Haym Hirsh
Department of Computer Science
Cornell University
Ithaca, NY 14850

Education

- Ph.D., Computer Science, Stanford University, 1989
- M.S., Computer Science: Artificial Intelligence, Stanford University, 1985
- B.S., Mathematics–Computer Science, University of California, Los Angeles, 1983
  Summa cum laude, Phi Beta Kappa, U.C. Regents Scholar, Departmental Highest Honors, Math/Computer Science Senior Prize

Employment History

- Cornell University: 2013–present
  Professor, Department of Computer Science
  Graduate Field Memberships: Information Science, Cognitive Science
  Dean, Faculty of Computing and Information Science: 2013–2014
- National Science Foundation, Directorate of Computer and Information Science and Engineering: 2006-2010
  Director, Division of Information and Intelligent Systems
- AT&T Bell Laboratories/AT&T Labs-Research
  Consultant, AI Research Principles Department/Machine Learning Research Department: 1991-2000
- Rutgers University, Department of Computer Science: 1989–2013
  Department Chair: 2003–2006; 2012–2013
  Professor: 2002–2013
  Associate Professor: 1995–2002
  Assistant Professor: 1989–1995
- Stanford University, Department of Computer Science: 1983–1989
  Graduate Research Assistant/Teaching Assistant/Fellowship Holder
- University of Southern California, Information Sciences Institute: 1983
  Undergraduate Research Assistant

Sabbatical, Visiting, and Summer Positions

- Massachusetts Institute of Technology: 1997, 2010-2011
  Visiting Scholar, Sloan School of Management: 2010-2011
  Visiting Associate Professor, Department of Electrical Engineering and Computer Science: Fall 1997
  Visiting Scholar, Artificial Intelligence Laboratory: Fall 1997
- University of Zurich: Summer 2006
  Visiting Professor, Department of Informatics
- New York University, Stern School of Business: 2000-2002
  Visiting Scholar, Information Systems Department: 2001-2002
  Visiting Professor, Information Systems Department: 2000–2001
- Bar-Ilan University, Department of Computer Science: 1995, 1997, 1998, 2000
  Visiting Scientist (short-term visits)
- Carnegie Mellon University, School of Computer Science
  Visiting Professor: Fall 1995
  Visiting Scholar: 1988–1989
- University of Pittsburgh, Department of Computer Science
  Visiting Graduate Student: 1988–1989
- NASA Ames Research Center: Summer 1988
  Graduate Research Assistant, AI Branch
- Apple Computer: Summer 1984
  Research Assistant

Invited Keynote and Plenary Talks

- "Crowdsourcing, Human Computation, and Collective Intelligence", World Congress in Computer Science, Computer Engineering, and Applied Computing, 2012
- "Getting the Most Bang for Your Buck: The Efficient Use of Crowdsourced Labor for Data Annotation", Eight International Conference on Data Mining, 2012
- "Socially Intelligent Computing", 5th International Conference on Collaborative Computing, 2009
- "Emerging Areas for Data Technologies", IARPA KDD Workshop, 2009
- "Artificial, Natural, and Social Intelligence", Finnish Academy of Science and Letters, "Computer Science Without Limits", Event Marking the Finnish Academy's 100th Anniversary, Helsinki, Finland, 2008
- "Artificial, Natural, and Social Intelligence", Hadassah College, "Computers and Thought" Event for the inauguration of a new graduate program in Computer Science, Jerusalem, Israel, September 2008
- "What's Going Wrong in Data Mining", Workshop on What Went Wrong and Why: Lessons from AI Research and Applications" Twenty Third AAAI Conference on Artificial Intelligence (AAAI), 2008
- "Mining Text", Johnson and Johnson Text Mining Symposium, 2008
- "Improving Text Classification Using Background Knowledge", International Conference on Machine Learning and Applications, 2003
- Integrating Background Knowledge into Nearest-Neighbor Text Classification", Sixth European Conference on Case-Based Reasoning (ECCBR), 2002
- "Integrating Multiple Information Sources in Text Classification", Workshop on Knowledge Discovery from Heterogeneous, Distributed, Autonomous, Dynamic Data and Knowledge Sources, International Joint Conference on Artificial Intelligence (IJCAI), 2001
- "Learning From and About Users", Seventeenth International Conference on Machine Learning (ICML) Stanford, California, 2000
- "Text Classification via Ad Hoc Queries", 2nd Bar-Ilan Workshop on Knowledge Discovery and Learning, 2000
- "Learning from Ambiguous Data: 1988-1998", Workshop on Learning from Ambiguous and Complex Examples, Twelfth Annual Conference on Neural Information Processing Systems (NIPS), 1998
- "Human Performance on Clustering Web Pages". Bar-Ilan Workshop on Knowledge Discovery in Databases 1998

