Curriculum Vitae

Graduate Education

Ph.D., December 1984, Department of Computer Science, University of California at Irvine.

Academic Appointments

University of Texas at Austin

Computer Science Department, Chairman, 2009–present

Computer Science Department, Assoc. Chair for Academics, 2007–2009

Computer Science Department, Professor, 1999–present

Director of the Artificial Intelligence Laboratory, 2000–present

Computer Science Department, Associate Professor, 1990–1999

Computer Science Department, Assistant Professor, 1984–1990

Research and Teaching Focus

Large knowledge systems, knowledge acquisition, question answering, knowledge representation and reasoning, artificial intelligence

Selected Publications

2010   (with Kim, Doo Soon. and Barker, K.) "Improving the Quality of Text Understanding by Delaying Ambiguity Resolution", The 23rd International Conference on Computational Linguistics (COLING 2010).

(with Kim, Doo Soon. and Barker, K.) "Building an End-to-End Text Reading System Based on a Packed Representation", NAACL Workshop 2010.

2009   (with Fan, J. and Barker, K.) "Automatic Interpretation of Loosely Encoded Input", Artificial Intelligence, 2009.

(with Glass, M., et.al.) "Constructing a Semantic Interpreter using Distributional Analysis", Proceedings of the Eighth Conference of the Pacific Association for Computational Linguistics, 2009.

(with Kim, Doo Soon. and Barker, K.) "Knowledge Integration across Multiple Texts", The Fifth International Conference on Knowledge Capture (K-Cap 2009), (best paper nominee).

2008   (with van Harmelen, F. and Lifschitz, V., editors) Handbook of Knowledge Representation, in the Foundations of Artificial Intelligence series, Elsevier, 2008.

2007   (with Barker, K., et.al.) "Learning by Reading: A Prototype System, Performance Baseline and Lessons Learned", Proceedings of the Twenty-Second National Conference on Artificial Intelligence (AAAI 2007).

(with Chaudhri, V., et.al.) "Enabling Experts to Build Knowledge Bases from Science Textbooks", Proceedings of Fourth International Conference on Knowledge Capture, October 2007.

(with Clark, P., et.al.) "Capturing and Answering Questions Posed to a Knowledge-Based System", Proceedings of Fourth International Conference on Knowledge Capture, October 2007.

2006   (with Yeh, P. and Barker, K.) "A Unified Knowledge Based Approach for Sense Disambiguation and Semantic Role Labeling", Proceedings of the Twenty-First National Conference on Artificial Intelligence (AAAI 2006).

(with Yeh, P. and Barker, K.) "Flexible Semantic Matching for Link Analysis: A Proposal", AAAI Fall Symposium on *Capturing and Using Patterns for Evidence Detection*, Oct 13-15, 2006.

2005   (with Yeh, P. and Barker, K.) "Matching Utterances to Rich Knowledge Structures to Acquire a Model of the Speaker's Goal", Proceedings of Third International Conference on Knowledge Capture, October 2005.

(with Fan, J. and Barker, K.) "Indirect Anaphora Resolution as Semantic Path Search", Proceedings of Third International Conference on Knowledge Capture, October 2005.

2004   (with Barker, K., et.al.), "A Question-Answering System for AP Chemistry: Assessing KR&R Technologies", The Ninth International Conference on the Principles of Knowledge Representation and Reasoning (KR2004).

(with Friedland, N., et.al.), "Towards a Quantitative, Platform-Independent Analysis of Knowledge Systems", The Ninth International Conference on the Principles of Knowledge Representation and Reasoning (KR2004).

(with Friedland, N., et.al.), "Project Halo: Towards a Digital Aristotle", AI Magazine, 25(4), pp 29-48.

2003   (with Barker, K., et.al.), "A Knowledge Acquisition Tool for Course of Action Analysis", Innovative Applications of Artificial Intelligence Conference (IAAI), 2003.

