

## **CURRICULUM VITAE**

**JUDY GOLDSMITH**

<http://www.cs.uky.edu/~goldsmi>

### **EDUCATION**

1988 Ph.D., Mathematics, University of Wisconsin  
Minor: Computer Science

1985 M.A., Mathematics, University of Wisconsin

1982 A.B., Mathematics, Princeton University

### **EXPERIENCE**

2005 – ? Professor, Computer Science, University of Kentucky

2006 Spring: Visiting Professor, University of Illinois-Chicago

2000 Spring: Visiting Boston University

1999 Fall: Visiting Scholar at University of Illinois at Chicago

1998 – 2005 Associate Professor, Computer Science, University of Kentucky

1993 – 1998 Assistant Professor, Computer Science, University of Kentucky

1991 – 1993 Assistant Professor, Computer Science, University of Manitoba

1990 – 1991 Visiting Professorship for Women, NSF, Computer Science, Boston University

1988 – 1990 JWY Research Instructor, Math and Computer Science, Dartmouth College

1988 Lecturer, Computer Science, University of Wisconsin-Madison

1987 – 1988 Research Assistant to Deborah Joseph

1982 – 1986 Teaching Assistant, Mathematics, University of Wisconsin-Madison

### **RESEARCH INTERESTS**

Stochastic Models

Knowledge Elicitation

Planning with Bayes Nets and POMDPs

Preference and Utility Representation, Elicitation, and Computation

Probabilistic Databases

Computational Learning Theory

Computational Complexity

## ACADEMIC HONORS AND AWARDS

The First Annual IJCAI-JAIR Best Paper Prize, Honorable Mention, 2003, for “The Computational Complexity of Probabilistic Plan Existence and Evaluation,” *Journal of AI Research*, 1998.

AAAS Mentoring Award (February 1998)

1991–92 National Science Foundation Visiting Professorship for Women, Boston University

1988–90 John Wesley Young Research Instructorship, Dartmouth College

## GRANTS

NSF Grant CCF-1215985: (PI) ('12–13)	\$72,000
ICES: Small: Collaborative Research: Robust Preference Aggregation	
NSF Grant IIS-1107011: (PI) ('11–12)	\$90,000
IJCAI 2011 Doctoral Consortium and International Experience	
NSF Grant CCF-1049360 (PI) ('10–12)	\$144,467
EAGER: Changing Minds, Changing Probabilities	
NSF Grant CNS-1033485 (PI) ('10–12)	\$39,673
Collaborative Research: Broader Impacts for Research and Discovery Summit	
NSF GRANT ITR-0325063 (PI) (03–07)	\$1,287,000
coPIs and senior personnel: Dekhtyar, Finkel, Goldstein, Marek, Mazur, and Truszczynski	
NSF Grant CCR-0100040 (PI) (01–04)	\$213,265
REU Supplement to CCR-0100040 (05)	\$19,000
University of KY Chancellor's Research Grant (01)	\$5,000
NSF Travel Grant INT-9815352 (99–01)	\$12,00
NSF Grant CCR-9610348 (7/97–5/00)	\$ 53,000
University of Kentucky Office of the Vice President, Postdoctoral Support (1996)	\$30,000
NSF Grant CCR-9315354 (6/94–12/96)	\$ 86,000
University of Kentucky, College of Arts & Sciences Student Research Grant (1/93–5/93)	\$900
NSERC Operating Expenses Grant (4/92–4/95) three years (no overhead or indirects), per year: \$19,000	
University of Manitoba Research Grant (3/92–4/92)	\$2,500
NSF Visiting Professorship for Women (9/90–9/91)	\$92,000
NSF VPW Supplement (1/91–1/92)	\$4,500

## PAPERS

### Book Chapters

1. “Probabilistic Databases and their Applications,” Alex Dekhtyar, Tingjian Ge, and Judy Goldsmith, in *Advances in Probabilistic Databases for Uncertain Information Management* (editors Zongmin Ma and Li Yan), Springer-Verlag (in the series *Studies in Fuzziness and Soft Computing*).
2. “Putting Preferences into Computational Context,” Judy Goldsmith, commentary in *Comparative Decision Making: Analysis and Support Across Disciplines and Applications*, Oxford University Press, 2013.

