# Resume of Carole D. Hafner, Ph.D.

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## Areas of Expertise:

Primary: Artificial Intelligence; Empirical Research Methods; Computer/Information Science Education
Secondary: Programming/Software Design, Human Computer Interaction; Data Mining

## Education

B.A. Economics (with honors). Concentration in statistics and econometrics
The University of Michigan, Ann Arbor MI

M.S. Computer Science
The University of Michigan, Ann Arbor, MI

Ph.D. Computer Science
The University of Michigan, Ann Arbor MI

HERS Management Institute for Women in Higher Education (2003-2004)

## Employment History

Northeastern University, Boston, MA
College of Computer and Information Science
Associate Professor, Computer Science (1984-Present)
Director of Information Science Education (1999-Present)
College of Professional Studies
Academic Director for Information Technology (2007-2009)

Harvard Law School, Cambridge MA
Lecturer on Law (1991-92) (on sabbatical leave from Northeastern University)

General Motors Research Laboratories, Warren, MI
Research Scientist, Computer Science Department (1978-81)
Senior Research Scientist, Computer Science Department (1981-84)

University of Michigan, Ann Arbor, MI
Graduate Research Assistant, Computer Science Department (1971-77)
Programmer/Analyst (Software Engineer), Highway Safety Research Institute (1968-1971)

## Professional Highlights:

Director, NU Information Science Program, 1999 – present

International Conference on Artificial Intelligence and Law (ICAIL)
Program Chair 2009; Secretary-Treasurer 1989-2005; Conference Chair 1987

*Artificial Intelligence and Law, an International Journal* (Kluwer Academic Publishers)
Co-editor in Chief, 1992-1997; Member of Editorial Board, 1998 - present

Northeastern University Planning Council, 2002-2004; Information Technology Planning Committee, 2006; Financial Affairs Committee, 2007-2008; Chair of Committee on Enrollment Policy, 1999-2000

Invited delegate to symposium: The Future of Information Technology Education. National Academies, Washington D.C., January 2003. Sponsored by ABET (Accreditation Board for Engineering and Technology)

Member of CSNET Executive Committee 1987-1989

Participant in National Science Foundation grant review panels 1988-2004 (once or twice per year)

## Teaching Experience

| Course Title | Languages/Technologies |
|---|---|
| UNDERGRADUATE | |
| Object-Oriented Design | C++; Java |
| Empirical Research Methods for Information Science | SPSS |
| Principles of Information Science | Protégé (http://protege.stanford.edu) |
| Human-Computer Interaction | Visual Basic |
| Artificial Intelligence | Lisp; Python |
| Automata Theory and Formal Languages | |
| Functional Programming | Lisp; Scheme |
| Honors Senior Seminar (Data Mining) | WEKA |
| GRADUATE | |
| Artificial Intelligence | Lisp; Python |
| Natural Language Processing | Lisp; Python |
| Human-Computer Interaction | Visual Basic |
| Data Structures | C |
| C/Unix Programming | C |

## Grants Funded

2004-2005 User Interface Design for Mobile Computing, Northeastern University, $11,300 (with P. Tarasewich and A. Reeves).

1996-1998 Ontological Foundations for Experimental Science Knowledge Bases, National Science Foundation, $49,000.

1992-1995 Data/Knowledge Bases for Biological Papers and Techniques, National Science Foundation, $680,000 (with K. Baclawski and R. Futrelle).

1991-1992 Development of Improved Text Retrieval Methods Using Computational Linguistics, National Center for Automated Information Retrieval (New York), $15,000.

1989-1991 A Robust Method for Conceptual Analysis of Natural Language Text, National Science Foundation, $59,700.

1988 A Paper Knowledge Base for Architect-Engineer Liability, U.S. Army Construction Engineering Research Laboratory, $14,736 (with D.H. Berman).

## Ph. D. 's Supervised

Scott Miller (1996), *Hidden Understanding Models for Natural Language Processing.*

Natalya Fridman Noy (1998) , *Knowledge Representation for Intelligent Information Retrieval in Experimental Sciences.*

## Selected Publications

### Journal Special Issues Edited:

Hafner, C. and Rissland, E., (2002). Editors' Introduction to the Special Issue in Memory of Donald H. Berman. *Artificial Intelligence and Law 10:*1-3, 3-6.

Hafner, C., (1995). Editor's Introduction to the Special Issue on Intelligent Legal Text-Based Systems. *Artificial Intelligence and Law 3:*1-2, 1-4.

### Information Technology Education:

Trauth, E. and C. Hafner. (2000). Meeting the IT Skills Crisis: An Interdisciplinary Response. In *Proceedings of the Americas Conference on Information Systems (AMCIS-2000).* Association for Information Systems (www.aisnet.org).

Hafner, C. and Trauth, E. (2000). IS Education Grows Up and Leaves Home: Situating Educational Programs in the Information Society. In *Proceedings of the Information Systems Education Conference (ISECON 2000).* Foundation for Information Technology Education (www.edfoundation.org).

