

# Paul R. Cohen

prcohen@pitt.edu • paulrcohen@gmail.com • 412 770 6731 • <http://paulrcohen.github.io/>

## Education

Ph.D., Computer Science and Psychology, Stanford University, 1983.

M.A., Psychology, University of California, Los Angeles, 1978.

B.A., Psychology, University of California, San Diego, 1977.

## Honors and Awards

Fellow, Association for the Advancement of Artificial Intelligence, elected 1993.

Fellowship, Engineering and Physical Sciences Research Council, UK, 2000.

Faculty Fellowship, University of Massachusetts, 1998.

Councillor, Association for the Advancement of Artificial Intelligence, 1991—1994.

## Summary

I am a professor in the [School of Computing and Information](#) and director of the [Institute for Modeling and Managing Complicated Systems](#) (momacs) at the University of Pittsburgh. I joined Pitt in 2017 to serve as the Founding Dean of the School. Immediately prior, I was a program manager in [DARPA's Information Innovation Office](#), where I designed and managed the [Big Mechanism](#), [Communicating with Computers](#) and [World Modelers](#) programs. I worked at DARPA under an IPA agreement with the University of Arizona, where I served as a professor and head of Computer Science and founded the School of Information: Science, Technology and Arts ([SISTA](#)), now part of the UA School of Information). My research is in aspects of artificial intelligence and cognitive science. I am interested in language, communication, and AI methods to help us understand very complicated systems such as cell signaling pathways, biophysical and socio-economic systems. For details, videos, blogs etc. visit my website at [paulrcohen.github.io](http://paulrcohen.github.io).

## Positions

- Professor and Director of the Institute for Modeling and Managing Complicated Systems (momacs), School of Computing and Information, University of Pittsburgh. August 1, 2020 - present.
- Founding Dean, School of Computing and Information, University of Pittsburgh. August 1, 2017 – August 1, 2020.
- Professor, Department of Computer Science, University of Pittsburgh. Aug. 1, 2017 – present.
- Affiliate Scholar, Institute for Cyber Law, Policy and Security. University of Pittsburgh. Dec. 1 – present.
- Program Manager, IPA at Defense Advanced Research Projects Agency (DARPA), Sept. 2013 - July, 2017
- Professor and Founding Director, School of Information: Science, Technology and Arts, University of Arizona, 2010 - 2013.
- Professor and Head, Department of Computer Science, University of Arizona, 2008 - 2010
- Director, Center for Research on Unexpected Events, and Deputy Director, Intelligent Systems Division, Information Sciences Institute, University of Southern California, 2003 - 2008
- Professor (Research) Department of Computer Science. University of Southern California., 2003 - 2008
- Assistant, Associate and Full Professor of Computer Science, University of Massachusetts (1983-2003)

## Consulting

I have served as an advisor to corporations on the design of challenge problems; and to DARPA and other government organizations, helping them design and analyze the results of evaluations for several programs, including HPKB, RKF, PAL (CALO and RADAR), Coordinators, PANDA, KD-D, Transfer Learning, and Machine Reading.

## Research Grants and Contracts

- Hyperlocal Elicitation and Understanding of Risks to Stability in Complicated Systems. DARPA Habitus program. \$5,670,000. Paul Cohen, PI. 2021.
- Probabilistic Relational Agent-based Systems. DARPA ASKE program, Phase 2 \$703,000, 2020.
- Probabilistic Relational Agent-based Systems. DARPA ASKE program. \$990,000. 2019.
- Inaugural of the MOMACS Institute. Ford Foundation. \$150,000. 2018.
- Semantics of Spatial Referring Expressions. DARPA I2O, subcontractor to SRI. \$675,000 for three years.
- The Bayesian Blackboard. DARPA seedling grant, subcontractor to iRobot. \$300,000. 2013.
- Robotodder: Grounded Language Learning for Shared Human-robot Tasks. 2011. DARPA I2O. \$3,000,000 for five years. Program Area E canceled after one year. Reconstituted as Semantics of Spatial Referring Expressions (above).
- Inferring Structure and Forecasting Dynamics on Evolving Networks. Multi-disciplinary University Research Initiative (MURI). Jeff Brantingham, PI (UCLA). University of Arizona part is \$1,501,438 for five years.
- Persistent Stare Through Imagination (Kobus Barnard, co-PI). 2010. DARPA TCTO. \$5,000,000 for five years.
- Teach Ourselves (Carole Beal, co-PI). 2010. DARPA IPTO. \$1,500,000 for three years.
- Cognitive Semantics for Soar Wubbles. 2010. Office of Naval Research. \$450,000 for three years.
- Wubble World Phase II. DARPA IPTO. 2010. \$256,000. Nine-month seedling project.
- Markov Decision Process Policies for Teaching Strategies: BattleSmarts Nine-month Seedling Project. DARPA IPTO. 2008. \$300,000
- Deep Green. DARPA IPTO. 2008. SAIC is the prime, my part is \$1.2M/year for 3 years. (SAIC lost the contract after one year.)
- Wubble World. DARPA IPTO. 2007. Nine-month seedling project. \$100,000
- Deep Green. DARPA IPTO. 2007. Six month seedling project. \$200,000
- Bootstrap Learning. DARPA IPTO. 2007. SRI is the prime. I am the principal scientist. \$3.6M over three years.
- Windward: Workflows for Intelligence Analysis. 2006. Yolanda Gil (PI) \$450K.
- Transfer Learning. DARPA/IPTO. \$1.44M over three years.
- Integrated Learning. DARPA/IPTO. 2005. \$900,000 over three years.
- Human-like Learning Seedling. DARPA IPTO Carole Beal (PI) and Paul Cohen (Co-PI). \$600K
- Learning by Doing. DARPA/IPTO. Paul Cohen (PI) Carole Beal (co-PI) and Tim Oates. \$1.5M
- Assessing the Robustness of Relational Classifiers (with Aram Galstyan). NSA. 2005. \$100,000.
- Multidisciplinary University Research Initiative: Spatiotemporal nonlinear filtering with applications for information assurance and counterterrorism. Prof. Boris Rozovsky, Center for Applied Mathematical Sciences (PI), co-PIs from USC, UCLA and Brown. 2006. \$900,000 over three years.
- Developmental Chunking. NSF. 2005. \$150,000.
- Tracking Scientists. IBM. 2004. \$100,000.
- COGENT: Architecture for Cognitive Information Processing. DARPA. Co-principal investigator with Raytheon and John Granacki. 2004. \$2,000,000

