

Henry A. Kautz

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Employment History

Associate Professor (tenured), Department of Computer Science and Engineering, University of Washington, Seattle, WA, April 2000

Technology Leader, AT&T Laboratories, Florham Park, NJ, 1997–March 2000

Department Head, AT&T Laboratories, Florham Park, NJ, 1994–1997

Research Scientist, AT&T Bell Laboratories, Murray Hill, NJ, 1987–1994

Systems Analyst, Nanodata Corporation, Buffalo, NY, 1978–1979

Awards and Honors

- 2000 **Program Chair** of the *National Conference on Artificial Intelligence*.
- 1998 Elected to the **Executive Council of the National Association for Artificial Intelligence**, the 10-member policy making body of the organization.
- 1998 Plenary Address, *9th NEC Research Symposium*.
- 1997 Elected **Fellow of the National Association for Artificial Intelligence**.
- 1996 **Best Paper**, Thirteenth National Conference on Artificial Intelligence (AAAI-96).
- 1993 **Best Paper**, Eleventh National Conference on Artificial Intelligence (AAAI-93).
- 1992 **Plenary Address**, *Tenth European Conference on Artificial Intelligence (ECAI-92)*.
- 1989 **IJCAI Computers and Thought Award**. Award is given every two years by the Joint International Conference on Artificial Intelligence to an outstanding scientist.
- 1989 **Best Paper**, First International Conference on Knowledge Representation and Reasoning (KR-89)
- 1988 **Best Paper**, Seventh Biennial Conference of the Canadian Society for the Computational Studies of Intelligence (CSCSI-88)
- 1982–1985 **National Science Foundation Fellowship**.

Education

- Ph.D. (Computer Science)**, University of Rochester, 1987
- Master of Science (Computer Science)**, University of Toronto, 1982
- Master of Arts (Creative Writing)**, The Johns Hopkins University, 1980
- Bachelor of Arts (Mathematics)**, Cornell University, 1978

Teaching and Graduate Student Supervision

- PhD. thesis committee member** for Stephen Majercik, Duke University, 1998–2000
Thesis: Managing Uncertainty in Large Domains: Planning and Learning in Policy Space.
- PhD. thesis co-chair** for Joachim Walser, Universität des Saarlandes, 1997–1998
Thesis: Domain Independent Local Search for Integer Optimization.

Masters thesis Supervisor for Mehul Shah, M.I.T./AT&T Coop Program, 1996 – 1997
Thesis: ReferralWeb: A Resource Location System Guided by Personal Relations.

Tutorial on “Compute-Intensive AI”, 1997
Presented at the *Fourteenth National Conference on Artificial Intelligence (AAAI-97)*, Providence, RI.

Tutorial on “Advances in Reasoning and Search for Model-Based Autonomous Systems”, 1999
Presented at the *Fifteenth National Conference on Artificial Intelligence (AAAI-99)*, Orlando, FL.

Professional and Service

Associate Program Chair of the *National Conference on Artificial Intelligence*, 1999.

Associate Editor of the *Journal of Artificial Intelligence Research*, 1993 – 1998.

Program Chair of the *Symposium on Mathematics and Artificial Intelligence*, Ft. Lauderdale, FL, 1996.

Chair of the *Fourth International Workshop On Nonmonotonic Reasoning*, 1992.

Program Committee Member, American Association for Artificial Intelligence (AAAI): 1988, 1990, 1991, 1994, 1996, 1997, 1999. International Joint Conference on Artificial Intelligence (IJCAI): 1995, 1999. International Conference on Principles and Practice of Constraint Programming (CP): 2000. International Conference on Autonomous Agents: 1997, 1999. Principles of Representation and Reasoning (KR): 1991, 1994, 1998, 2000. Workshop on Nonmonotonic Reasoning: 1990, 1994. International Workshop on Temporal Representation and Reasoning: 1994.