### Refereed Journal Publications

1. “On the complexity of bribery and manipulation in tournaments with uncertain information,” Nicholas Mattei, Judy Goldsmith, Andrew Klapper and Martin Mundhenk, *Journal of Applied Logic* special issue dedicated to the Uncertain Reasoning Tracks at FLAIRS 2012 and 2013, accepted with minor revisions.
2. “Fiction as an Introduction to AI Research,” Judy Goldsmith and Nicholas Mattei, *ACM Transactions on Computing Education (TOCE)*, Volume 14 Issue 1, March 2014.
3. “The Complexity of Probabilistic Lobbying,” Gábor Erdélyi, Henning Fernau, Judy Goldsmith, Nicholas Mattei, Daniel Raible and Jörg Rothe, *Discrete Optimization*, Volume 11, pages 1-21, 2014.
4. “An English-Language Argumentation Interface for Explanation Generation with Markov Decision Processes in the Domain of Academic Advising,” Thomas Dodson, Nicholas Mattei, Joshua T. Guerin, and Judy Goldsmith, special issue, “Human Decision Making and Recommender Systems,” *ACM Transactions on Interactive Intelligent Systems*, 2013.
5. “Topological Value Iteration Algorithms,” Peng Dai, Mausam, Dan Weld, and Judy Goldsmith, *Journal of Artificial Intelligence Research*, Volume 42, pages 181–209, 2011.
6. “Ranking Policies in Discrete Markov Decision Processes,” Peng Dai and Judy Goldsmith, *Annals of Mathematics and Artificial Intelligence*, volume 59, Issue 1, Page 107–?, 2010.

7. “Decision-theoretic Harmony: A First Step,” Liangrong Yi and Judy Goldsmith, *International Journal of Approximate Reasoning*, Specially issue on Bayesian Model Views, Volume 51, Issue 2, January 2010, Pages 263–274.
8. “Planning for success: The interdisciplinary approach to building Bayesian models,” Alex Dekhtyar, Judy Goldsmith, Beth Goldstein, Krol Kevin Mathias, Cynthia Isenhour, *International Journal of Approximate Reasoning*, Volume 50, Issue 3, March 2009, Pages 416–428, Special Section on Bayesian Modelling.
9. “The computational complexity of dominance and consistency in CP-nets”, Judy Goldsmith, Jérôme Lang, Mirozlaw Truszczyński, and Nic Wilson, *Journal of Artificial Intelligence Research*, Volume 33, pages 403–432, 2008.
10. “Preference Handling for Artificial Intelligence,” Judy Goldsmith and Ulrich Junker, *AI Magazine*, Winter, 2008.
11. “Complexity of DNF and Isomorphism of Monotone Formulas,” Judy Goldsmith, Matthias Hagen, and Martin Mundhenk, *Information and Computation*, Vol 206/6 pp 760-775, June 2008.
12. “New Horn Revision Algorithms”, Judy Goldsmith and Robert H. Sloan, *Journal of Machine Learning Research*, 6(Dec):1919–1938, 2005.
13. “A Framework for Management of Semistructured Probabilistic Data”, Wenzhong Zhao, Alex Dekhtyar, and Judy Goldsmith, *Journal of Intelligent Information Systems* 25:3, 2005.
14. “Theory Revision with Queries: Horn and other non-DNF Forms,” with Robert H. Sloan, Balázs Szörényi, and György Turán, *Artificial Intelligence Journal* 156: (2) 139–176, July 2004.
15. “Databases for Interval Probabilities,” with Wenzhong Zhao and Alex Dekhtyar, *International Journal of Intelligent Systems*, 19: (9) 789–815, September, 2004.
16. “When plans distinguish Bayes nets,” with Alex Dekhtyar and Jan Pearce, *International Journal of Uncertainty, Fuzziness and Knowledge-Based Systems (IJUFKS)* Vol 11, Suppl, pp. 1-24, November 2003.
17. “Theory revision with queries: Disjunctive Normal Forms,” with R.H. Sloan, Balázs Szörényi, and G. Turán, *Machine Learning* 47: 257–295, 2002.