- The Terrorist Adversary. DARPA/ATO Integrated Battle Command. Subcontract to SAIC. 2004. \$300,000
- AIID as an Integration Architecture. Evidence Extraction and Link Discovery, Continuation. 2004. \$500,000
- Learning by Doing. DARPA. 2004. \$1,950,000
- How Human Office Assistants Learn. DARPA. 2003. \$150,000
- An Evaluation Plan for IPTO. DARPA. 2003. \$150,000
- Sidekick Seedling project, DARPA, 2003, \$187,000
- RKF plus-up (subcontract to Information Extraction and Transport, Inc.), DARPA, 2003, \$375,000
- Office Assistant Knowledge and Learning Inventory (OAKLI) Seedling project, DARPA, 2003, \$150,000
- Research gift, SAIC, \$50,000
- Director of the CIA postdoctoral research program award, 2003 – 2005, \$100,000
- Principal Investigator : Patterns of Behavior, NSF / KD-D, 2002, \$600,00
- Principal Investigator : Evidence Extraction and Link Discovery, DARPA / IAO, 2001 - 2004, \$1,050,000
- Principal Investigator : Effects-based Operations, Air Force Research Laboratory, 2001 – 2004, \$300,000
- Co-Principal Investigator: Rapid Knowledge Formation (with SRI as prime contractor), DARPA/ISO 2000—2003. \$248,000
- Principal Investigator: Probabilistic Dynamic Analysis of Plans. DARPA/ISO, 2000—2003. \$550,000.
- Research Fellow: Engineering and Physical Sciences Research Council, UK, 2000. \$30,000
- Principal Investigator: Convivial Computers: The Case for Natural Semantics. DARPA/ITO, 1999—2002. \$854,014.
- Principal Investigator: Course of Action Simulation, Testing, Evaluation and Revision. DARPA/ISO, 1999—2002. \$869,000.
- Principal Investigator: Building and Acquiring Interactionist Ontologies. DARPA/AFOSR, 1997—2000. \$1,113,788.
- Principal Investigator: Mixed Initiative Plan Evaluation and Repair. DARPA/Rome Laboratory, 1997—2000. \$967,102.
- Co-Principal Investigator: A Facility for Cross Disciplinary Research on Sensorimotor Development in Humans and Machines. National Science Foundation, 1997—2002. \$1,316,755.
- Co-Principal Investigator: Sensorimotor Cognition, The Earliest Knowledge Structures. National Science Foundation, 1997—1999. \$344,885.
- Senior Scientist: AIDE, The Data Analyst's Assistant. SBIR (ACSIOM Labs, Inc.) National Science Foundation, 1997. \$74,920.
- Associated Faculty, Gaining Confidence in Math, Intelligent Tutors for Girls and Women. National Science Foundation, 1996—1997. \$116,355.
- Principal Investigator, Campaign-at-a-Glance, Conceptual Models for Visualization, Information Extraction and Simulation. DARPA, 1996—1999. \$960,420.
- Co-Principal Investigator, Evaluation Methods for Complex, Intelligent, Information-Driven Systems. Sterling Software, Inc./Rome Laboratory, 1995—1997. \$224,330.
- Principal Investigator, Prototyping the ECS Fault Management Application Service. Hughes Information Technology Co./NASA, 1995—1997. \$191,542.
- Principal Investigator, A Substrate and Tools for Experimental Testbeds. ARPA/Rome Laboratory, 1995—1999. \$942,447.
- Principal Investigator, A Next-Generation Data Analysis System. ARPA/Army (AASERT Program), 1995—1998. \$117,000.
- Principal Investigator, Experimental Methods for Evaluating Planning Systems. ARPA/Rome Laboratory, 1993—1997. \$1,004,000.
- Principal Investigator, Exploring the Foundations of a Plan Steering Architecture. DARPA (AASERT Program), 1992—1994. \$84,097.

- Principal Investigator, Visualization and Simulation for Interactive Plan Development and Plan Steering. DARPA, 1991—1994. \$951,931.
- Principal Investigator, Automated Path Analysis: A Tool for the Discovery of Causal Structure. NASA Graduate Student Researchers Program, Minority Focus, 1993—1994. \$22,000.
- Principal Investigator, A Workshop on AI Methodology and Evaluation. NSF and DARPA, 1991—1992. \$30,000.
- Principal Investigator, Real-time Problem-solving for Large Networks of Agents. NTT Data Communications Systems Corp., 1991—1995. \$132,000.
- Principal Investigator, Adapting the Contact Migration Policy Algorithm to Dynamic Planning in Phoenix. ONR, 1991—1992. \$49,800.
- Co-Principal Investigator, Intelligent, Real-time, Complex Computing Systems. DARPA and NSF, 1991—1994, With W. Richards Adrion, Roderic Grupen, Edward M. Riseman, and John A. Stankovic. \$7,718,745.
- Principal Investigator, Intelligent Real-time Problem Solving. AFOSR. Phase 3, through April 1992. \$130,000.
- Principal Investigator, Modeling AI Systems with Functional Relations. ONR and AFOSR. Oct. 1990—Sept. 1990. \$40,000.
- Principal Investigator, Intelligent Real-time Problem Solving. AFOSR. Phase 1, through Sept. 1989. \$30,000.
- Principal Investigator, An Adaptive Planner for Real-time, Uncertain Environments. DARPA, 1989—1992. \$714,000.
- Principal Investigator, Collaborative work between EKSL and Digital Equipment Corporation, 1989. \$50,000.
- Co-Principal Investigator, A Distributed Fire-fighting System, RADC/NAIC Consortium grant, 1989. (With Victor Lesser; and Susan Conry, and Bob Myer, Clarkson College.) \$100,000
- Co-Principal Investigator, Knowledge Base Retrieval using Plausible Inference, AFOSR, 1988—1991. (With Bruce Croft). \$321,750
- Principal Investigator, Digital Equipment Corporation, Collaborative Research between DEC and EKSL, 1988, \$25,000.
- Principal Investigator, Control Strategies for Reasoning Under Uncertainty, ONR, 1987—1990, \$150,000.
- Principal Investigator, Unrestricted, Tektronix, 1987, \$15,000.
- Principal Investigator, Equipment Grant, Tektronix, 1987, \$30,000.
- Principal Investigator, Personal Computing Workstations, Texas Instruments, 1987, \$14,000.
- Co-Principal Investigator, Center for Excellence in Artificial Intelligence. URI, ONR, DARPA, 1986—1991, \$4,500,000. (With Victor Lesser and Wendy Lehnert.)
- Principal Investigator, Reasoning About Uncertainty in Data. NUSC, 1986—1987, \$25,000.
- Co-Principal Investigator, Artificial Intelligence Applied to Mechanical Design. National Science Foundation, 1986—1989, (With Jack Dixon, Dept. of Mechanical Engineering.) \$483,608.
- Principal Investigator, An Expert System for Diagnosing Economically Important Plant Pathologies. Public Service Endowment, University of Massachusetts, 1986—1987, \$12,500.
- Principal Investigator, Expert Systems Technology Program. DARPA, 1985—1989, \$1,044,169.
- Principal Investigator, Request for Lisp Machines. DARPA, 1985, \$258,000.
- Principal Investigator, Heuristic Reasoning about Uncertainty: An Artificial Intelligence Approach. National Science Foundation, 1983—1986, \$113,908.
- Principal Investigator, Faculty Research Grant. 1983, \$2,500.

## Publications

See <http://bit.ly/1mf5Bwa> for access to many of these publications.

### **Books Published:**

- Paul R. Cohen, Niall M. Adams, Michael R Berthold (Editors) Advances in Intelligent Data Analysis IX. Proceedings of the 9th Symposium on Intelligent Data Analysis. 2010. Heidelberg: Springer-Verlag.
- X. Liu, P. Cohen, M. Berthold (Editors) Advances in Intelligent Data Analysis: Reasoning about Data Proceedings of the 2nd Symposium on Intelligent Data Analysis. 1997. Heidelberg: Springer-Verlag.
- Paul R. Cohen. 1995. Empirical Methods for Artificial Intelligence. Cambridge, Mass: The MIT Press.
- Avron B. Barr, Paul R. Cohen and Edward A. Feigenbaum. 1989. The Handbook of Artificial Intelligence, Volume IV. Reading, Mass: Addison Wesley.
- Paul R. Cohen. 1985. Heuristic Reasoning about Uncertainty: An Artificial Intelligence Approach (Doctoral Dissertation). London: Pitman Advanced Publishing Program.
- Paul R. Cohen and Edward A. Feigenbaum. 1982. The Handbook of Artificial Intelligence, Volume III. Los Altos, CA.: William Kaufmann.

### **Books in Preparation:**

*Great Ideas of the Information Age.* An introductory text for the 100-level course in the School of Information at the University of Arizona.