Selected Other Invited Presentations: Bar-Ilan University; CENDI (the Federal Science and Technical Information Managers Group); Columbia University; Computing Research Association Computing Community Consortium; Georgia Tech; Hebrew University; Helsinki University of Technology; MIT; North Carolina State University; NYU; Princeton University; Sarnoff Corporation; DE Shaw Group; Siemens; Stanford University; Tufts University; UC Irvine; UCLA; University of Illinois Urbana Champaign; University of Maryland (College Park); University of Maryland (Baltimore County); University of Michigan; University of Minnesota; University of Ottawa; University of Pittsburgh; University of Southern California; University of Washington; University of Zurich; U.S. Office of Science and Technology Policy; UT Austin; Yale University

Professional Service

- ACM Special Interest Group on Artificial Intelligence (SIGAI): Advisory Board, 2010–present
- National Academies Panel on Information Science at the Army Research Laboratory (ARL): 2020-2021
- Review panel for Portuguese Computer Science Departments, 2018
- Association for the Advancement of Artificial Intelligence (AAAI): Executive Council: 2003–2006
- Institute for the Study of Learning and Expertise (ISLE), Palo Alto, CA: Board of Directors, 1999–2006
- National Library of Medicine: Board of Regents (*ex officio*): 2007–2010
- U.S. Office of Science and Technology Policy (OSTP):
    Interagency Robotics Working Group: 2009–2010
    Interagency Education Technology Working Group, 2009–2010
- Journals:
    IEEE Intelligent Systems
        Advisory Board: 2005–2018
        Contributing Editor, "Trends and Controversies" Feature: 1998–2000
        Editorial Board: 1999–2005
    Journal of Machine Learning Research

Action Editor: 2001–2010

Editorial Board: 2001–2001

Journal of Artificial Intelligence Research

Advisory Board: 2001–2005

Associate Editor: 1997–2000

Editorial Board: 1995–1997

User Modeling and User-Adapted Interaction

Editorial Board: 1999–2002

Machine Learning

Editor: 1999–2002

Editorial Board: 1999–1999

Annals of Mathematics and Artificial Intelligence

Guest Editor, "Boundaries of Tractability for Artificial Intelligence": 1996

Applied Intelligence

Review Board: 1995–1999

- Major Conference Chair Roles:

Thirteenth International Conference on Innovative Applications of Artificial Intelligence (IAAI-2001)

Haym Hirsh, Chair; Steven Chien, Co-Chair: 2001

Twelfth International Conference on Innovative Applications of Artificial Intelligence (IAAI-2000)

Robert Engelmore, Chair; Haym Hirsh, Co-Chair: 2000

Eleventh International Conference on Machine Learning (ICML-94)

William Cohen and Haym Hirsh, Co-Chairs: July 1994

- Other Chair Roles:

AAAI Fall Symposium on Discovery Informatics: The Role of AI Research in Innovating Scientific Processes, Will Bridewell, Yolanda Gil, Haym Hirsh, Kerstin Kleese van Dam, and Karsten Steinhaeuser, Co-Chairs, 2012

Discovery Informatics: Science Challenges for Intelligent Systems Workshop, NSF, Yolanda Gil and Haym Hirsh Co-Chairs, 2012

Workshop on Artificial Intelligence Education, Twenty-Third AAAI Conference on Artificial Intelligence, Zachary Dodds, Haym Hirsh, and Kiri Wagstaff, Co-Chairs, 2008

Workshop on Text Mining: Foundations, Techniques and Applications, Sixteenth International Joint Conference on Artificial Intelligence (IJCAI), Ronen Feldman and Haym Hirsh, Co-Chairs, 1999

AAAI Spring Symposium on Machine Learning in Information Access, Marti Hearst and Haym Hirsh, Co-Chairs, 1995

AAAI Spring Symposium on AI and NP-Hard Problems, Haym Hirsh, Chair, 1993

- Major Conference Committee Memberships:

National Conference on Artificial Intelligence (AAAI)

International Conference on Autonomous Agents (AAMAS)

Conference on Email and Anti-Spam) (CEAS)

ACM International Conference on Information and Knowledge Management (CIKM99)

ACM Conference on Computational Learning Theory (COLT)

AAAI Symposium on Educational Advances in Artificial Intelligence (EAAI)

European Conference on Machine Learning (ECML)

AAAI Conference on Human Computation and Crowdsourcing (HComp)