18. “Nonapproximability results for Markov decision processes,” C. Lusena, J. Goldsmith, and M. Mundhenk, *Journal of AI Research* 14: 83–103, 2001.
19. “The complexity of finite-horizon Markov decision process problems,” M. Mundhenk, C. Lusena, J. Goldsmith, and E. Allender, *Journal of the ACM* 47: (4), 681-720, July 2000.
20. “Tally NP sets and easy census functions,” J. Goldsmith, M. Ogihara and J. Rothe, *Information and Computation* 158: (1) 29-52 APR 10 2000.
21. “An algorithm for the class of pure implicational formulas,” J. Franco, J. Goldsmith, J. Schlipf, E. Speckenmeyer, and R. Swaminathan, *Discrete Applied Mathematics* 97: 89-106 OCT 15 1999.
22. “The Computational Complexity of Probabilistic Plan Existence and Evaluation,” M. Littman, J. Goldsmith, and M. Mundhenk, *The Journal of AI Research*, volume 9, pages 1–36, 1998.
23. “Sharply bounded alternation and quasilinear time,” Stephen Bloch, Jonathan Buss, and Judy Goldsmith, *Theory of Computing Systems* (formerly Mathematical System Theory) 31: (2) 187-214 MAR-APR 1998.
24. “Downward separation fails catastrophically for limited nondeterminism classes,” Richard Beigel and Judy Goldsmith, *SIAM J. Comp.* 5: 1998.
25. “L-printable sets,” L. Fortnow, J. Goldsmith, M. Levy, and S. Mahaney, *SIAM J. Comp.* 28: (1) 137-151 1998.
26. “Scalability and the isomorphism question,” Judy Goldsmith and Steve Homer, *Information Processing Letters* 57: (3) 137-143 FEB 12 1996.
27. “A note on bi-immunity and p-closeness of p-cheatable sets in P/poly,” J. Goldsmith, D. Joseph and P. Young, *Journal of Computer System Science* 46: (3) 349-362 JUN 1993.
28. “Nondeterminism within P,” J. Buss and J. Goldsmith, *SIAM Journal of Computing* 22: (3) 560-572 JUN 1993.
29. “Relativized isomorphisms of NP-complete sets,” J. Goldsmith and D. Joseph, *Computational Complexity*, 186–205, 1993.

30. “Using self-reducibility to characterize polynomial time,” J. Goldsmith, D. Joseph, and P. Young, *Information and Computation* 104: (2) 288-308 JUN 1993.
31. “On the structure and complexity of infinite sets with minimal perfect hash functions,” J. Goldsmith, L. Hemachandra and K. Kunen, *Computational Complexity* 2: 18–39, 1992.
32. “Near-testable sets,” J. Goldsmith, L. Hemachandra, D. Joseph, and P. Young, *SIAM Journal of Computing*, 20:3, 1991.

### Invited Papers

1. “Algorithms, Approximation, and Empirical Studies in Behavioral and Computational Social Choice – Preface,” Judy Goldsmith and Jörg Rothe, Special Issue of *Annals of Mathematics and Artificial Intelligence*, to appear.
2. Editors’ introduction to the special issue on model views in Bayesian applications,” Judy Goldsmith and Kathy Laskey, *International Journal on Approximate Reasoning*, Volume 51, Issue 2, January 2010.
3. “Write it Right,” Judy Goldsmith and Robert H. Sloan, *IEEE Professional Communication Society Newsletter*,
  - “Considerations for Experimental Work,” Vol. 52, No.2, Feb. 2008.
  - “Several Matters of Mechanics,” Vol. 52, No. 1, Jan. 2008.
  - “Reviews, Coauthorship, and Citations,” Vol. 51, No. 11, Dec. 2007.
  - “Relevant Forms of Technical Writing,” Vol. 51, No. 10, Nov. 2007.
  - “The Very Basics”, Vol. 51, No. 8, Sept. 2007.
4. “Building Bayes Nets with Semistructured Probabilistic DBMS,” Wenzhong Zhao, Alex Dekhtyar, Judy Goldsmith, Erik Jessup, and Jiangyu Li, *GI-EMISA Forum* (ISBN 1610-3351), 1:29-30, 2004.
5. “Complexity issues in Markov decision processes,” Judy Goldsmith and Martin Mundhenk, *Proc. IEEE Conference on Computational Complexity* 1998.
6. “Limited Nondeterminism,” Judy Goldsmith, Matthew Levy and Martin Mundhenk, the Complexity Theory Column of *SIGACT News*, June, 1996.

7. “Crisis or opportunity?,” Judy Goldsmith, in the Complexity Theory Column of *SIGACT News* 27, 1996.
8. “How hard are  $n^2$ -hard problems?” Stephen Bloch, Jonathan Buss, Judy Goldsmith, *SIGACT News* **91** (1994), 83–85.