Research Interests

Artificial intelligence, including planning, knowledge representation, and software agents. Research projects include: **SATPLAN**: efficient algorithms for plan generation, based on a formalization of planning as satisfiability testing. **GSAT and Walksat**: stochastic algorithms for propositional reasoning. **ReferralWeb**: a software agent system for locating people and information on the World Wide Web, by generating and searching networks of personal relationships. **Knowledge Compilation**: techniques for increasing the efficiency of logical inference by compiling general theories into tractable approximations. **AI and Complexity**: Analysis of the complexity of reasoning with classical, temporal, and nonmonotonic logics.

Patents

“Optimization of Information Bases,” US patent issued Nov. 1993

“Mechanism for Constraint Satisfaction,” US patent issued June 1997

“Message Filtering Techniques,” US patent issued April 1997

Selected Publications

1. Henry Kautz and Joachim Walser. State-space Planning by Integer Optimization. *Knowledge Engineering Review*, forthcoming.
2. Henry Kautz and Bart Selman. Planning as Satisfiability. *Artificial Intelligence*, forthcoming.
3. Carla P. Gomes, Bart Selman, Nuno Crator, and Henry Kautz. Heavy-tailed Phenomena in Satisfiability and Constraint Satisfaction Problems. *Journal of Automated Reasoning*, forthcoming.
4. Henry Kautz and Bart Selman. Unifying SAT-based and Graph-based Planning. *Proceedings of the Sixteenth International Joint Conference on Artificial Intelligence (IJCAI-99)*, Stockholm, 1999.
5. Henry Kautz, Bart Selman, and Mehul Shah. The Hidden Web. *AI Magazine*, vol. 18 no. 2, July 1997.

6. Henry Kautz and Bart Selman. Knowledge Compilation and Theory Approximation. *Journal of the ACM*, 43(2):193-224, March 1996.
7. Henry Kautz and Bart Selman. Pushing the Envelope: Planning, Propositional Logic, and Stochastic Search. *Proceedings of the Thirteenth National Conference on Artificial Intelligence (AAAI-96)*, Portland, OR, 1996.
8. Henry Kautz, Michael Kearns, and Bart Selman. Horn Approximations of Empirical Data. *Artificial Intelligence*, 74/1 (pp. 129-145) 30 March 1995.
9. Goran Gogic, Henry Kautz, Christos Papadimitriou, and Bart Selman. The Comparative Linguistics of Knowledge Representation. *Proceedings of the Fourteenth International Joint Conference on Artificial Intelligence (IJCAI-95)*, Montreal, Canada, 1995.
10. Henry Kautz, Bart Selman, Michael Coen, and Steven Ketchpel. An Experiment in the Design of Software Agents. *Proceedings of the Twelfth National Conference on Artificial Intelligence (AAAI-94)*, Seattle, WA, 1994.
11. Henry Kautz and Bart Selman. An Empirical Evaluation of Knowledge Compilation. *Proceedings of the Twelfth National Conference on Artificial Intelligence (AAAI-94)*, Seattle, WA, 1994.
12. Henry Kautz and Bart Selman. Forming Concepts for Fast Inference. *Proceedings of the Tenth National Conference on Artificial Intelligence (AAAI-92)*, San Jose, CA, 1992, 786–793. Reprinted in *Foundations of Knowledge Representation and Reasoning*, B. Nebel and G. Lakemeyer (Eds.), Berlin: Springer-Verlag, 1994.
13. Henry Kautz and Bart Selman. Hard Problems for Simple Default Logics (expanded version). *Artificial Intelligence*, 49:243–279, 1991.
14. Bart Selman and Henry Kautz. Model-Preference Default Theories. *Artificial Intelligence*, 45:287–322, 1990.
15. Marc Vilain and Henry Kautz. Constraint Propagation Algorithms for Temporal Reasoning. *Proceedings of the Fifth National Conference on Artificial Intelligence (AAAI-86)*, Philadelphia, PA, 1986, 377–382.
16. J. Allen, H. Kautz, R. Pelavin, and J. Tenenber. *Reasoning About Plans*, Los Altos: Morgan Kaufmann, 1991.