IEEE International Conference on Data Mining (ICDM)

International Conference on Machine Learning (ICML)

International Joint Conference on Artificial Intelligence (IJCAI)

International Conference on Knowledge Discovery and Data Mining (KDD)

International Conference on Principles of Knowledge Representation and Reasoning (KR)

European Conference on Principles and Practice of Knowledge Discovery in Databases (PKDD)

International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR)

International Conference on User Modeling (UM)

International Conference on User Modeling, Adaptation and Personalization (UMAP)

International World Wide Web Conference (WWW)

- Other Conference Organizing Committees/Memberships:

AAAI Fall Symposium on Discovery Informatics: The Role of AI Research in Innovating Scientific Processes

AAAI Fall Symposium on Improving Instruction of Introductory Artificial Intelligence

European Web Mining Forum

Forum on Research and Technology Advances in Digital Libraries

New York Academy of Sciences Machine Learning Symposium

Workshop on Adaptive Systems and User Modeling on the World Wide Web

Workshop on Applying Machine Learning in Practice, ICML

Workshop on Artificial Intelligence for Web Search, AAAI

Workshop on Constraining Learning with Prior Knowledge, AAAI-92

Workshop on Fielding Applications of Artificial Intelligence, AAAI

Workshop on Learning about Users , IJCAI-89

Workshop on Learning from Knowledge and Data, ICML 91

Workshop on Programming the Semantic Web, 10th International Semantic Web Conference

Workshop on Recommender Systems, AAAI-98, SIGIR-99

Workshop on Web Information and Data Management (WIDM)

Institutional Service

Cornell: University Service

- Office of the Vice President for Research and Innovation
  Research Advisory Committee: 2021-present
  Research Infrastructure Committee (preparing a 10-year strategic plan for the office): 2021-present
- College of Computing and Information Science
  Professional Masters Diversity and Inclusion Committee: 2020-present
- Cornell Institute for Digital Agriculture
  Undergraduate minor planning committee: 2020-present
- Cognitive Science Program
  Steering Committee: 2016-present
- Cornell Center for Data Science for Enterprise and Society
  Advisory Council: 2019-present
- College of Engineering
  Nominations Committee: 2019-present
  Master of Engineering Steering Committee: 2020-2021

Cornell: Department Service

- Diversity and Inclusion Committee: 2019-present; Committee Chair, 2021-present
- Master of Engineering program: Director, 2018-present
- Artificial Intelligence Undergraduate Teaching Committee: 2021-present
- Awards Committee: 2019-present
- Faculty hiring committee: 2018-2020, 2021-2022
- PhD Admissions: 2020-2021
- Colloquium Committee: 2017-2021
- Antiracism Task Force: 2019-2020

Rutgers: University Service

- School of Arts and Sciences:
  Executive Committee: 2013
  Online Education Steering Committee: 2012-2013

Academic Standing Committee: 2012-2103
Signature Courses Initiative Steering Committee: 2012–2013
Physical Sciences Area Committee: 2001–2003
Committee on Appointments and Promotions: 1999
Council on Structural Bioinformatics: 1998
- Center for Discrete Mathematics and Theoretical Computer Science (DIMACS):
  DIMACS Council: 2012–2013
  Executive Committee: 2005
  Associate Director Search Committee: 2005–2006
- Rutgers Center for Cognitive Science:
  Executive Committee: 2004–2013
- Computing Coordinating Council: Chair, 2005–2006
- President's Faculty Advisory Council: 2004–2006
- Information Technology Strategic Planning Committee: 2004–2006
- New Brunswick Faculty Council (faculty governance for New Brunswick/Piscataway campus): 1997-2006
  Chair: 2003–2004
  Vice Chair: 2002–2003
  Executive Cabinet: 2002–2005
  Budget and Planning Committee: Chair, 2004–2005
  Library Committee: Chair, 2001-2003, Member 2000-2003
  Research Committee: Member, 1997–2000
- Undergraduate Education Task Force (redesigned university undergraduate requirements): 2004-2005
  Member, Steering Committee
  Co-Chair, Campus Planning and Facilities Working Group
  Member, Structure Working Group
- Rutgers University Senate (faculty/staff/student/alumni governance for all 3 campuses): 1999-2005
  Executive Committee (elected): 2001–2005
  Member, Faculty Affairs and Personnel Committee: 2000–2005
  Planning Committee: 1999–2000
- Rutgers College
  Fellows Executive Committee, 1999–2005
- All Funds Budgeting Task Force (redesigned university's budget): Member, 2003–2004
- Center for Advanced Information Processing
  Chair, Director Search, 2004
- President's Advisory Committee on the Proposed College of Applied and Professional Studies: Member, 2001