### **Journal Articles Published:**

- Paul R. Cohen. Harold Cohen and AARON. AI Magazine. December, 2016.
- Paul R. Cohen. DARPA's Big Mechanism Program. *Physical Biology*, 12, 045008 doi:10.1088/1478-3975/12/4/045008. <http://iopscience.iop.org/1478-3975/12/4/045008>
- Nikolich-Zugich, J., D.P. Goldman, P.R. Cohen, D. Cortese, L. Fontana, B.K. Kennedy, M.J. Mohler, S.J. Olshansky, T. Perls, D. Perry, A. Richardson, C. Ritchie, A.M. Wertheimer, R.G.A. Faragher and M.J. Fain. 2015. [Preparing for an Aging World: Engaging Biogerontologists, Geriatricians and the Society.](#) *J Gerontol A Biol Sci Med Sci.* 2016 Apr;71(4):435-44. doi: 10.1093/gerona/glv164. Epub 2015 Sep 29.
- Carole R. Beal, Jane Strohm, Lauren Schwindy, and Paul R. Cohen. [Teach Ourselves: A peer-to-peer learning community linking in- and out-of-class activity.](#) *Bulletin of the IEEE Technical Committee on Learning Technology*, Volume 15, Number 1, January 2013.
- Carole R. Beal, Niall M. Adams and Paul R. Cohen. Reading Proficiency and Mathematics Problem Solving by High School English Language Learners. *Urban Education* 2010; 45; 58 DOI: 10.1177/0042085909352143
- Carole R. Beal, Ivon M. Arroyo, Paul R. Cohen and Beverly P. Woolf. Evaluation of AnimalWatch: An intelligent tutoring system for arithmetic and fractions. *Journal of Interactive Online Learning.* March, 2010. <http://www.ncolr.org/jiol/>
- Paul R. Cohen and Carole R. Beal. Temporal Data Mining for Educational Applications. *International Journal of Software and Informatics*, Vol.3, No.1, March 2009, pp. 29-44
- Aram Galstyan, Vahe Musoyan, and Paul Cohen. Maximizing influence propagation in networks with community structure. *Physical Review E* 79 (5), 056102

- Aram Galstyan and Paul R. Cohen. Cascading Dynamics in Modular Networks. *Physical Review E*, **75**, 036109, 2007
- Paul R. Cohen, Niall Adams, Brent Heeringa. Voting Experts: An Unsupervised Algorithm for Segmenting Sequences. *Journal of Intelligent Data Analysis*. Volume 11, Number 6 (2007)
- Paul Cohen. If Not Turing's Test, Then What? *AI Magazine*. 26 (4). 2006.
- Ken Barker, Jim Blythe, Gary Borchardt, Vinay K. Chaudhri, Peter E. Clark, Paul Cohen, Julie Fitzgerald, Ken Forbus, Yolanda Gil, Boris Katz, Jihie Kim, Gary King, Sunil Mishra, Clayton Morrison, Ken Murray, Charley Otstott, Bruce Porter, Robert C. Schrag, Tom Uribe, Jeff Usher, Peter Z. Yeh. A Knowledge Acquisition Tool for Course of Action Analysis. *AI Magazine*.
- Marco Ramoni, Paola Sebastiani, Paul R. Cohen. 2002. Bayesian Clustering by Dynamics. *Machine Learning*. 47 (1), 91D121.
- Miranda Barrows, Lixin Gao, Dawn E. Gregory, Arnold L. Rosenberg and Paul R. Cohen. An Empirical Study of Dynamic Scheduling on Rings of Processors. *Parallel Computing* 25 (1999) 1063-1079.
- David Jensen and Paul R. Cohen. 1999. Multiple Comparisons in Induction Algorithms. *Machine Learning*, Vol. 38, No. 3, pp. 309-338.
- Robert St. Amant and Paul R. Cohen. Intelligent Support for Exploratory Data Analysis. *Journal of Computational and Graphical Statistics*, Vol. 7, No. 4, pp. 545-558.
- Paul R. Cohen, Robert Schrag, Eric Jones, Adam Pease, Albert Lin, Barbara Starr, David Easter, David Gunning and Murray Burke. 1998. The DARPA High Performance Knowledge Bases Project. *Artificial Intelligence Magazine*, Vol. 19, No. 4, pp. 25-49.
- Robert St. Amant and Paul R. Cohen. 1997. Interaction with a Mixed-Initiative System for Exploratory Data Analysis. *Journal of Knowledge-Based Systems*, Vol. 10, No. 5, pp. 265-273.
- Paul R. Cohen. Getting What You Deserve From Data. *IEEE Expert Intelligent Systems & Their Applications*, Volume 11, Number 5, October 1996, pp. 12-14.
- Scott D. Anderson and Paul R. Cohen. Timed Common LISP: The Duration of Deliberation. *SIGART Bulletin*, Volume 7, Number 2, 1996, pp. 11-15.
- Marc S. Atkin and Paul R. Cohen. Monitoring Strategies for Embedded Agents: Experiments and Analysis. *Journal of Adaptive Behavior*, Vol. 4, No. 2, 1996, pp. 125-172.
- Scott D. Anderson, David M. Hart, David L. Westbrook and Paul R. Cohen. A Toolbox for Analyzing Programs. *International Journal on Artificial Intelligence Tools*, Vol. 4, Nos. 1 & 2, pp. 257-279, 1995.
- Adele E. Howe and Paul R. Cohen. Understanding Planner Behavior. *Artificial Intelligence*, Special Issue on Planning Systems, Vol. 76, Nos. 1 & 2, pp. 125-166, 1995.
- Steve Hanks, Martha E. Pollack and Paul R. Cohen. Benchmarks, Testbeds, Controlled Experimentation, and the Design of Agent Architectures. *AI Magazine*, Vol. 14, No. 4, pp. 17-42, 1993.
- Paul R. Cohen. A Survey of the Eighth National Conference on Artificial Intelligence: Pulling Together or Pulling Apart? *AI Magazine*, Vol. 11, No. 4, pp. 16-41, 1991.
- Adele E. Howe, David M. Hart, and Paul R. Cohen. Addressing Real-Time Constraints in the Design of Autonomous Agents, *The Journal of Real-Time Systems*, Vol. 1, pp. 81-97, 1990.
- Adele Howe and Paul R. Cohen. 1990. Steps Toward Automating Decision Making. *Information and Decision Technologies*, Vol. 16, pp. 161-182.

- Paul R. Cohen, Michael L. Greenberg, David M. Hart, and Adele E. Howe. Trial by Fire: Understanding the Design Requirements for Agents in Complex Environments. *AI Magazine*. Vol. 10, pp. 32-48, 1989. Reprinted in *Nikkei Artificial Intelligence*, published by Nikkei Business Publications, Inc., pp. 102-119, 1990.
- Paul R. Cohen and David S. Day. 1988. The Centrality of Autonomous Agents in Theories of Action Under Uncertainty. *International Journal of Approximate Reasoning*. Fall, 1988.
- Paul R. Cohen, Jefferson DeLisio, David Hart. 1988. A Declarative Representation of Control Knowledge. *IEEE Transactions on Systems, Man and Cybernetics*. Vol. 19, No. 3. pp. 546-557.
- Paul R. Cohen and Adele Howe. 1988. Toward AI Research Methodology: Three Case Studies. *IEEE Transactions on Systems, Man and Cybernetics*. Vol. 19, No. 3. pp. 634-646.
- Paul R. Cohen and Adele E. Howe. 1988. How Evaluation Guides AI Research. *AI Magazine*, Winter, 1988. Vol. 9, No. 4, pp. 35-43. Reprinted in *A Sourcebook of Applied Artificial Intelligence*, Gerald Hopple and Stephen Andriole, Eds. TAB Books, Inc.
- Paul R. Cohen. 1987. The Control of Reasoning Under Uncertainty: A Discussion of Some Programs. *The Knowledge Engineering Review*. Vol. 2, No. 1, pp. 5-25. Reprinted in *Readings in Uncertain Reasoning*, Glenn Shafer and Judea Pearl (Eds.). Morgan-Kaufmann, Inc. 1990.
- Paul R. Cohen, Glenn Shafer, and Prakash P. Shenoy. 1987. Modifiable Combining Functions. *AI-EDAM (Artificial Intelligence for Engineering Design and Manufacturing)*. Vol. 1, No. 1, pp. 47-57.
- Paul R. Cohen and Rick Kjeldsen. 1987. Information Retrieval by Constrained Spreading Activation. *Information Processing and Management*. Vol. 23, No. 4, pp. 255-268.
- Rick Kjeldsen and Paul R. Cohen. 1987. The Evolution and Performance of the GRANT System. *IEEE Expert*. Vol. 2, No. 2, pp. 73-79.
- Paul R. Cohen, David Day, Jeff Delisio, Michael Greenberg, Rick Kjeldsen, Daniel Suthers and Paul Berman. 1986. Management of Uncertainty in Medicine. *International Journal of Approximate Reasoning*. Vol. 1, No. 1, pp. 103-116.
- Thomas Gruber and Paul Cohen. 1986. Design for Acquisition: Principles of Knowledge System Design to Facilitate Knowledge Acquisition. *International Journal of Man-Machine Studies*. Vol. 26. pp. 143-159.
- Adele Howe, Paul R. Cohen, John Dixon and Melvin Simmons. 1986. DOMINIC: A Domain-Independent Program for Mechanical Engineering Design. *Journal of Artificial Intelligence in Engineering*, April, 1986.
- Paul R. Cohen, Alvah Davis, David Day, Michael Greenberg, Rick Kjeldsen, Susan Lander and Cynthia Loiselle. 1985. Representativeness and Uncertainty in Classification Systems. *AI Magazine*, Fall 1985.
- Paul R. Cohen and Milton R. Grinberg. 1983. A Theory of Heuristic Reasoning about Uncertainty. *AI Magazine*, Spring-Summer, 1983.