### Refereed Conference Proceedings

1. Judy Goldsmith, Nicholas Mattei and Robert Sloan, “Who is Watching You Eat?” *MPREF Workshop* at AAAI 2014.
2. Sam Saarinen, Craig A. Tovey and Judy Goldsmith, “A Model for Intransitive Preferences” *MPREF Workshop* at AAAI 2014.
3. Thomas E. Allen, Judy Goldsmith and Nicholas Mattei: “Counting, Ranking, and Randomly Generating CP-nets” *MPREF Workshop* at AAAI 2014.
4. Jérôme Lang, **Judy Goldsmith**, Nicholas Mattei and Patrice Perny, “Voting with Rank Dependent Scoring Rules,” EXPLORE Workshop at AAMAS; ComSoc ’14, *Proc. AAAI*, 2014.
5. Cristina Cornelio, Umberto Grandi, Judy Goldsmith, Nicholas Mattei, Francesca Rossi and K. Brent Venable, “Voting with CP-nets using a Probabilistic Preference Structure,” *ComSoc* 2014.
6. Nicholas Mattei, Thomas Dodson, Joshua T. Guerin, Judy Goldsmith, Joan M. Mazur, “Lessons Learned from Development of a Software Tool to Support Academic Advising,” *Proc. American Society for Engineering Education Zone 1 Conference*, 2014.
7. Radu Paul Mihail, Beth Rubin, Judy Goldsmith, and Marina L. Byrd, “Online Discussions: Improving Education in CS?”, SIGCSE 2014.
8. Cristina Cornelio, Judy Goldsmith, Nicholas Mattei, Francesca Rossi and Kristen Brent Venable “Updates and Uncertainty in CP-nets,” 26th Australasian Joint Conference on Artificial Intelligence (AI ’13), Dunedin, New Zealand, 2013.
9. Matthew Spradling, Judy Goldsmith, Xudong Liu, Chandrima Dadi, and Zhiyu Li, “Roles and Teams Hedonic Game,” *MPREF Workshop at IJCAI 2013* (short version) and *Proc. Algorithmic Decision Theory*, 2013.

10. Radu Paul Mihail, Judy Goldsmith, Nathan Jacobs and Jerzy Jaromczyk, "Teaching Graphics for Games using Microsoft XNA," *Proc. CGAMES* 2013.
11. Patrice Perny, Paul Weng, Josiah Hanna, and Judy Goldsmith, "Approximation of Lorenz-Optimal Solutions in Multiobjective Markov Decision Processes," *Proc. UAI '13* and AAAI '13 Poster Session, 2013.
12. Joshua Guerin, Thomas Allen, and Judy Goldsmith, "Learning CP-net Preferences Online from User Queries," *Proc. Algorithmic Decision Theory*, 2013 and AAAI '13 Poster Session, 2013.
13. Nicholas Mattei, James Forshee, Judy Goldsmith, "An Empirical Study of Voting Rules and Manipulation with Large Datasets," *ComSoc* 2012.
14. Joshua Guerin, Josiah Hanna, Libby Knouse, Nicholas Mattei and Judy Goldsmith, "The Academic Advising Planning Domain," *Proc. ICAPS 2012 International Planning Competition Workshop*, 2012.
15. Radu Paul Mihail, Nathan Jacobs, Judy Goldsmith, "Real Time Gesture Recognition With 2 Kinect Sensors," *Proc. 16th International Conference on Image Processing, Computer Vision, & Pattern Recognition (IPCV)*, 2012.
16. Nicholas Mattei, Judy Goldsmith, and Andrew Klapper, "On the Complexity of Bribery and Manipulation in Tournaments with Uncertain Information," *Proc. FLAIRS* 2012.
17. Rebecca Bates, Judy Goldsmith, Rosalyn Berne, Valerie Summet, and Nanette Veilleux, "Science fiction in computer science education," In SIGCSE, pages 161162, 2012.
18. Judy Goldsmith and Nicholas Mattei, "Science Fiction as an Introduction to AI Research", *Proc. AAAI 2011*, Educational Advances in AI Track, 2011.
19. Thomas Dodson, Nicholas Mattei, and Judy Goldsmith, "Natural Language Argumentation Interface for Explanation Generation in Markov Decision Processes," *Proc. EXaCT Workshop*, IJCAI 2011; *Proc. Algorithmic Decision Theory*, 2011.
20. Joshua T. Guerin and Judy Goldsmith, "Constructing a Dynamic Bayes Net Model of Academic Advising," *Proc. Bayesian Modelling Applications Workshop*, UAI 2011.