(with Fan, J. and Barker, K.) "The Knowledge Required to Interpret Noun Compounds", Eighteenth International Joint Conference on Artificial Intelligence", pp. 1483-1485, 2003.

(with Yeh, P. and Barker, K.), "Using Non-Taxonomic Knowledge to Match Conceptual Structures", Second International Conference on Knowledge Capture, October 23-26, pp. 180-189, 2003.

(with Clark, P., Barker, K., Chaudhri, V., Mishra, S., Thomere, J.), "Enabling Domain Experts to Convey Questions to a Machine: a Modified, Template-Based Approach", Second International Conference on Knowledge Capture, October 23-26, 2003.

2002	(with Thomere, J., Chaudri, V., Barker, K. Clark, P., et. al.), "A Web-based Ontology Browsing and Editing System", Innovative Applications of Artificial Intelligence Conference (IAAI), 2002.
2001	(with Fan, J., Barker, K. and Clark, P.), "Representing Roles and Purpose", First International Conference on Knowledge Capture, October 21-23, 2001.
	(with Barker, K. and Clark, P.), "A Library of Generic Concepts for Composing Knowledge Bases", First International Conference on Knowledge Capture, October 21-23, 2001.
2000	(with Clark, P. and Thompson, J.), "Knowledge Patterns", Seventh International Conference on Principles of Knowledge Representation and Reasoning (KR'2000), April, 2000. (Also appearing in Handbook on Ontologies in Information Systems, a volume in the series International Handbooks on Information Systems, Springer Verlag, 2003).
1999	(with Clark, P. and Thompson, J.), "A Knowledge-Based Approach to Question-Answering", AAAI Fall Symposium on Question-Answering Systems, 1999.
	(with Clark, P.), "Building Concept Representations from Reusable Components", Tenth Annual Workshop on Institutionalizing Software Reuse (WISR), January, 1999.
1997	(with Lester, J.), "Developing and Empirically Evaluating Robust Explanation Generators: The KNIGHT Experiments", Computational Linguistics Journal, 23(1), pp. 65–101, 1997.
	(with Rickel, J.), "Automated Modeling of Complex Systems to Answer Prediction Questions", Artificial Intelligence Journal, 93(1-2), pp. 201–260, 1997.
	(with Clark, P.), "Building Concept Representations from Components", Proceedings of the National Conference on Artificial Intelligence, pp. 369–376, 1997 *Best Paper Award*.
1996	(with Lester,J.) "Scaling Up Explanation Generation: Large-Scale Knowledge Bases and Empirical Studies", National Conference on Artificial Intelligence, 1996.
	(with Cohen, P.), Editor of Special Issue of *Artificial Intelligence* on Empirical Methods, volume 85, numbers 1–2, 1996.
1995	(with Lester, J.), "The KNIGHT Experiments: Empirically Evaluating an Explanation Generation System", Empirical Methods in Discourse Interpretation and Generation Symposium, AAAI Spring Symposium Series, 1995.
1994	(with Rickel, J.), "Automated Modeling for Answering Prediction Questions: Selecting the Time Scale and System Boundary", Proceedings of the National Conference on Artificial Intelligence, Seattle, Washington, 1994.
	(with Acker, L.), "Extracting Viewpoints from Knowledge Bases", Proceedings of the National Conference on Artificial Intelligence, pp. 547-552, Seattle, Washington, 1994.
	(with Blumenthal, B.), "Analysis and Empirical Studies of Derivational Analogy", Artificial Intelligence Journal, volume 67, number 2, pp. 287–328, June 1994.
1993	(with Holte, R.), "When and Why are Array Representations Advantageous?" *Computational Intelligence*, 9:4, pp. 387-390.

(with Souther, A.), "Improving the Explanation Capabilities of Tutoring Systems", Proceedings of the Intelligent Computer-Aided Training Conference, NASA-JSC. (Best paper award.)

