo, 282-287.
- Delisle, Sylvain, Ken Barker & Ismail Biskri (1999). "Object-Oriented Analysis: Getting Help from Robust Computational Linguistic Tools." *The 4th International Conference on Applications of Natural Language to Information Systems (OCG Schriftenreihe 129)*. Klagenfurt, Austria, 167-171.
- Barker, Ken (1998). "A Trainable Bracketeer for Noun Modifiers." Best Paper Award, *Proc. of the 12th Canadian Conference on Artificial Intelligence (LNAI 1418)*. Vancouver, 196-210.
- Barker, Ken & Stan Szpakowicz (1998). "Semi-Automatic Recognition of Noun Modifier Relationships." *Proc. of COLING-ACL '98*. Montréal, 96-102.
- Barker, Ken, Sylvain Delisle & Stan Szpakowicz (1998). "Test-Driving TANKA: Evaluating a Semi-Automatic System of Text Analysis for Knowledge Acquisition." *Proc. of the 12th Canadian Conference on Artificial Intelligence (LNAI 1418)*. Vancouver, 60-71.
- Delannoy, Jean-François, Ken Barker, Terry Copeck, Martin Laplante, Stan Matwin & Stan Szpakowicz (1998) "Flexible Summarization". *AAAI Spring Symposium Workshop on Intelligent Text Summarization*. Stanford, March, 1998.
- Barker, Ken & Stan Szpakowicz (1995). "Interactive Semantic Analysis of Clause-Level Relationships". *Proc. of the 2nd Conference of the Pacific Association for Computational Linguistics*. Brisbane.
- Delisle, Sylvain, Ken Barker, Jean-François Delannoy, Stan Matwin & Stan Szpakowicz (1994). "From Text to Horn Clauses: Combining Linguistic Analysis and Machine Learning". *Canadian AI-94*. (also presented as "Du texte aux clauses de Horn par la combinaison de l'analyse linguistique et de l'apprentissage automatique". *Actes des Cinquièmes Journées Acquisition des Connaissances-94*. Strasbourg, France, O:1-O:14).
- Delisle, Sylvain, Terry Copeck, Stan Szpakowicz & Ken Barker (1993). "Pattern Matching for Case Analysis: A Computational Definition of Closeness". *ICCI-93*, 310-315.

Technical Reports

- Ferrucci, David, Eric Nyberg, James Allan, Ken Barker, Eric Brown, Jennifer Chu-Carroll, Arthur Ciccolo, Pablo Duboue, James Fan, David Gondek, Eduard Hovy, Boris Katz, Adam Lally, Christopher Manning, Michael McCord, Paul Morarescu, Bill Murdock, Bruce Porter, John Prager, Tomek Strzalkowski, Chris Welty & Wlodek Zadrozny (2009). "Towards the Open Advancement of Question Answer Systems", RC24789, IBM Watson Research, April 2009.
- Yeh, Peter, Bruce Porter & Ken Barker (2003). "Transformation Rules for Knowledge-Based Pattern Matching", AI03-299, Department of Computer Sciences, University of Texas at Austin, December 2003.
- Barker, Ken, Vinay Chaudhri, Peter Clark, David Israel, Bruce Porter & Pedro Romero (2003). "Halo Pilot Project", Technical Report, SRI International, May 2003.
- Barker, Ken, Yllias Chali, Terry Copeck, Stan Matwin & Stan Szpakowicz (1998). "The Design of a Configurable Text Summarization System". TR-98-04, School of Information Technology and Engineering, University of Ottawa.
- Barker, Ken (1997). "Noun Modifier Relationship Analysis in the TANKA System". TR-97-02, Department of Computer Science, University of Ottawa.
- Barker, Ken (1996). "The Assessment of Semantic Cases Using English Positional, Prepositional and Adverbial Case Markers". TR-96-08, Department of Computer Science, University of Ottawa.

Barker, Ken & Sylvain Delisle (1996). "Experimental Validation of a Semi-Automatic Text Analyzer". TR-96-01, Department of Computer Science, University of Ottawa.

Barker, Ken & Stan Szpakowicz (1996). Book review of *Natural Language Processing for Prolog Programmers* by Michael A. Covington. *Computational Linguistics*, 22(1), March, 1996.

Barker, Ken, Terry Copeck, Jean-François Delannoy, Stan Matwin & Stan Szpakowicz (1996). "Validation of a Text Summarization Algorithm". TR-96-04, Department of Computer Science, University of Ottawa.

Szpakowicz, Stan, Stan Matwin & Ken Barker (1996). "WordNet-based Word Sense Disambiguation That Works For Short Texts". TR-96-03, Department of Computer Science, University of Ottawa.

Barker, Ken (1994). "Clause-Level Relationship Analysis in the TANKA System". TR-94-07, Department of Computer Science, University of Ottawa.

Delisle, Sylvain, Stan Szpakowicz, Terry Copeck & Ken Barker (1992). "Interactive Semantic Analysis in TANKA: Designing HAIKU". TR-92-32, Department of Computer Science, University of Ottawa.

Others

Chali, Yllias, Ken Barker, Stan Matwin & Stan Szpakowicz (1999). "Utilisation des chaînes lexicales pour la construction automatique des résumés". *67^e Congrès de l'Acfas*. Ottawa.

Delannoy, Jean-François, Ken Barker, Caroline Barrière, Yllias Chali, Terry Copeck, Stan Matwin & Stan Szpakowicz (1999). "Aperçu d'un système de résumé automatique des textes". *67^e Congrès de l'Acfas*. Ottawa.

Delannoy, Jean-François, Stan Matwin, Ken Barker, Terry Copeck, Stan Szpakowicz & Sylvain Delisle (1999). "Étude des caractéristiques des textes techniques". *67^e Congrès de l'Acfas*. Ottawa.

Barker, Ken, Stan Matwin & Stan Szpakowicz (1998). "SENSEVAL/Ottawa". *SENSEVAL: Evaluating Word Sense Disambiguation Systems*. Herstmonceux, UK.

Delisle, Sylvain & Ken Barker (1997). "Un approche télescopique à l'acquisition de connaissances conceptuelles dans les textes (techniques)". *Troisième colloque franco-québécois sur l'extraction des connaissances dans les bases de données textuelles*. Montréal.