Rutgers: Department Service
- Department Chair: 2003–2006, 2012–2013
- Executive Committee: 2011–2012
- Awards Committee: Chair, 2011–2012
- Faculty Hiring Committee: Chair, 1996-1997, Member 1989–1992, 1996–1999
- Graduate Admissions Committee: 1989–1990
- Graduate Advising, Examinations, and Scholastic Standing Committee: 1993–1997
- Graduate Curriculum Committee: 1993–1996
- Graduate Examination Revision Committee: 1993–1994
- Undergraduate Curriculum Committee: 1990–1993, 2001–2003, 2011–2012

Stanford: Department Service
- AI Faculty Search (student member)
- PhD Admissions (student member)
- "Student Bureaucrat" (graduate student representative to faculty meetings)

Other Service
- Middlesex County College Department of Computer Science: Advisory Committee, 2005–2006
- NJ Governor's Commission on Health Science, Education and Training: Review, Planning, and Implementation
  Steering Committee, University Committee–Central: 2002–2003
    Co-chair, Administrative Disparities Subcommittee

PhD Advising

Doctoral Thesis Committee Chair:
  Cornell
  - 2020: Molly Feldman, "Realizing the Human Potential for Program Synthesis and Crowdsourcing" (First Position: Visiting Assistant Professor, Williams College; Current Position: Oberlin College)

  Rutgers
  - 2014: Sergiu Goschin (with Michael Littman, Brown University), "Stochastic Dilemmas: Foundations and Applications" (First/Current Position: Software Engineer, Google)
  - 2007: Jon Christopher Mesterharm, "Improving On-line Learning" (First Position: Visiting Assistant Professor, Department of Computer and Information Sciences, Fordham University; Current Position: Research Scientist, Perspecta Labs (formerly named Telcordia))
  - 2003: Sofus Macskassy, "New Techniques in Information Filtering" (First Position: Associate Research Scientist, Department of Information, Operations, and Management Sciences, Stern School of Business, New York University; Current Position: Head of Data Science Research and Productivity, LinkedIn)
  - 2003: Gary Weiss, "The Effect of Small Disjuncts and Class Distribution on Decision Tree Learning" (First Position: Senior Member of Technical Staff, AT&T Labs; Current Position: Professor, Department of Computer and Information Sciences, Fordham University)
  - 2002: Chumki Basu, "Recommendation as Classification and Recommendation as Matching: Two Information-Centered Approaches to Recommendation" (First Position: Member of Technical Staff, Sarnoff Corporation; Current Position: Senior Research Scientist, Perspecta Labs (formerly named Telcordia))
  - 2002: Brian Davison, "The Design and Evaluation of Web Prefetching and Caching Techniques" (First Position: Assistant Professor, Department of Computer Science and Engineering, Lehigh University; Current Position: Professor, Department of Computer Science and Engineering, Lehigh University
  - 2002: Sarah Zelikovitz, "Using Background Knowledge to Improve Text Classification" (First Position: Assistant Professor, Department of Computer Science, College of Staten Island; Current Position: Associate Professor, Department of Computer Science, College of Staten Island)
  - 2001: Arunava Banerjee, "The Phase-Space Dynamics of Systems of Spiking Neurons" (2000 Rutgers FAS Dean's Research Award recipient) (First Position: Postdoctoral Fellow, Brain and Cognitive Sciences, University of Rochester; Current Position: Associate Professor, Department of Computer and Information Science and Engineering, University of Florida)
  - 1999: David Loewenstern (Peter Yianilos, external chair, NEC), "Sequence Classification Learning using Methods Derived from Entropy Estimation" (First Position: Postdoctoral Fellow, NEC Research Institute; Current Position: Senior Applied ML Engineer, EvolutionIQ)
  - 1998: Daniel Kudenko, "Feature Generation for Sequence Categorization" (First Position: Lecturer, University of York, UK; Current Position: Research Group Leader, L3S Research Center, Leibniz University)
  - 1998: Khaled Rasheed, "GADO: A Genetic Algorithm for Continuous Design Optimization", (First Position: Postdoctoral Fellow, Department of Computer Science, Rutgers University; Current Position: Professor, Department of Computer Science, University of Georgia)
  - 1997: Vipul Kashyap (Amit Sheth, external chair, Bellcore), "Information Brokering over Heterogeneous Digital Data — A Metadatabased Approach" (First Position: Microelectronics and Computer Technology Corporation (MCC), Austin, TX; Current Position: SVP Clinical Informatics and Product Strategy, Buddi.ai)
  - 1995: Steven W. Norton, "Classifier Induction from Imperfect Data as Reasoning Under Uncertainty", (First Position: Member Technical Staff, AT&T, Murray Hill, NJ; Current Position: Developer, Lightkeeper LLC)
  - 1994: David Lubinksy (with Sholom Weiss), "Bivariate Splits and Consistent Split Criteria in Dichotomous Classification Trees" (First Position: Assistant Professor, Department of Computer Science, University of Witwatersrand; Current Position: Managing Director, OPSI Systems)
  - 1993: Lorien Pratt (with Jack Mostow), "Transferring Previously Learned Back-Propagation Neural Networks to New Learning Tasks" (First Position: Assistant Professor, Colorado School of Mines Current Position: Chief Scientist, Quantellia, LLC)

