

CURRICULUM VITAE

Ken Barker

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Employment

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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

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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

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January 1994	<i>University of Ottawa</i>	<i>Ph.D. Computer Science</i>
to June 1998	<i>Semi-Automatic Recognition of Semantic Relationships in English Technical Texts</i>	
September 1991	<i>University of Ottawa</i>	<i>Master's Computer Science</i>
to December 1993	transferred to the Ph.D. program	
September 1987	<i>University of Ottawa</i>	<i>Bachelor of Science, Computer Science</i>
to April 1991	graduated first in class (9.6 CGPA)	
June 1986	<i>Royal Conservatory of Music, University of Toronto</i>	<i>Associateship (A.R.C.T.)</i>
	piano performance	

## Awards/Grants

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2009 to present	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 <i>The Twelfth Canadian Conference on Artificial Intelligence</i>
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

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- Program committee: *the Twenty-first International Joint Conference on Artificial Intelligence (IJCAI-09)*. (Pasadena)
- Program committee: *the Fifth International Conference on Knowledge Capture (K-CAP 2009)*. (Redondo Beach)
- Reviewer: *the Artificial Intelligence Journal*.
- Program Chair: *the Fourth International Conference on Knowledge Capture (K-CAP 2007)*. (Whistler)
- Technical Program Software Chair: *the Twenty-Second National Conference on Artificial Intelligence (AAAI-07)*. (Vancouver)
- Technical Program Software Chair: *the Twenty-First National Conference on Artificial Intelligence (AAAI-06)*. (Boston)
- Nectar Papers Program committee: *the Tweny-First National Conference on Artificial Intelligence (AAAI-06)*. (Boston)
- Program committee: *the Twentieth National Conference on Artificial Intelligence (AAAI-05)*. (Pittsburgh)
- Program committee: *the Third International Conference on Knowledge Capture (K-CAP 2005)*. (Banff)
- Program committee: *the Nineteenth 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 Fourteenth Canadian Conference on Artificial Intelligence (2001)*. (Ottawa)
- Program committee: *the Thirteenth Canadian Conference on Artificial Intelligence (2000)*. (Montréal)
- Research grant reviewer: *the Natural Sciences and Engineering Research Council of Canada*. (Canada)
- Reviewer: *the Journal of Natural Language Engineering*. (England)
- Member: *the American Association for Artificial Intelligence (US)*
- Member: *the Canadian Society for Computational Studies of Intelligence (Canada)*

## Languages

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- fluently bilingual English and French

## Research Interests

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

## Personal Interests

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

## Publications

### *Papers in Refereed Journals*

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

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 article for *Canadian AI Magazine* No. 43, Spring 1999, 7-12.

### *Papers in Refereed Conferences*

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." *Proceedings of the Twenty-Second 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." *Proceedings of the Twenty-First National Conference on Artificial Intelligence (AAAI 2006)*. Boston.

Fan, James, Bruce Porter & Ken Barker (2005). "Indirect Anaphora Resolution as Semantic Path Search." *Proceedings of the Third 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." *Proceedings of the Third International Conference on Knowledge Capture (K-CAP 2005)*. Banff, 129-136.

Yeh, Peter, Bruce Porter & Ken Barker (2004). "Mining Transformation Rules for Semantic Matching." *Proceedings 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." *Proceedings of the Ninth 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." *Proceedings of the Ninth 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." *Proceedings of the Second 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." *Proceedings of the Second 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 Otstott, Bruce Porter, Robert Schrag, Tomas Uribe, Jeff Usher & Peter Yeh (2003). "A knowledge acquisition tool for course of action analysis." *Proceedings of the Innovative Applications of Artificial Intelligence Conference (IAAI-2003)*. Acapulco, 43-50.
- Fan, James, Ken Barker & Bruce Porter (2003). "The Knowledge Required to Interpret Noun Compounds." *Proceedings of the Eighteenth 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." *Proceedings of the Fourteenth 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." *Proceedings of the First 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." *Proceedings of the First International Conference on Knowledge Capture (K-CAP 2001)*. Victoria, 22-29.
- Fan, James, Ken Barker, Peter Clark & Bruce Porter (2001). "Representing Roles and Purpose." *Proceedings of the First International Conference on Knowledge Capture (K-CAP 2001)*. Victoria, 38-43.
- Barker, Ken & Nadia Cornacchia (2000). "Using Noun Phrase Heads to Extract Document Keyphrases." *Proceedings of the Thirteenth 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". *Proceedings 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". *Proceedings of the Fourth Conference of the Pacific Association for Computational Linguistics*. Waterloo, 282-287.
- Delisle, Sylvain, Ken Barker & Ismaïl Biskri (1999). "Object-Oriented Analysis: Getting Help from Robust Computational Linguistic Tools." *The Fourth 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, *Proceedings of the Twelfth Canadian Conference on Artificial Intelligence (LNAI 1418)*. Vancouver, 196-210.
- Barker, Ken & Stan Szpakowicz (1998). "Semi-Automatic Recognition of Noun Modifier Relationships." *Proceedings 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." *Proceedings of the Twelfth 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". *Proceedings of the Second 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

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<sup>e</sup> 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<sup>e</sup> 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<sup>e</sup> 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.