21. Gábor Erdélyi, Henning Fernau, Judy Goldsmith, Nicholas Mattei, Daniel Raible and Jörg Rothe, “The Complexity of Probabilistic Lobbying,” *Proc. 1st International Conference on Algorithmic Decision Theory*, 2009.
22. Peng Dai and Judy Goldsmith, “Finding the  $k$  Best Policies,” *Proc. 1st International Conference on Algorithmic Decision Theory*, 2009.
23. Liangrong Yi, Raphael Finkel, and Judy Goldsmith, “Planning for Welfare to Work,” *Proc. Florida AI Research Symposium (FLAIRS '08)*, pp. 696–702.
24. Peng Dai, Alexander Strehl, and Judy Goldsmith, “Expediting RL by Using Graphical Structures,” *Proc. The 7th Internat'l Conference on Autonomous Agents and Multiagent Systems (AAMAS '08)*, pp. 1325-1328.
25. Martin Mundhenk and Judy Goldsmith, “Competition Adds Complexity,” *Proc. Neural Information Processing Systems (NIPS 2007)*, pp. 561–568.
26. Alexander Dekhtyar, Jane Hayes, Judy Goldsmith, “Uncertainty as the Source of Knowledge Transfer Opportunity,” *Proc. 1st International Workshop on Living with Uncertainties (IWL01)*, 2007.
27. Judy Goldsmith, Robert H. Sloan, “The Conference Paper Assignment Problem,” *Proc. AAAI Workshop on Preference Handling in AI*, 2007.
28. Liangrong Yi and Judy Goldsmith, “Automatic generation of four-part harmony,” *Proc. UAI-07 Workshop on Bayesian Modeling Applications*, 2007.
29. Peng Dai and Judy Goldsmith, “Multi-threaded BLAO\* Algorithm,” *FLAIRS 2007*.
30. Peng Dai and Judy Goldsmith, “Topological Value Iteration Algorithm for Markov Decision Processes,” *Proc. IJCAI 2007*.
31. Peng Dai and Judy Goldsmith, “LAO\*, RLAO\* or BLAO\*”, *Proc. AAAI Workshop on Heuristic Search, Memory Based Heuristics and Their Applications* , 2006.
32. Kendra Renee Gehlbach, Brandon Laracuenta, Cynthia Isenhour, Judy Goldsmith, Beth Goldstein, and Miroslaw Truszczyński, “A Benchmark Model for Decision-Theoretic Planning with Constraints”, The Fourth Bayesian Modelling Applications Workshop during UAI 2006.

33. Krol Kevin Mathias, Cynthia Isenhour, Alex Dekhtyar, Judy Goldsmith, and Beth Goldstein, "When Domains Require Modeling Adaptations" The Fourth Bayesian Modelling Applications Workshop during UAI 2006.
34. Krol Kevin Mathias, Casey Lengacher, Derek Williams, Austin Cornett Alex Dekhtyar Judy Goldsmith, "Factored MDP Elicitation and Plan Display", ISDN, AAAI '06.
35. "Revision algorithms using queries: results and problems" J. Goldsmith R.H. Sloan, Balázs Szörényi, and György Turán, *Proc. NIPS Foundations of Active Learning workshop*, December, 2005.
36. "Complexity of DNF and Isomorphism of Monotone Formulas," Judy Goldsmith, Matthias Hagen, and Martin Mundhenk, *Proc. Mathematical Foundations of Computer Science (MFCS '05)*, Springer Lecture Notes in Computer Science, Vol. 3618, 2005.
37. "The computational complexity of dominance and consistency in CP-nets," J. Goldsmith, J. Lang, M. Truszczyński, and N. Wilson, *Proc. 21st International Joint Conference on AI (IJCAI '05)*.
38. "Interactive Preferences and Decision-Theoretic Planning," D. Williams, K. Bailey, A. Dekhtyar, R. Finkel, J. Goldsmith, B. Goldstein, and J. Mazur, *Proc. IJCAI Workshop on Preference Handling*, 2005.
39. "Adaptive decision support for planning under hard and soft constraints," Alex Dekhtyar, Raphael Finkel, Judy Goldsmith, Beth Goldstein, Joan Mazur, *Proc. AAAI Spring Symposium on Decision Support in a Changing World*, AAAI Press, 2005.
40. "Theory revision with queries: results and problems", J. Goldsmith, R.H. Sloan, B. Szorenyi, G. Turan, *Proc. Workshop on Learning with Logics and Logics for Learning*, Japan, 2005.
41. "Preferences and Domination", J. Goldsmith, Dagstuhl Electronic Proceedings, 2005.
42. "New Revision Algorithms," J. Goldsmith, R.H. Sloan, Balázs Szörényi, and György Turán, *Proc. Conference on Algorithmic Learning Theory (ALT '04)*, pp. 395 - 409, September, 2004.