Member of Doctoral Thesis Committee:
  Rutgers University, Department of Computer Science
- 2013: John Asmuth, "Model-based Bayesian Reinforcement Learning with Generalized Priors" Advisor: Michael Littman
- 2007: Alex Strehl, Department of Computer Science, Rutgers University, "Probably Approximately Correct (PAC) Exploration in Reinforcement Learning" Advisor: Michael Littman
- 2001: C. Greg Hagerty, Department of Computer Science, Rutgers University, "Data Abstraction and Analysis Using Qualitative Scaling" Advisor: Casimir Kulikowski
- 1998: Aashu Virmani, Department of Computer Science, Rutgers University, "Second Generation Data Mining: Concepts and Implementation" Advisor: Tomasz Imielinski
- 1997: Leon Shklar, Department of Computer Science, Rutgers University, "Web Access to Heterogeneous Information: Methods and Applications" Advisor: Thorne McCarty
- 1996: Michael W. Barley, Department of Computer Science, Rutgers University, "Model-Based Refinement of Search Biases" Advisor: Louis Steinberg
- 1996: Valerie B. Barr, Department of Computer Science, Rutgers University, "Applications of Rule-Base Coverage Measures to Expert Systems" Advisor: Casimir Kulikowski
- 1996: Deborah McGuinness, Department of Computer Science, Rutgers University, "Explaining Reasoning in Description Logics" Advisor: Alex Borgida
- 1996: Mark Schwabacher, Department of Computer Science, Rutgers University, "The Use of Artificial Intelligence to Improve the Numerical Optimization of Complex Engineering Designs", Advisors: Tom Ellman, Andrew Gelsey
- 1994: Dawn Cohen, Department of Computer Science, Rutgers University, "Knowledge-Based Generation of Machine Learning Experiments: Learning to Predict DNA Hydration", Advisor: Casimir Kulikowski
- 1992: Neeraj Bhatnagar, Department of Computer Science, Rutgers University, "On-Line Learning from Search Failures" Advisor: Jack Mostow
- 1990: William Cohen, Department of Computer Science, Rutgers University, "Explanation-Based Learning as an Abstraction Mechanism in Concept Learning" Advisor: Alex Borgida
- 1990: Armand Prieditis, Department of Computer Science, Rutgers University, "Discovering Effective Admissible Heuristics by Abstraction and Speedup: A Transformational Approach" Advisor: Jack Mostow

  Other Doctoral Committees:
- 2005: Rickard Cöster, Department of Computer and System Sciences, Stockholm University, "Algorithms and Representations for Personalized Information Access" Advisor: Lars Asker (Role: "Opponent")
- 2000: Wen-Hua Ju, Department of Statistics, Rutgers University, "Statistical Modeling of UNIX Users and Processes with Application to Computer Intrusion Detection" Advisor: Yehuda Vardi
- 1998: Mohamed Arteimi, Department of Computer Science, University of Witwatersrand, "Rule Refinement in Inductive Knowledge-Based Systems" Advisor: David Lubinsky
- 1995: Stefano Bertolo, Department of Philosophy, Rutgers University, "Learnability Properties of Parametric Models for Natural Language Acquisition", Advisor: Bob Matthews

Courses Taught

Undergraduate:
  Cornell Computer Science
      Crowdsourcing and Human Computation
      Foundations of Artificial Intelligence
      Practicum in Artificial Intelligence
  NYU Stern School of Business:
      Information and Internet Technologies
  Rutgers Business School:
      Telecommunications Network Systems in Business
  Rutgers Computer Science:

Data Structures
Databases
Discrete Structures II
Introduction to Artificial Intelligence
Numerical Analysis
Social Computing and Collective Intelligence
Graduate:
Cornell Computer Science
Advanced Human Computation
Crowdsourcing and Human Computation
Rutgers Computer Science:
Crowdsourcing, Human Computation, and Collective Intelligence
Information Systems in Networked Computing Environments
Intelligent Information Access
Introduction to Artificial Intelligence
Machine Learning

Publications

Books:
1. Haym Hirsh (1990).
   Incremental Version-Space Merging: A General Framework for Concept Learning. Kluwer Academic Publishers.