#### Refereed Conference Proceedings Published:

- Allegra Cohen, Paul Cohen and Gregory Kiker, “Modeling Gender Inequity in Household Decision-making” Proceedings of Social, Cultural, and Behavioral Modeling 12th International Conference, SBP-BRiMS 2019, Washington, DC, USA, July 9-12, Springer Lecture Notes in Computer Science, 2019

- Paul Cohen, “Probabilistic Relational Agent-based Models (PRAM)” Proceedings of Social, Cultural, and Behavioral Modeling 12th International Conference, SBP-BRiMS 2019, Washington, DC, USA, July 9-12, Springer Lecture Notes in Computer Science, 2019 (reviewed and accepted but inadvertently left out of the proceedings, [arxiv version](#))
- Paul Cohen, Tomek Loboda. Redistribution Systems and PRAM. [arxiv version](#)
- Anh Tran, Mihai Surdeanu and Paul Cohen. Extracting Latent Attributes from Video Scenes Using Text as Background Knowledge. The Third Joint Conference on Lexical and Computational Semantics (\*SEM 2014). Dublin, Ireland. August 23,24, 2014.
- Colin Dawson, Jeremy Wright, Antons Rebguns, Marco Valenzuela Escarcega, Daniel Fried and Paul Cohen. A generative probabilistic framework for learning spatial language. Third Joint IEEE Conference on Development and Learning and on Epigenetic Robotics. Aug. 18 - 22. Osaka, Japan. *Winner of the Overall Best Paper award.*
- Nathan Dykhuis, Paul R. Cohen and Yu-Han Chang. Team Formation in Social Networks. SocialCom: ASE/IEEE International Conference on Social Computing. Sept. 8-14, 2013.
- Daniel Hewlett, Thomas J. Walsh, and Paul Cohen. Teaching and Executing Verb Phrases. Proceedings of the First Joint IEEE International Conference on Development and Learning and on Epigenetic Robotics. August, 2011.
- Raquel Torres Peralta, Tasneem Kaochar, Ian R. Fasel, Clayton T. Morrison, Thomas J. Walsh, Paul R. Cohen. Challenges to Decoding the Intention Behind Natural Instruction. Proceedings of 20th IEEE International Symposium on Robot and Human Interactive Communication (Ro-Man) Atlanta, Georgia - 31 July - 3 August 2011
- Wesley Kerr, Paul Cohen and Niall Adams. Recognizing Players’ Activities and Hidden State. The 6th International Conference on the Foundations of Digital Games. June 28 - July 1. Bordeaux, France.
- Daniel Hewlett and Paul Cohen. Fully Unsupervised Word Segmentation with BVE and MDL. ACL Conference on Empirical Methods in Natural Language Processing. Edinburgh, UK. July 27–31.
- Daniel Hewlett and Paul Cohen. An Information-Theoretic Model of Chunking, International Association for Computing and Philosophy (IACAP) . Aarhus University, Denmark, July 4-6, 2011.
- Daniel Hewlett and Paul Cohen. Word Segmentation as General Chunking. Proceedings of the Fifteenth Conference on Computational Natural Language Learning. Portland, Oregon, USA, June 23-24, 2011.
- Daniel Hewlett and Paul Cohen. Fully Unsupervised Word Segmentation with BVE and MDL. The 49th Annual Meeting of the Association for Computational Linguistics: Human Language Technologies. Portland, Oregon, USA, June 19-24, 2011
- Derek Green, Tom Walsh, Paul Cohen and Yu-Han Chang. Learning a Skill-Teaching Curriculum with Dynamic Bayes Nets. Proceedings of Innovative Applications of Artificial Intelligence. San Francisco, August 7 – 11 2011.
- Wesley Kerr, Anh Tran and Paul Cohen. A Framework for Teaching and Executing Verb Phrases. Proceedings of the 22nd International Joint Conference on Artificial Intelligence, Barcelona, Spain, July 16 - 22. 2011
- Derek Green, Tom Walsh, Paul Cohen, Carole Beal and Yu-Han Chang. . Gender Differences and the Value of Choice in Intelligent Tutoring Systems. Proceedings of UMAP: User Modeling, Adaptation and Personalization. Girona, Spain. July 11–15, 2011
- Tasneem Kaochar, Raquel Torres Peralta, Clayton T. Morrison, Ian R. Fasel, Thomas J. Walsh and Paul R. Cohen. Toward an understanding of how humans teach robots. Proceedings of UMAP: User Modeling, Adaptation and Personalization. Girona, Spain. July 11–15, 2011

- Wesley Kerr and Paul Cohen. Recognizing Behaviors and the Internal States of the Participants. Proceedings of the International Conference on Development and Learning. 2010.
- Daniel Hewlett and Paul Cohen. Artificial General Segmentation. Proceedings of the Conference on Artificial General Intelligence. Lugano, Switzerland, March, 2010.
- Paul R. Cohen and Niall Adams. Intelligent Data Analysis in the Twenty First Century. In Proceedings of the Intelligent Data Analysis Conference, Lyon, France, 2009.
- Daniel Hewlett and Paul R. Cohen. Bootstrapped Voting Experts. Proceedings of the Twenty-First International Joint Conference on Artificial Intelligence (IJCAI-09). 2009.
- Daniel Hewlett and Paul Cohen. Word Segmentation as General Chunking Psychocomputational Models of Language Acquisition Workshop (PsychoCompLA). 2009.
- Aram Galstyan and Paul Cohen. “Empirical Comparison of “Hard” and “Soft” Label Propagation for Relational Classification” Proceedings of the Inductive Logic Programming Conference. 2007.
- Wesley Kerr, Shane Hoversten, Daniel Hewlett, Paul Cohen, Yu-Han Chang. Learning in Wubble World. International Conference on Development and Learning, Imperial College, London, 2007.
- Daniel Hewlett, Shane Hoversten, Wesley Kerr, Paul Cohen, Yu-Han Chang. Wubble World. To appear in the proceedings of The Third Artificial Intelligence for Interactive Digital Entertainment Conference. June 2007, Stanford University.
- Carole Beal, Sinjini Mitra, Paul R. Cohen. Modeling learning patterns of students with a tutoring system using Hidden Markov Models. Proceedings of the 13th International Conference on Artificial Intelligence in Education (AIED), Marina del Rey, CA, July 2007
- Paul R. Cohen. Constructing Career Histories: A Case Study in Disentangling the Threads. International Joint Conference on Artificial Intelligence, Hyderabad, India, 2007.
- Paul R. Cohen, Yu-Han Chang, Clayton Morrison and Carole R. Beal. Learning and Transferring Action Schemas International Joint Conference on Artificial Intelligence, Hyderabad, India, 2007.
- Yu-Han Chang, Paul R. Cohen, Clayton Morrison, Robert St. Amant. Piagetian Adaptation Meets Image Schemas: The Jean System. Proceedings of the Ninth Annual Conference on the Simulation of Adaptive Behavior. Rome. 2006.
- Yu-Han Chang and Clayton Morrison and Wesley Kerr and Paul Cohen and Robert St. Amant . The Jean System. International Conference on Development and Learning. 2006.
- Robert St. Amant, Clayton T. Morrison, Yu-Han Chang, Paul R. Cohen, and Carole Beal. An Image Schema Language. The International Conference on Cognitive Modeling. 2006. Trieste.
- Clayton Morrison and Paul Cohen. The Hats Simulator and COLAB: An Integrated Information Fusion Challenge Problem and Collaborative Analysis Environment. IEEE Intelligence and Security Informatics Conference. 2006. San Diego.
- Aram Galstyan and Paul Cohen. Iterative Relational Classification Through Three-State Epidemic Dynamics. IEEE Intelligence and Security Informatics Conference. 2006. San Diego.
- Clayton T. Morrison and Paul R. Cohen. (2006). The Colab Mixed-Initiative Analysis Environment. In Proceedings of the 9th International Conference on Information Fusion (Fusion 2006), special session on Making Histories.
- Paul Cohen, Clayton Morrison and Erin Cannon. Maps for Verbs: The Relationship between Interaction Dynamics and Verb Use. Nineteenth International Conference on Artificial Intelligence (IJCAI) Edinburgh, Scotland. 2005