1992   (with Rickel, J.), "Using Interaction Paths for Compositional Modeling." Proceedings of the Sixth International Workshop on Qualitative Reasoning about Physical Systems, pages 82–95, 1992.

1991   (with Branting, K.), "Rules and Precedents as Complementary Warrants." Proceedings of the Ninth National Conference on Artificial Intelligence, pages 3–9, July 1991.

     (with Lester, J.), "A Student-Sensitive Discourse Generator for Intelligent Tutoring Systems." Proceedings of the International Conference on the Learning Sciences, August 1991.

1990   (with R. Bareiss and R. Holte) "Concept Learning and Heuristic Classification in Weak-Theory Domains," *Artificial Intelligence Journal*, Volume 45, Numbers 1-2, pages 229–264, 1990.

1989   (with R. Bareiss and K. Murray) "Supporting Start-to-Finish Development of Knowledge-Based Systems", the *Machine Learning Journal*, Volume 4, Number 3, pages 259–284, 1990.

     (with K. Murray) "Controlling Search for the Consequences of New Information during Knowledge Integration," *Proceedings of the Sixth International Machine Learning Conference*, San Mateo, CA: Morgan Kaufmann Publishers, pages 290–295, 1989.

     (with R. Holte and L. Acker) "Concept Learning and the Problem of Small Disjuncts," *Proceedings of the International Joint Conference on Artificial Intelligence*, San Mateo, CA: Morgan Kaufmann Publishers, pages 813–818, 1989.

1988   (with R. Bareiss and C. Wier) "Protos: An Exemplar-Based Learning Apprentice," *International Journal on Man-Machine Studies*, Volume 29, pp. 549–561.

1986   (with D. F. Kibler) "Experimental Goal Regression: A Method for Learning Problem-Solving Heuristics," *Machine Learning*, Volume 1, Number 3.

     (with R. Bareiss) "Protos: An Experiment in Knowledge Acquisition for Heuristic Classification Tasks," *Proceedings of the International Meeting on Advances in Learning*, pp. 159–174 (also in *Machine Learning*, Volume 3, R. Michalski and Y. Kodratoff, editors; Morgan Kaufmann, publishers).

1985   (with D. F. Kibler) "A Comparison of Analytic and Experimental Goal Regression for Machine Learning," *Proceedings of the International Joint Conference on Artificial Intelligence*, pp. 555–559.

1984   (with D. F. Kibler) "Learning Operator Transformations," *Proceedings of the National Conference on Artificial Intelligence*, pp. 278–282.

1983   (with D. F. Kibler) "Episodic Learning," *Proceedings of the National Conference on Artificial Intelligence*, pp. 191–196.

     (with D. F. Kibler) "Perturbation: A Means for Guiding Generalization," *Proceedings of the International Joint Conference on Artificial Intelligence*, pp. 415–418.

Service to the Research Community

Member of the Program Committee for the National Conference on Artificial Intelligence, 2007 and 2008.

Member of the Program Committee for the Innovative Applications of Artificial Intelligence Conference, 2007 and 2008.

Member of the editorial board of *The AI Magazine*, 2004–present.

Chair of the Innovative Applications of Artificial Intelligence conference, 2006.

Co-chair of the Innovative Applications of Artificial Intelligence conference, 2005.

Co-chair of the Second International Conference on Knowledge Capture, 2003.

Co-chair of the National Conference on Artificial Intelligence, 2000.

Member of the editorial board of *The Journal of AI Research*, 1998–2000.

Member of the Senior Program Committee for the National Conference on Artificial Intelligence, 1999, 1998, 1997.

Editor of the journal *Machine Learning*, 1989–1993.

Member of the editorial board of *Knowledge Acquisition: An International Journal*, 1988–present.

Selected Awards

Recipient of the College of Natural Sciences Teaching Excellence Award, 2008.

(with Peter Clark) Recipient of Best Paper Award, National Conference on Artificial Intelligence, 1997.

Appointed Presidential Young Investigator by the National Science Foundation, 1988–1993.