43. “Bidirectional LAO\*,” Kiran Bhuma and Judy Goldsmith, *First Indian International Conference on Artificial Intelligence*, pp. 980–992, December, 2003.
44. “Query Algebra Operations for Interval Probabilities,” Wenzhong Zhao, Alex Dekhtyar, and Judy Goldsmith, *Proc. 14th International Conference on Database and Expert Systems Applications*, September, 2003. Available in Springer *Lecture Notes in Computer Science* 2736, pp. 527 - 536.
45. “Revising Unique Explanations,” Jignesh Doshi and Judy Goldsmith, *Proc. Midwest AI and Cognitive Science Conference*, April, 2003.
46. “Can Probabilistic Databases Help Elect Qualified Officials,” Judy Goldsmith, Alex Dekhtyar and Wenzhong Zhao, *Proc. Florida AI Research Symposium*, May, 2003.
47. “POET, The Online Preference Elicitation Tool,” James Royalty, Derek Williams, Robert Holland, Judy Goldsmith, and Alex Dekhtyar, *Proc. AAAI Workshop on Preferences in AI and CP: A Symbolic Approach*, July, 2002.
48. “Conditionalization for Interval Probabilities,” Alex Dekhtyar and Judy Goldsmith, *Proc. Workshop on Conditionals, Information, and Inference*, May, 2002.
49. “When probabilities distinguish Bayes nets,” Alex Dekhtyar, Judy Goldsmith, and Jan Pearce, *KI-2001 workshop "Uncertainty in Artificial Intelligence"*, September, 2001.
50. “Semistructured Probabilistic Databases,” A. Dekhtyar, S. Hawkes, and J. Goldsmith, *Proc. Statistical and Scientific Database Management Systems*, June, 2001.
51. “Improved algorithms for theory revision with queries, J. Goldsmith and R.H. Sloan, *Proc. 2000 Conference on Computational Learning Theory*, June, 2000.
52. “More theory revision with queries,” J. Goldsmith R.H. Sloan, Balázs Szörényi, and György Turán, *Proc. 2000 ACM Symposium on Theory of Computing*, May, 2000.
53. “The complexity of model aggregation,” J. Goldsmith and R.H. Sloan, *Proc. AI, Planning and Scheduling*, April, 2000.
54. “My brain is full: When more memory helps,” C.D. Lusena, T. Li, S. Sittinger, C.A. Wells, and Judy Goldsmith *Proc. Uncertainty in AI*, July, 1999.
55. “Tally NP sets and easy census functions,” J. Goldsmith, M. Ogihara and J. Rothe, *Proc. MFCS '98*, LNCS 1450: 483-492, 1998.

56. "The complexity of plan existence and evaluation in probabilistic domains," M.L. Littman, M. Mundhenk, and J. Goldsmith, *Proc. Conference on Uncertainty in AI*, August 1997.
57. "The complexity of unobservable finite-horizon Markov decision processes (extended abstract)," M. Mundhenk, J. Goldsmith, and E. Allender, *Proc. MFCS, 1997*.
58. "Sharply bounded alternation with  $P$ ," S. Bloch, J. Buss, and J. Goldsmith, *Proc. DMTCS'96*, Springer-Verlag Lecture Notes in Computer Science (1996).
59. "L-Printable Sets," L. Fortnow, J. Goldsmith, M. Levy and S. Mahaney, *Proc. Conference on Computational Complexity (Formerly the Structure in Complexity Theory Conference)* (May, 1996).
60. "Downward Separation Fails Catastrophically for Limited Nondeterminism Classes," Richard Beigel and Judy Goldsmith, *Proc. 10th Structure in Complexity Theory Conference* (1994).
61. "On the structure and complexity of infinite sets with minimal perfect hash functions," J. Goldsmith, L. Hemachandra and K. Kunen, *Proceedings of the 11th Foundations of Software Technology and Theoretical Computer Science Conference*, Springer Verlag Lecture Notes in Computer Science 560: 212-223 1991.
62. "Nondeterminism within P," J. Buss and J. Goldsmith, *Proceedings Symposium on Theoretical Computer Science*, Springer Verlag Lecture Notes in Computer Science #480 (1991), 348-359.
63. "Self-reducibility, near-testability, and p-cheatable sets: The effect of internal structure on the complexity of a set," J. Goldsmith, D. Joseph, and P. Young, *Proceedings of the Second Annual Structure in Complexity Theory Conference*, IEEE Computer Society (1987), 50-60.
64. "Three results on the polynomial isomorphisms of sets," J. Goldsmith, D. Joseph, *Proc. Twentyseventh Foundations of Computer Science Conference*, IEEE Computer Society (1986), 390-397.