- Aram Galstyan and Paul Cohen. Inferring Useful Heuristics from the Dynamics of Iterative Relational Classifiers. Nineteenth International Conference on Artificial Intelligence (IJCAI) Edinburgh, Scotland. 2005
- Carole Beal and Paul Cohen. Comparing apples and oranges: Computational methods for evaluating student and group learning histories in intelligent tutoring systems. Full paper at 12th International Conference on AI and Education. Amsterdam. 2005
- Tim Oates, Paul Cohen, Bill Krueger, Carole Beal, Tom Armstrong. Learning by Doing and Knowledge Transfer. Nineteenth International Conference on Artificial Intelligence (IJCAI) Edinburgh, Scotland. 2005
- Aram Galstyan and Paul Cohen. Is guilt by association a bad thing? First International Conference on Intelligence Analysis. Washington D.C. 2005.
- Aram Galstyan and Paul Cohen. Identifying Covert Sub-Networks Through Iterative Node Classification. First International Conference on Intelligence Analysis. Washington D.C. 2005.
- Clayton T. Morrison, Paul R. Cohen, Gary W. King, Joshua Moody and Andrew Hannon Simulating Terrorist Threats in the Hats Simulator. First International Conference on Intelligence Analysis. Washington D.C. 2005.
- Erin Cannon, Paul Cohen and Clayton Morrison. 'Bonk!' Children's Spontaneous Production of Verbs for Object Interactions. Accepted as a poster at the 2005 Biennial Meeting of the Society for Research on Child Development.
- Andrew C. Hannon, Gary King, Clayton Morrison, Aram Galstyan and Paul Cohen, Population Generation for Large-Scale Simulation. Proceedings of AeroSense 2005
- Cohen, P. R. and Morrison, C. T. The Hats Simulator. In Proceedings of the 2004 Winter Simulation Conference. (R. G. Ingalis, M. D. Rossetti, J. S. Smith, and B. A. Peters, eds.)
- Clayton T. Morrison and Paul R. Cohen. COLAB: A Laboratory Environment For Studying Analyst Sense-making and Collaboration. Proceedings of the Tenth International Command and Control Research and Technology Symposium 2005.
- Jafar Adibi, Paul R. Cohen and Clayton T. Morrison. 2004. Measuring confidence intervals in link discovery: A bootstrap approach. Proceedings of the ACM Special Interest Group on Knowledge Discovery and Data Mining (ACM-SIGKDD-04).
- Gary King, Matthew Schmill, Andrew Hannon, Paul Cohen. ATAT: The Asymmetric Threat Assessment Tool. BRIMS 05.
- Cohen, P. R. and Morrison, C. T. (2004). The Hats Simulator. In Proceedings of the 2004 Winter Simulation Conference. (R. G. Ingalis, M. D. Rossetti, J. S. Smith, and B. A. Peters, eds.)
- Jafar Adibi, Paul Cohen, Clayton Morrison (2004) Measuring Confidence Intervals in Link Discovery: A Bootstrap Approach. In Proceedings of the International Conference on Data Mining. Brighton, UK.
- Charles Sutton, Clayton Morrison, Paul Cohen, Joshua Moody, Jafar Adibi. A Bayesian Blackboard for Information Fusion, Proceedings of The Seventh International Conference on Information Fusion. 2004.
- Sutton, Charles, Brendan Burns, Clayton T. Morrison, Paul R. Cohen. 2003. Guided Incremental Construction of Belief Networks. *Fifth International Symposium on Intelligent Data Analysis*.
- Cohen, Paul R. and Charles Sutton. 2003. Very Predictive Ngrams for Space-Limited Probabilistic Models. *Fifth International Symposium on Intelligent Data Analysis*.
- King, Gary, Morrison, Clayton and Cohen, Paul. Action Models. *Proceedings of the 2003 Winter Simulation Conference*.

- Gary W. King and Clayton T. Morrison and David L. Westbrook and Paul R. Cohen. Bridging the gap: Simulations meet Knowledge Bases. Proceedings of the SPIE IntelliSense Conference. Orlando FL. April 22 - 25, 2003.
- Cohen, Paul, Sutton, Charles; and Burns, Brendan. Learning Effects of Robot Actions Using Temporal Associations. *2nd International Conference on Development and Learning*, Cambridge, MA. IEEE Computer Society Press. 2002
- Cohen, Paul R., Adams, Niall, and Heeringa, Brent. An Unsupervised Algorithm for Segmenting Categorical Timeseries into Episodes. Proceedings of the International Conference on Data Mining. Maebashi City, Japan. Dec. 9 - 12, 2002.
- Cohen, Paul R., Tim Oates, Carole R. Beal, Niall Adams. 2002. Contentful Mental States for Robot Baby. *Proceedings of the Eighteenth National Conference on Artificial Intelligence*. To appear.
- Laura Firoiu and Paul Cohen. Segmenting Time Series with a Hybrid Neural Network, Hidden Markov Model. *Proceedings of the Eighteenth National Conference on Artificial Intelligence*. To appear.
- C. Morrison, P. R. Cohen and P. Sebastiani (2002). On the Development of Visual Object Memory: The Stay/Go Decision Problem. *Proceedings of the 2nd International Conference on Development and Learning (ICDL'02)*. To appear.
- Brendan Burns and Paul Cohen. 2002. A Probabilistic Approach to Real Time Construction of Memories *Proceedings of the Seventh International Autonomous Systems Conference, Marina del Rey*.
- King, Gary W., Brent Heeringa, Joe Catalano, David L. Westbrook, and Paul Cohen. Models of Defeat. *Proceedings of the Second International Conference on Knowledge Systems for Colation Operations* 2002. pp. 85-90.
- Cohen, Paul R., Tim Oates, and Carole Beal. 2002. Robots that Learn Meanings. *First Joint Conference of Autonomous Agents and Multiagent Systems*. To appear.
- Schmill, Matthew. and P. R. Cohen. 2002. A Motivational System that Drives the Development of Activity. *The First Joint Conference of Autonomous Agents and Multiagent Systems*. To appear.
- Gary King, Marc Atkin, David Westbrook, and Paul Cohen. Tapir: an action language beyond scripting. In Proceedings of the 3rd International Conference on Computers and Games , July 2002.
- Cohen, Paul R, Tim Oates, Niall Adams and Carole Beal. 2001. Robot Baby 2001. *Proceedings of the Twelfth International Conference on Algorithmic Learning Theory*. Springer.
- Cohen, Paul R. 2001. Fluent Learning: Elucidating the Structure of Episodes. *Proceedings of the Fourth Symposium on Intelligent Data Analysis*, Lisbon, pp. 268 – 277. Springer. Also in *Working Notes of AAAI Spring Symposium: Workshop Learning Grounded Representations*.
- Cohen, Paul R and Niall Adams. 2001. An Algorithm for Segmenting Categorical Time Series into Meaningful Episodes. *Proceedings of the Fourth Symposium on Intelligent Data Analysis*, Lisbon. pp. 198 – 207. Springer.
- Cohen, Paul R, Niall Adams and David J. Hand. 2001. The IDA 2001 Robot Data Challenge. *Proceedings of the Fourth Symposium on Intelligent Data Analysis*, Lisbon. pp. 378 - 381. Springer.
- Marc Atkin, Gary W. King, David Westbrook, Brent Heeringa, Andrew Hannon and Paul Cohen. SPT: Hierarchical Agent Control: A Framework for Defining Agent Behavior. To appear in *Proceedings of Fifth International Conference on Autonomous Agents*. 2001.
- Marco Ramoni, Paola Sebastiani, Paul R Cohen. Bayesian Analysis of Sensory Inputs of a Mobile Robot. In *Proceedings of the Second European Conference on Highly Structured Stochastic Systems*, Pavia, Italy, 1999. Also in *Proceedings of the Fifth International Workshop on Case Studies in Bayesian Statistics* Lecture Notes in Statistics, Springer, New York, NY, 2000.