Edited Collections:
2. Zachary Dodds, Haym Hirsh, and Kiri Wagstaff (2008).
   Working Notes of the AAAI 2008 Workshop on Artificial Intelligence Education. AAAI Press.
3. Haym Hirsh and Steven Chien (2001).
   Proceedings of the Thirteenth Conference on Innovative Applications of Artificial Intelligence. AAAI Press/MIT Press.
4. Robert Engelmore and Haym Hirsh (editors) (2000).
   Proceedings of the Twelfth Conference on Innovative Applications of Artificial Intelligence. AAAI Press/MIT Press.
5. Marti Hearst and Haym Hirsh (1996).
   Working Notes of the AAAI Spring Symposium on Machine Learning in Information Access. AAAI Press.
6. William W. Cohen and Haym Hirsh (1994).
   Proceedings of the Eleventh International Conference on Machine Learning. Morgan Kaufmann Publishers.
7. Haym Hirsh (1992).
   Working Notes of the AAAI Spring Symposium on Artificial Intelligence and NP-Hard Problems. AAAI Press.

Journal Articles:
8. Jaron Porciello , Maryia Ivanina, Maidul Islam, Stefan Einarson, and Haym Hirsh (2020).
   "Accelerating evidence-informed decision-making for the Sustainable Development Goals using machine learning"
   Nature Machine Intelligence 2, pp. 559–565, 12 October 2020.
9. Yolanda Gil, Mark Greaves, James Hendler, and Haym Hirsh (2014)
   Amplify Scientific Discovery with Artificial Intelligence *Science*, 346(6206):171-172
10. David W. McDonald, David H. Ackley, Randal Bryant, Melissa Gedney, Haym Hirsh, Lea Shanley (2014)
    Antisocial Computing: Exploring Design Risks in Social Computing Systems

Interactions 21(6): 72-75

11. Seyda Ertekin, Cynthia Rudin, and Haym Hirsh (2014)
    Approximating the Crowd
    Data Mining and Knowledge Discovery 28.5-6 (2014): 1189-1221.

12. Haym Hirsh (2008)
    Data Mining Research: Current Status and Future Opportunities
    Statistical Analysis and Data Mining, 1(2):104-107

13. Sarah Zelikovitz, William Cohen, and Haym Hirsh (2007)
    Extending WHIRL with Background Knowledge for Improved Text Classification. *Information Retrieval*, 10(1): 35-67.

14. Haym Hirsh, Nina Mishra, and Leonard Pitt (2004) Version Spaces and the Consistency Problem. *Artificial Intelligence* 156(2):115-138.

15. Sofus A. Macskassy, Haym Hirsh, Arunava Banerjee, and Aynur A. Dayanik (2003).
    Converting Numerical Classification into Text Classification. *Artificial Intelligence*, 143(1):51-77.

16. Chumki Basu, Haym Hirsh, William W. Cohen, and Craig Nevill-Manning (2001).
    Technical Paper Recommendation: A Study in Combining Multiple Information Sources. *Journal of Artificial Intelligence Research*, 14:231–252.

17. Haym Hirsh, Chumki Basu, and Brian Davison (2000). Learning to Personalize.
    Communications of the ACM, 43(8):102–106.

18. Khaled Rasheed and Haym Hirsh (1999).
    Learning to be Selective in Genetic-Algorithm-Based Design Optimization.
    Artificial Intelligence for Engineering Design, Analysis and Manufacturing, 13:157–169.

19. Ronen Feldman, Ido Dagan, and Haym Hirsh (1998). Mining Text Using Keyword Distributions.
    Intelligent Information Systems, 10(3):281–300.

20. Mark Schwabacher, Tom Ellman, and Haym Hirsh (1998).
    Learning to Set Up Numerical Optimizations of Engineering Designs.
    Artificial Intelligence for Engineering Design, Analysis and Manufacturing, 12:173–192.

21. Ronen Feldman and Haym Hirsh (1997).
    Exploiting Background Information in Knowledge Discovery from Text. *Intelligent Information Systems*, 9(1):83–97.