### Knowledge-based systems:

Noy, N. and Hafner, C. (2000). Ontological Foundations for Experimental Science Knowledge Bases. *Applied Artificial Intelligence 14:* 6, 565-618.

Noy, N. and Hafner, C. (1998). Representing Scientific Experiments: Implications for Ontology Design and Knowledge Sharing. In *Proc. 15th National Conference on Artificial Intelligence (AAAI-98), 615-622.* AAAI Press/MIT Press, Cambridge, MA.

Noy, N. and Hafner, C. (1997). The State of the Art in Ontology Design: A Survey and Comparative Review. *AI Magazine,* Fall 1997, 53-74.

Hafner, C. and Fridman, N. (1996). Ontological Foundations for Biology Knowledge Models. In *Proc. 4th International Conference on Intelligent Systems for Molecular Biology (ISMB-96),* 78-87. AAAI Press, Menlo Park, CA. (1996).

Hafner, C., Baclawski, K., Futrelle, R., Fridman, N., Sampath, S. (1994).Creating a Knowledge Base of Biological Research Papers. In *Proc. 2nd International Conference on Intelligent Systems for Molecular Biology (ISMB-94),* 147-155. AAAI Press, Menlo Park, CA.

### Artificial intelligence and law:

Hafner, C. D. and Lauritsen, M. (2007). Extending the Power of Automated Legal Drafting Technology. In Lodder, A.R. and L. Mommers, eds., *Legal Knowledge and Information Systems: Jurix 2007,* pp. 59-68. IOS Press.

Hafner, C. D. and Berman, D.H. (2002). The Role of Context in Case-Based Legal Reasoning: Teleological, Temporal and Procedural. *Artificial Intelligence and Law 10,* 19-64.

Hafner, C. (2001). Legal Reasoning Models. *International Encyclopedia of the Social and Behavioral Sciences.* Elsevier Science Publishers.

Berman, D. H. and Hafner, C. D. (1995). Understanding Precedents in a Temporal Context of Evolving Legal Doctrine. In *Proceedings of the 5th International Conference on Artificial Intelligence and Law, 42-51.* ACM Press: New York.

Hafner, C. and Wise, V. (1993). Smartlaw: Adapting "Classic" Expert System Techniques to the Legal Research Domain. In *Proc. 4th International Conference on Artificial Intelligence and Law, pp. 133-141.* ACM Press, New York.

Berman, D. H. and Hafner, C. D. (1993). Representing Teleological Structure in Case-Based Legal Reasoning: The Missing Link. In *Proceedings of the 4th International Conference on Artificial Intelligence and Law,* 50-60. ACM Press: New York.

Berman, D. H. and Hafner, C. D. (1991). Incorporating Procedural Context into a Model of Case-Based Legal Reasoning. In *Proceedings of the 3rd International Conference on Artificial Intelligence and Law*, 12-20. ACM Press: New York.

Berman, D and Hafner, C. (1989).The Potential of Artificial Intelligence to Help Solve the Crisis in Our Legal System. *Communications of the ACM 32*:8, 928-938.

Hafner, C. D. (1987). Conceptual Organization of Case Law Knowledge Bases. *In Proceedings of the First International Conference on Artificial Intelligence and Law*, 35-42. ACM Press: New York.

Hafner, C. D. (1981*). An Information Retrieval System Based on a Computer Model of Legal Knowledge.* Ph.D. Thesis, The University of Michigan. UMI Research Press: Ann Arbor, MI.

**Natural language processing:**

Gong, J., P. Tarasewich, C. D. Hafner and S.I. Mackenzie (2007). Improving Dictionary-based Disambiguation for Text Entry Accuracy. In *CHI'07 Extended Abstracts on Human Factors in Computing Systems*. ACM.

Hafner, C. (1990). A Linguistically Sound Approach to Content Analysis of Natural Language Text. In *Proc. 5th Annual AI Systems in Government Conference*, 142-149. IEEE Computer Society Press.

Hafner, C. (1990). Challenges for Text-Based Intelligent Systems. In Notes from the AAAI Spring Symposium on Text-Based Intelligent Systems, 34-38. Stanford CA, March 1990.

Hafner, C. (1985). Semantics of Temporal Queries and Temporal Data. In *Proc. 23rd Ann. Mtg. of the Assoc. for Computational Linguistics*, 1-8. ACL: Morristown, NJ.

Hafner, C. and Godden, K. (1985). Portability of Syntax and Semantics in DATALOG. *ACM Transactions on Information Systems 3:*2, 141-164

Hafner, C. (1984). Interaction of Knowledge Sources in a Portable Natural Language Interface.' *In Proceedings of the 10th International Conference on Computational Linguistics (COLING 84)*, 57-60. ACL: Morristown, NJ.