- Marc Atkin, David Westbrook, Paul Cohen. Domain-General Simulation and Planning with Physical Schemas. In *Proceedings of Winter Simulation Conference*, pp. 1730-1738, 2000.
- Marc Atkin and Paul Cohen. Using Simulation and Critical Points to Define States in Continuous Search Spaces. In *Proceedings of Winter Simulation Conference*, pp. 464-470, 2000.
- Brent Heeringa, Paul Cohen. An Underlying Model for Defeat Mechanisms. In *Proceedings of Winter Simulation Conference*, p. 933, 2000.
- Marc Atkin, David Westbrook, Paul Cohen. HAC: A Unified View of Reactive and Deliberative Activity. In *Working Notes of the Fourteenth European Conference on Artificial Intelligence Workshop on Balancing Reactivity and Social Deliberation in Multi-Agent Systems*. 2000. Also Technical Report 00-50, Department of Computer Science, University of Massachusetts, Amherst.
- Marco F Ramoni, Paola Sebastiani, Paul R Cohen. Multivariate Clustering by Dynamics. In *Proceedings of the Seventeenth National Conference for Artificial Intelligence*, pp. 633-638. AAAI Press/The MIT Press: Menlo Park/Cambridge. 2000.
- Tim Oates, Matthew D Schmill, Paul R Cohen. A Method for Clustering the Experiences of a Mobile Robot that Accords with Human Judgements. In *Proceedings of the Seventeenth National Conference for Artificial Intelligence*, pp. 846-851. AAAI Press/The MIT Press: Menlo Park/Cambridge. 2000.
- Paul R Cohen, Marco Ramoni, Paola Sebastiani. Unsupervised Clustering of Robot Activities: A Bayesian Approach. In *Proceedings of the Fourth International Conference on Autonomous Agents*, pp. 134-135. ACM: New York, NY. 2000.
- Tim Oates, Zachary Eyer-Walker, Paul R Cohen. Toward Natural Language Interfaces for Robotic Agents: Grounding Linguistic Meaning in Sensors. In *Proceedings of the Fourth International Conference on Autonomous Agents*, pp. 227-228. ACM: New York, NY. 2000.
- Tim Oates, Matthew Schmill, Paul R Cohen. Identifying Qualitatively Different Outcomes of Actions: Gaining Autonomy Through Learning. In *Proceedings of the Fourth International Conference on Autonomous Agents*, pp. 110-111. ACM: New York NY. 2000.
- Paul R Cohen, Carole Beal. Natural Semantics for a Mobile Robot. In *Proceedings of the European Conference on Cognitive Science*. 1999. Also Technical Report 00-59, Department of Computer Science, University of Massachusetts, Amherst.
- Paul R. Cohen. Growing Ontologies. In *Proceedings of The 1999 European Conference on Cognitive Science*.
- Matthew D Schmill, Tim Oates, Paul R Cohen. Learning Planning Operators in Real-World, Partially Observable Environments. In *Proceedings of the Fifth International Conference on Artificial Intelligence Planning and Scheduling*, edited by Steve Chien, Subbarao Kambhampati and Craig Knoblock. California: AAAI Press. Pp. 246-253, 2000.
- Laura Firoiu and Paul R Cohen. Learning Elements of Representations for Redescribing Robot Experiences. Presented at *The Third Symposium on Intelligent Data Analysis*. 1999.
- Laura Firoiu and Paul R. Cohen. Abstracting from Robot Sensor Data using Hidden Markov Models. In *Proceedings of the Third Symposium on Intelligent Data Analysis*. Pp. 23-28.
- Sebastiani, Paola, Marco Ramoni, Paul R. Cohen, John Warwick and James Davis. Discovering Dynamics Using Bayesian Clustering. In *Proceedings of the Third Symposium on Intelligent Data Analysis, Advances in Intelligent Data Analysis*, Springer Berlin Heidelberg, 1999, Pp. 199-209.
- Tim Oates, Matthew Schmill and Paul R. Cohen. Efficient Mining of Statistical Dependencies. In *Proceedings of the Sixteenth International Joint Conference on Artificial Intelligence*, Morgan Kaufman, 1999, Pp. 794-799.

- Paul R. Cohen, Vinay Chaudhri, Adam Pease and Robert Schrag. Does Prior Knowledge Facilitate the Development of Knowledge-based Systems. In *Proceedings of the Sixteenth National Conference on Artificial Intelligence*, AAAI Press/MIT Press, 1999. Pp. 221-226.
- Paul R. Cohen and Mary Litch. What are contentful mental states? Dretske's theory of mental content viewed in the light of robot learning and planning algorithms. In *Proceedings of the Sixteenth National Conference on Artificial Intelligence*, AAAI Press/MIT Press, 1999. Pp. 108-113.
- Michael Rosenstein and Paul R. Cohen. Continuous Categories for a Mobile Robot. In *Proceedings of the Sixteenth National Conference on Artificial Intelligence*, AAAI Press/MIT Press, 1999. Pp. 634-640.
- Laura Firoiu and Paul R. Cohen. Abstracting from Robot Sensor Data using Hidden Markov Models. In *Proceedings of the Sixteenth International Conference on Machine Learning*, Morgan Kaufmann, 1999, Pp. 106-114.
- Paul R. Cohen. 1998. Dynamic Maps as Representations for Verbs. In *Proceedings of the 13th Biennial European Conference on Artificial Intelligence*, J. Wiley & Sons, Ltd., 1998. Pp. 145-149.
- Paul R. Cohen. 1998. Maps for Verbs. In *Proceedings of the Information Technology and Knowledge Systems Conference Fifteenth IFIP World Computer Congress*, 1998. Pp. 21-33.
- Justus H. Piater, Paul R. Cohen, Xiaoqun Zhang and Michael Atigetchi. 1998. A Randomized ANOVA Procedure for Comparing Performance Curves. In *Proceedings of the Fifteenth International Conference on Machine Learning*, Morgan Kaufmann, 1998. Pp. 430-438.
- Matthew D. Schmill, Michael T. Rosenstein, Paul R. Cohen and Paul Utgoff. 1998. Learning What is Relevant to the Effects of Actions for a Mobile Robot. In *Proceedings of the Second International Conference on Autonomous Agents*, ACM, Inc., 1998. Pp. 247-253.
- Laura Firoiu, Tim Oates and Paul R. Cohen. 1998. Learning Regular Languages from Positive Evidence. In *Proceedings of the Twentieth Annual Meeting of the Cognitive Science Society*, Lawrence Earlbaum Associates, 1998. Pp. 350-355.
- Laura Firoiu, Tim Oates and Paul R. Cohen. 1998. Learning a Deterministic Finite Automaton with a Recurrent Neural Network. In *Proceedings of the Fourth International Colloquium on Grammatical Inference*, Springer-Verlag, 1998. Pp. 90-101.
- Tim Oates, Matthew D. Schmill, and Paul R. Cohen. 1997. Parallel and Distributed Search for Structure in Multivariate Time Series. In *Proceedings of the Ninth European Conference on Machine Learning*, pp. 191-198.
- David Jensen, Paul R. Cohen and Tim Oates. 1997. Building Simple Models: A Case Study with Decision Trees. In *Advances in Intelligent Data Analysis: Reasoning about Data*, Proceedings of the Second International Symposium, IDA-97, pp. 211-222.
- C. C. McGeoch, D. Precup and Paul R. Cohen. 1997. How to Find Big-Oh in Your Data Set (and How Not to). In *Advances in Intelligent Data Analysis: Reasoning about Data*, Proceedings of the Second International Symposium, IDA-97, pp. 41-52.
- Dawn E. Gregory and Paul R. Cohen. 1997. Integrating Many Techniques for Discovering Structure in Data. In *Advances in Intelligent Data Analysis: Reasoning about Data*, Proceedings of the Second International Symposium, IDA-97, pp. 77-88.
- Paul R. Cohen. 1997. Projections as Concepts. In *Proceedings of the Second European Conference on Cognitive Science*. pp. 56-60.
- Robert St. Amant and Paul R. Cohen. 1997. Interaction with a Mixed-Initiative System for Exploratory Data Analysis. In *Proceedings of the Third International Conference on Intelligent User Interfaces*. pp. 15-22.