22. Khaled Rasheed, Haym Hirsh, and Andrew Gelsey (1997).
    A Genetic Algorithm for Continuous Design Space Search. *Artificial Intelligence in Engineering*, 11(3):295–305.

23. William W. Cohen and Haym Hirsh (1994).
    The Learnability of Description Logics with Equality Constraints.
    Machine Learning, 17(2):169–199.

24. Haym Hirsh (1994).
    Generalizing Version Spaces.
    Machine Learning, 17(1):5–45.

25. Haym Hirsh and Michiel Noordewier (1994).
    Using Background Knowledge to Improve Inductive Learning: A Case Study in Molecular Biology. *IEEE Expert*, 9(5):3–6.

26. Derek Sleeman, Haym Hirsh, Ian Ellery, and In-Yung Kim (1990).
    Extending Domain Theories: Two Case Studies in Student Modeling. *Machine Learning*, 5(1):11–37.

27. Armand E. Prieditis, Thomas G. Dietterich, Haym Hirsh, Smadar T. Kedar-Cabelli, Richard V. Kempinski, Steven Minton, and Devika Subramanian (1987).
    AAAI-86 Learning Papers: Topics, Summaries, and Trends. *Machine Learning*, 2(1)83–96.

Refereed Conference Articles:

28. Paul Upchurch, Daniel Sedra, Andrew Mullen, Haym Hirsh and Kavita Bala (2016). Interactive Consensus Games For Labeling Images.
Proceedings of the Fourth AAAI Conference on Human Computation and Crowdsourcing.

29. Seyda Ertekin, Haym Hirsh, and Cynthia Rudin (2012). Learning to Predict the Wisdom of Crowds.
Proceedings of Collective Intelligence 2012.

30. Alexander Strehl, Christopher Mesterharm, Michael Littman, and Haym Hirsh (2006)
Experience-Efficient Associative Reinforcement Learning
Proceedings of the 23rd International Conference on Machine Learning.

31. Sofus Macskassy and Haym Hirsh (2003).
Adding Numbers to Text Classification.
Proceedings of the Twelfth International Conference on Information and Knowledge Management (CIKM-2003)

32. Sarah Zelikovitz and Haym Hirsh (2001).
Using LSI for Text Classification in the Presence of Background Text.
Proceedings of the Tenth International Conference on Information and Knowledge Management (CIKM2001). ACM Press.

33. Sofus A. Macskassy, Haym Hirsh, Foster Provost, Ramesh Sankaranarayanan, and Vasant Dhar (2001).
Intelligent Information Triage.
Proceedings of the 24th Annual International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR2001). ACM Press.

34. Sofus A. Macskassy, Haym Hirsh, Arunava Banerjee, Aynur A. Dayanik (2001).
Using Text Classifiers for Numerical Classification.
Proceedings of the Seventeenth International Joint Conference on Artificial Intelligence (IJCAI2001).

35. Gary Weiss and Haym Hirsh (2000).
B Quantitative Study of Small Disjuncts.
Proceedings of the Seventeenth National Conference on Artificial Intelligence (AAAI2000). AAAI Press/MIT Press.

36. Sarah Zelikovitz and Haym Hirsh (2000).
Improving Short-Text Classification Using Unlabeled Background Knowledge to Assess Document Similarity.
Proceedings of the Fifteenth International Conference on Machine Learning (ICML2000). Morgan Kaufmann Publishers.

37. Khaled Rasheed and Haym Hirsh (2000).
Informed Operators: Speeding up Genetic-Algorithm-Based Design Optimization Using Reduced Models.
Proceedings of the Genetic and Evolutionary Computation Conference (GECCO2000).

38. William W. Cohen and Haym Hirsh (1998).
Joins that Generalize: Text Classification Using WHIRL.
Proceedings of the Fourth International Conference on Knowledge Discovery and Data Mining (KDD98). AAAI Press/MIT Press.

39. Sofus Macskassy, Arunava Banerjee, Brian Davison, and Haym Hirsh (1998).
Human Performance on Clustering Web Pages: A Preliminary Study.
Proceedings of the Fourth International Conference on Knowledge Discovery and Data Mining (KDD98). AAAI Press/MIT Press.

40. Gary M. Weiss and Haym Hirsh (1998).
Learning to Predict Rare Events in Categorical Times-Series Data.
Proceedings of the Fourth International Conference on Knowledge Discovery and Data Mining (KDD98). AAAI Press/MIT Press.

41. Chumki Basu, Haym Hirsh, and William W. Cohen (1998).
Recommendation as Classification: Using Social and Content-Based Information in Recommendation.
Proceedings of the Fifteenth National Conference on Artificial Intelligence(AAAI98). AAAI Press/MIT Press.