## **Joke Paper**

“Markov Indecision Processes: A Formal Model of Decision-Making Under Extreme Confusion,” Harry Q. Bovik, Judy Q. Goldsmith, Andrew Q. Klapper, Michael Q. Littman, *JMLG* 1(Apr):1-9, 2003.

## **Non-refereed Contributions**

“Preferences and Domination,” Judy Goldsmith, *Dagstuhl Seminar Proceedings*, Seminar 04421, 2004.

“The Bayesian advisor project I: the model,” with Alexander Dekhtyar, Huazhi Li, and Brett Young, UK CS Dept. Tech Report 323-01.

“Genetic algorithms for approximating solutions to POMDPs,” with C. Wells and C. Lusena, UK CS Dept Tech Report 290-99.

“An algorithm for the class of pure implicational formulas,” with J. Franco, J. Schlipf, E. Speckenmeyer, and R. Swaminathan, presented at the *Siena Workshop on Satisfiability*, Università degli Studi di Siena, Siena, Italy, May, 1996.

“The 1D Illumination Problem: When Crossing Doesn’t Help,” with Jacqueline Dodgson and Tracy Kowalski, ACM Student Poster Competition (1994).

“Polynomial Isomorphisms and Near-Testable Sets,” PhD. Thesis, University of Wisconsin-Madison (1988). Also available as University of Wisconsin Technical Report # 816 (1989).

## **STUDENTS SUPERVISED**

### **Current students**

*PhD students:* Radu Paul Mihail, Ju Shen (co-chair), Tom Allen, Matthew Spradling.

*Undergraduate research assistants:* Jordan Jorgensen, Josiah Hanna, Elizabeth Knouse (18 past students)

### **Graduated students**

PhD: Joshua T. Guerin, August 2012

PhD: Nicholas Mattei, May 2012.

PhD: Liangrong Yi, Dec. 2009.

PhD: Krol Kevin Mathias, Aug. 2008.

PhD: Christopher Lusena, July, 2001.

MS: Art Hall III, Aug. 2011.  
MS: Brett Young, Aug. 2008.  
MS: Peng Dai, Aug. 2007.  
MS: Derek Williams, May 2006.  
MS: Venkata Deepti Kiran Bhuma, “Bidirectional LAO\*”, July, 2004.  
MS: Lucas Cockerham, “PokerFace,” June, 2004.  
MS: Jignesh Doshi, “Revising Horn Formulas with Queries,” Dec., 2003.  
MS: Matthew A. Levy, “Limited Nondeterminism,” Dec., 2002.  
MS: Shelia Sittinger, “A survey of probabilistic logic programming,” July, 1999.  
MS: Tong Li, “Implementing Hansen’s algorithms for finite-memory control of partially observable systems,” April, 1999.

### **RECENT INVITED TALKS**

IJCAI Doctoral Consortium (July 2011): Being an ethical author  
SRI (August 2011): Explanations  
Hunter College High School TEDx (September 2011): AI and eldercare  
SACM at UK (October 2011): Emotional computers  
Berea College (November 2011): Why you want to get a graduate degree in Computer Science from UK  
TRIWIC (November 2011): three panels (the grad school experience (twice), tenure)  
Preparing Future Faculty class (December 2011): Academic interviews