- Robert St. Amant and Paul R. Cohen. 1997. Evaluation of a Semi-Autonomous Assistant for Exploratory Data Analysis. In *Proceedings of the First International Conference on Autonomous Agents*. Pp. 355-362.
- Paul R. Cohen, Marc S. Atkin, Tim Oates and Carole R. Beal. 1997. Neo: Conceptual Knowledge by Sensorimotor Interaction with an Environment. In *Proceedings of the First International Conference on Autonomous Agents*. pp. 170-177.
- Paul R. Cohen, Tim Oates, Marc S. Atkin and Carole R. Beal. 1996. Building a Baby. In *Proceedings of the Eighteenth Annual Conference of the Cognitive Science Society*. Mahwah NJ: Lawrence Erlbaum Associates, pp. 518-522.
- Tim Oates and Paul R. Cohen. 1996. Searching for Planning Operators with Context-Dependent and Probabilistic Effects. In *Proceedings of the Thirteenth National Conference on Artificial Intelligence*. Menlo Park: AAAI Press, pp. 863-868.
- Tim Oates and Paul R. Cohen. 1996. Searching for Structure in Multiple Streams of Data. In *Proceedings of the Thirteenth International Conference on Machine Learning*. Morgan Kaufmann Publishers, Inc., pp. 346-354.
- Scott D. Anderson and Paul R. Cohen. 1996. On-Line Planning Simulation. In *Proceedings of the Third International Conference on Artificial Intelligence Planning Systems*. Menlo Park: AAAI Press, p. 3.
- Robert St. Amant and Paul R. Cohen. 1996. A Planner for Exploratory Data Analysis. In *Proceedings of the Third International Conference on Artificial Intelligence Planning Systems*. Menlo Park: AAAI Press, pp. 205-212.
- Dawn E. Gregory and Paul R. Cohen. 1995. A Function Modelling Approach to Empirical Science. In *Book of Abstracts, Tenth International Conference on Mathematical and Computer Modeling and Scientific Computing*. Principia Scientia: St. Louis. P. 42.
- Matthew D. Schmill and Paul R. Cohen. 1995. Tools for Detecting Dependencies in AI Systems. In *Proceedings of the Seventh International IEEE Conference on Tools with Artificial Intelligence*. IEEE Computer Society Press, pp. 148-155.
- Robert St. Amant, Yoshitaka Kuwata and Paul R. Cohen. 1995. Monitoring Progress with Dynamic Programming Envelopes. In *Proceedings of the Seventh International IEEE Conference on Tools with Artificial Intelligence*. IEEE Computer Society Press, pp. 426-433.
- Scott D. Anderson, Adam Carlson, David L. Westbrook, David M. Hart and Paul R. Cohen. 1994. Tools for Experiments in Planning. In *Proceedings of the Sixth IEEE International Conference on Tools with AI*. IEEE Computer Society Press, pp. 615-623.
- Adele E. Howe, Robert St. Amant and Paul R. Cohen. 1994. Integrating Statistical Methods for Characterizing Causal Influences on Planner Behavior over Time. In *Proceedings of the Sixth IEEE International Conference on Tools with AI*. IEEE Computer Society Press, pp. 56-62.
- Paul R. Cohen, Marc S. Atkin and Eric A. Hansen. 1994. The Interval Reduction Strategy for Monitoring Cupcake Problems. In *Proceedings, From Animals to Animats, the Third International Conference on Simulation of Adaptive Behavior*. MIT Press, pp. 82-90.
- Robert St. Amant and Paul R. Cohen. 1994. A Planning Representation for Automated Exploratory Data Analysis. In *Proceedings, Knowledge-Based Artificial Intelligence Systems in Aerospace and Industry*. Bellingham WA: Proc. SPIE 2244. Pp. 44-52.
- Robert St. Amant and Paul R. Cohen. 1994. Automated Analysis of Complex Data. In *Proceedings of the Ninth Annual Goddard Conference on Space Applications of Artificial Intelligence*. NASA Conference Publication 3268, pp. 161-172.

- Marc S. Atkin and Paul R. Cohen. 1994. Learning Monitoring Strategies: A Difficult Genetic Programming Application. In *Proceedings, IEEE International Conference on Evolutionary Computation*. Piscataway NJ: IEEE, pp. 328-332.
- Tim Oates and Paul R. Cohen. 1994. Toward a Plan Steering Agent: Experiments with Schedule Maintenance. In *Proceedings, Second International Conference on Artificial Intelligence Planning Systems*. AAAI Press, pp. 134-139.
- Paul R. Cohen, Adam Carlson, and Lisa Ballesteros. 1993. Automating Path Analysis for Building Causal Models from Data. In *Proceedings of the Tenth International Conference on Machine Learning*. Morgan Kaufmann Publishers, Inc., pp. 57-64.
- Paul R. Cohen, Robert St. Amant, and David M. Hart. 1992. Early Warnings of Plan Failure, False Positives and Envelopes: Experiments and a Model. *Proceedings of the Fourteenth Annual Conference of the Cognitive Science Society*. Lawrence Earlbaum Associates, Inc., pp. 773-778.
- David M. Hart and Paul R. Cohen. 1992. Predicting and Explaining Success and Task Duration in the Phoenix Planner. *Artificial Intelligence Planning Systems: Proceedings of the First International Conference (AIPS92)*. Morgan Kaufmann Publishers, Inc., pp. 106-115.
- Adele E. Howe and Paul R. Cohen. 1992. Isolating Dependencies on Failure by Analyzing Execution Traces. *Artificial Intelligence Planning Systems: Proceedings of the First International Conference (AIPS92)*. Morgan Kaufmann Publishers, Inc., pp. 277-278.
- Adele E. Howe and Paul R. Cohen. 1991. Failure Recovery: A Model and Experiments. In *Proceedings of the Ninth National Conference on Artificial Intelligence*. AAAI Press/MIT Press, pp. 801-808.
- Paul R. Cohen. 1990. Methodological Problems, a Model-based Design and Analysis Methodology, and an Example. *Proceedings of the International Symposium on Methodologies for Intelligent Systems*. Pp. 33-50. Knoxville, Tennessee, Oct. 25-27, 1990.
- Gerald M. Powell and Paul R. Cohen. 1990. Operational Planning and Monitoring with Envelopes. In *Proceedings of the IEEE Fifth Annual AI Systems in Government Conference*. Washington, D.C., 1990.
- Cynthia L. Loiselle and Paul R. Cohen. 1989. Explorations in the Contributors to Plausibility. *Proceedings of the Eleventh Annual National Cognitive Science Conference*, Ann Arbor, Michigan, 1989.
- Paul R. Cohen and Cynthia L. Loiselle. 1988. Beyond ISA: Structures for Plausible Inference in Semantic Networks. *Proceedings of AAAI-88, Seventh National Conference on Artificial Intelligence*. Morgan Kaufmann Publishers, Inc., pp. 415-420.
- Mark E. Orelup, John R. Dixon, Paul R. Cohen, and Melvin K. Simmons. 1988. Dominic II: Meta-Level Control in Iterative Redesign. *Proceedings of AAAI-88 Seventh National Conference on Artificial Intelligence*. Morgan-Kaufmann Publishers, Inc., pp. 25-30. (Nominated for Best Paper of the Conference.)
- W.B. Croft, T.J. Lucia, and P.R. Cohen. 1988. Retrieving Documents By Plausible Inference: A Preliminary Study. *Proceedings of the 10th ACM SIGIR Conference on Research and Development on Information Retrieval*. Grenoble, Switzerland.
- D. Cooley, P. Cohen, T. Gruber, and M. Henrion. 1988. Expert Systems vs. Decision Analysis: Comparison in an Agricultural Domain. *Proceedings of the 2nd International Conference on Computers in Extension Programs*. Orlando FL, February 1988.
- D. Cooley, P. Cohen, and K. Ward. 1988. Development of a Microcomputer-Based Expert System for Apple Scab Management. *Proceedings of the 2nd International Conference on Computers in Extension Programs*. Orlando FL, February 1988.