42. Daniel Kudenko and Haym Hirsh (1998).
    Feature Generation for Sequence Categorization.
    Proceedings of the Fifteenth National Conference on Artificial Intelligence (AAAI98). AAAI
    Press/MIT Press.

43. Gary M. Weiss and Haym Hirsh (1998).
    The Problem with Noise and Small Disjuncts.
    Proceedings of the Fifteenth International Conference on Machine Learning (ICML98). Morgan
    Kaufmann Publisher

44. David Loewenstern, Helen Berman, and Haym Hirsh (1998).
    Maximum A Posteriori Classification of DNA Structure from Sequence Information. *Proceedings of the
    Pacific Symposium on Biocomputing* (PSB98).

45. Haym Hirsh and Daniel Kudenko (1997).
    Representing Sequences in Description Logics.
    Proceedings of the Fourteenth National Conference on Artificial Intelligence (AAAI97). AAAI
    Press/MIT Press.

46. Haym Hirsh, Nina Mishra, and Leonard Pitt (1997).
    Version Spaces Without Boundary Sets.
    Proceedings of the Fourteenth National Conference on Artificial Intelligence (AAAI97). AAAI
    Press/MIT Press.

47. Khaled Rasheed and Haym Hirsh (1997).
    Using Case-Based Learning to Improve Genetic-Algorithm-Based Design Optimization. *Proceedings of the
    Seventh International Conference on Genetic Algorithms* (ICGA97).

48. Brian D. Davison and Haym Hirsh (1997).
    Toward An Adaptive Command Line Interface.
    Proceedings of the Seventh International Conference on Human-Computer Interaction (HCI97). Elsevier
    Science Publishers.

49. Haym Hirsh and Brian D. Davison (1997).
    An Adaptive UNIX Command-Line Assistant.
    Proceedings of the First International Conference on Autonomous Agents (Agents97).

50. Ronen Feldman and Haym Hirsh (1996).
    Mining Associations in Text in the Presence of Background Knowledge.
    Proceedings of the Second International Conference on Knowledge Discovery and Data Mining (KDD96).

51. Mark Schwabacher, Thomas Ellman, Haym Hirsh, and Gerard Richter (1996).
    Learning to Choose a Reformulation for Numerical Optimization of Engineering Designs. *Proceedings of the
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- Intelligent Web Prefetching to Reduce Client Latencies, PI: Haym Hirsh, August 2000–December 2004, $438,020, Source: National Science Foundation (NSF)
- New Jersey Center for Pervasive Information Technology, PI: Wayne Wolf (Princeton University); Rutgers lead: Haym Hirsh, September 2000–January 2006, $1,450,283, Rutgers/Hirsh portion: $226,007, Source: New Jersey Commission on Science and Technology (NJCST)
- Self-Adaptive Software for Automated Design of Complex Engineering Systems, PI: Saul Amarel; Senior Investigator: Haym Hirsh, July 1998–October 2000, $532,354, Source: Defense Advanced Research Projects Agency (DARPA)
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- A Query-Based Approach to Database Mining: Database Tools for Rule Discovery, PI: Tomasz

Imielinski; Co-PI: Haym Hirsh, June 1995–February 1999, $384,036, Source: National Science Foundation (NSF)
- Hypercomputing and Design, PI: Saul Amarel; Senior Investigator: Haym Hirsh, October 1993– December 1998, $7,751,000, Source: Defense Advanced Research Projects Agency (DARPA).
- Scaling Up Version Spaces, PI: Haym Hirsh, July 1992–December 1994, $59,594, Source: National Science Foundation (NSF)
- Computer Aided Productivity, PI: Saul Amarel, October 1991–September 1993, $1,914,683, Source: Defense Advanced Research Projects Agency (DARPA)

Rutgers:
- Institute for Computer and Information Security, PI: Haym Hirsh, 2005–2007, $180,000, Source: Academic Excellence Fund
- A Knoesphere for Structural Biology, PIs: Helen Berman and Haym Hirsh, 2000-2002, $85,000, Source: Strategic Research Opportunities Analysis Award
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- Rutgers Distributed Laboratory for Digital Libraries, PI: Paul Kantor, Co-PI: Haym Hirsh, 1998-1999, $125,000, Source: Strategic Research Opportunities Analysis Award
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Other:
- June 2001: Arranged for donation of ownership of all software and patents for the WHIRL and Slipper information retrieval and machine learning systems from AT&T to Rutgers to make the software more easily available to researchers worldwide, donation valuation: $2,800,000