### **PROFESSIONAL ACTIVITIES**

Conference Chair, Algorithmic Decision Theory 2015  
Organizer of Special Session on Computational Social Choice, International Symposium on Artificial Intelligence and Mathematics (ISAIM), 2012  
Co-organizer, International Joint Conference on Artificial Intelligence (IJCAI) Doctoral Consortium, 2011  
Co-organizer, Comparative Decision Making Studies Conference, 2011  
Co-organizer, NSF CISE Broader Impacts Symposium, June 2010  
Cochair of Doctoral Program, 16th International Conference on Automated Planning & Scheduling (ICAPS '08)  
Co-organizer, AAAI Workshop on Preference Handling for Artificial Intelligence ('07)  
Co-organizer, UAI Workshop on Bayesian Applications ('07)  
Organized Spring 1998 Midwest Theory Day  
Senior Program Committee member: AAAI '13; IJCAI '13

Program Committee member, American Association for AI conference ('11, '10, '06, '05); NMR Workshop on Preferences and Norms ('10); ECAI Workshop on Preference Handling ('10, '06); First International Conference on Algorithmic Decision Theory (ADT '09, '13); International Conference on Automated Planning & Scheduling (ICAPS '13, '09); Preferences workshop, IJCAI '13; AAI '08; Preferences track of NMR, at KR '08; Grace Hopper Panel Proposal Committee (GHC '08); Uncertainty in AI (UAI '11, '07, '06, '05, '04); IJCAI Workshop on Preference Handling ('05); Florida AI Research Symposium (FLAIRS '05, '04); Midwest AI and Cognitive Science Conference (MAICS '08, '05); Workshop on Bayesian Applications (during UAI) ('11, '08, '06, '05); ICAPS '04; IEEE Conference on Computational Complexity '98; Federated Computing Research Conference Workshop on Academic Careers for Women '93.

Editorial Board of Journal of Artificial Intelligence Research, '08–'13

Reviewer, AAI '07, International Joint Conference on AI (IJCAI '03), European Conference on AI (ECAI '02, '04), COLT '02 National Conference on Undergraduate Research, NCUR 2001

Reviewer, Mathematical Reviews (AMS) (2001–5)

Panel member, multiple NSF panels

**Referee for** Journal of Machine Learning Research, Discrete Applied Mathematics, Algorithmica, Theoretical Computer Science, Computational Intelligence, Journal of AI Research, Mathematics of Operations Research, AI Journal Journal of the Mathematics of Operations Research, International Journal of the Foundations of Computer Science, City University of Hong Kong Research Committee, Chicago Journal of Theoretical Computer Science, CSL '97 IEEE Conference on Computational Complexity (formerly known as Structures), Journal of Computer Systems and Science, SIAM Journal of Computing, Information and Control, Machine Learning Journal, Mathematical Systems Theory, National Science Foundation, Theoretical Computer Science

## SERVICE

2009 Academic Area Advisory Committee

2003–present Steering Committee, Cognitive Science Program

2003–4 Steering Committee, Women's Studies Program

2003–4 Head of Newsletter Committee, Women's Studies Program

2002–3 Committee to Review the Chair, Dept of Computer Science

2000–2 Computer Science Graduate Student Recruitment Committee

2001–2 Women's Studies Mentoring Committee

2000–1 UK University Studies Program Math Requirement Committee

2000–1 College of Engineering Diversity Committee  
1993–8 Colloquium Committee (in its entirety)  
1998–9 College of Engineering Diversity Committee  
1994–5 Computer Science Hiring Committee  
1994–6 Women’s Studies Mentoring Committee  
1994–5 Women in Computer Science Committee  
1991–3 Computer Science Industrial Affiliates Program (creator) (UM)  
1992–3 Advisory Committee to the VP on Women in Science and Engineering (UM)  
1992–3 Women in Science and Engineering Lecture Series (organizer) (UM)

## TEACHING

### **Undergraduate Computer Science Courses:**

Artificial Intelligence; Discrete Math; Logic, Automata, and Computability; Computability and Complexity; Analysis of Algorithms; Logic for Computer Science;

### **Graduate Computer Science Courses and Seminars:**

Comparative Decision Making; Trading Agents Competition; Computational Decision Making; Bayesian Artificial Intelligence; Artificial Intelligence; Uncertain Reasoning Seminar; Bayes Nets Seminar; Machine Learning; Problem Seminar; Computational Learning Theory; Algorithm Design and Analysis; Markov Decision Processes Seminar; Computational Complexity; Logic for Computer Science; Computability; Circuit Complexity; Computational Complexity and Fragments of Arithmetic; Computational Geometry

### **Cognitive Sciences:**

Introduction to Cognitive Science

### **Mathematics:**

Remedial Math, Calculus, Topology, Logic Seminar