- Thomas Gruber and Paul R. Cohen. 1987. Knowledge Engineering Tools at the Architecture Level. *Proceedings of the 10th International Joint Conference on Artificial Intelligence*. Milan, Italy, August 1987.
- Paul R. Cohen, Michael Greenberg, and Jefferson Delisio. 1987. MU: A Development Environment for Prospective Reasoning Systems. *Proceedings of AAAI-87, Sixth National Conference on Artificial Intelligence*. Morgan-Kaufmann Publishers, Inc., pp. 783-788.
- John Harhen and Paul R. Cohen. 1987. Using Multiple Perspectives to Manage Uncertainty. *Proceedings of CIM-Europe 1987*, May 1987, Manchester, England.
- Thomas Gruber and Paul R. Cohen. 1987. Principles of Design for Acquisition. 1987. *3rd IEEE Conference on Artificial Intelligence Applications*. Orlando FL. Computer Society Press. pp. 9-15.
- Adele Howe and Paul R. Cohen. 1987. A Typology for Constructing Decisions. *Proceedings of IEEE Conference on Computers and Communications*. Phoenix AZ, pp. 571-575.
- Paul R. Cohen, Philip Stanhope, and Rick Kjeldsen. 1986. Classification by Semantic Matching. *Proceedings of IEEE Conference on Computers and Communications*. Phoenix AZ, February 1987, pp. 566-570. ( Selected as Best Paper of the Conference.)
- P. Cohen, D. Day, J. DeLisio, M. Greenberg, R. Kjeldsen, and D. Suthers. 1986. Management of Uncertainty in Medicine. *Proceedings of IEEE Conference on Computers and Communications*. Phoenix AZ, February 1987. Published in expanded form in *International Journal of Approximate Reasoning*, Vol. 1, No. 1, pp. 103-116.
- Paul R. Cohen and Philip M. Stanhope. 1986. Finding Research Funds with the GRANT System. *Proceedings of the 6th International Conference on Expert Systems and Their Applications*. April 1986, Avignon, France, pp. 1167-1182.
- J.R. Dixon, A.E. Howe, P.R. Cohen, and M.K. Simmons. 1986. DOMINIC I: Progress Towards Domain Independence in Design by Iterative Redesign. *Proceedings of the ASME Computers in Engineering Conference*. July 1986, Chicago, IL.
- Adele Howe, John Dixon, Paul R. Cohen and Melvin Simmons. 1986. DOMINIC: A Domain-Independent Program for Mechanical Engineering Design. *Proceedings of Applications of Artificial Intelligence to Engineering Problems*. April 1986, Southampton, England, pp. 289-301.
- Paul R. Cohen. 1985. Numeric and Symbolic Reasoning About Uncertainty in Expert Systems. *Proceedings of 7th European Conference on AI*, July 1986, Brighton, England. Also in Advances in Artificial Intelligence-II. DuBoulay, Hogg, and Steels (Eds.) North Holland, 1987. Pp. 527-541.
- Paul R. Cohen. 1985. Two Endorsement-based Approaches to Reasoning About Uncertainty. *Proceedings of the National Cognitive Science Conference*, August 1985.
- Michael Sullivan and Paul R. Cohen. 1985. An Endorsement-Based Plan Recognition Program. *Proceedings of the Ninth International Joint Conference on Artificial Intelligence*. Los Angeles, August 1985, pp. 475-479. Reprinted in Readings in Uncertain Reasoning, Glenn Shafer and Judea Pearl, Morgan-Kaufmann Publishers, Inc., 1990.
- Paul R. Cohen. 1984. Progress Report on the Theory of Endorsements: A Heuristic Approach to Reasoning About Uncertainty. *Proceedings of IEEE Conference on Principles of Knowledge Based Systems*, Denver, Dec. 1984, pp. 139-142.
- J.R. Dixon, M.K. Simmons, and P.R. Cohen. 1984. An Architecture for Application of Artificial Intelligence to Design. *Proceedings of IEEE 21st Design Automation Conference*.
- Paul R. Cohen and Mark D. Lieberman. 1983. A Report on FOLIO: An Expert Assistant for Portfolio Managers. *Proceedings of the Eighth International Joint Conference on Artificial Intelligence*, Karlsruhe Germany, August 1983, pp. 212-215.

Paul R. Cohen. 1983. A theory of heuristic reasoning about uncertainty. *Proceedings of the Eighth International Joint Conference on Artificial Intelligence*, Karlsruhe Germany, August 1983, pp. 355-358.

### Recent Refereed Workshops

Thomas J. Walsh, Javad Taheri, Jeremy Wright, and Paul Cohen. Leadership Games and their Application in Super-Peer Networks. Workshop on Applied Adversarial Reasoning and Risk Modeling at the Association for the Advancement of Artificial Intelligence (AAAI) 2011 meeting, San Francisco. August, 2011.

Raquel Torres Peralta, Tasneem Kaochar, Ian Fasel, Clay Morrison, Tom Walsh and Paul Cohen. Challenges to Decoding the Intention Behind Natural Instruction (Extended Abstract). IJCAI Workshop on Agents Learning Interactively from Human Teachers. Barcelona, 2011

Tasneem Kaochar, Raquel Torres Peralta, Clayton T. Morrison, Thomas J. Walsh, Ian R. Fasel, Sumin Beyon, Anh Tran, Jeremy Wright and Paul R. Cohen. Human Natural Instruction of A Simulated Electronic Student. “Help Me Help You” – AAAI Spring Symposium Stanford University - Palo Alto, CA, March 22, 2011

Daniel Hewlett, Thomas J. Walsh, Paul Cohen. Teaching Robots to Execute Verb Phrases. 2011 Robotics: Science and Systems Workshop: The State of Imitation Learning: Understanding its Applications and Promoting its Adoption

Daniel Hewlett, Tom Walsh and Paul Cohen. A Framework for Teaching and Executing Verb Phrases. AAAI Spring Symposium “Help Me Help You: Bridging the Gaps in Human-Agent Collaboration (SS05)”, AAAI Spring Symposium Stanford University - Palo Alto, CA, March 22, 2011

Daniel Hewlett and Paul Cohen. Word Segmentation as General Chunking Psychocomputational Models of Language Acquisition Workshop (PsychoCompLA). 2009.

Aram Galstyan, Sinjini Mitra, and Paul Cohen (2007) Detecting and Tracking Hostile Plans in the Hats World, AAAI workshop on Plan, Activity, and Intent Recognition, PAIR-07, Vancouver, Canada.

Clayton T. Morrison and Paul R. Cohen. Designing Experiments to Test Planning Knowledge about Plan-step Order Constraints. Presented at the Workshop on Artificial Intelligence Planning and Learning, in conjunction with the International Conference on Automated Planning and Scheduling (ICAPS-07), 2007.

Clayton T. Morrison and Paul R. Cohen. (2007). Designing Experiments to Test and Improve Hypothesized Planning Knowledge Derived From Demonstration. In Papers from the 2007 AAAI Workshop on Acquiring Planning Knowledge via Demonstration. AAAI Press, Technical Report WS-07-02.

Clayton Morrison and Yu-Han Chang and Paul Cohen and Joshua Moody. Experimental State Splitting for Transfer Learning, ICML 2006 Workshop on Structural Knowledge Transfer for Machine Learning. 2006.

Clayton T. Morrison and Paul R. Cohen. (2005). Noisy Information Value in Utility-Based Decision Making. In Proceedings of the Workshop on Utility-Based Data Mining, held in conjunction with The 11th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD 2005), Chicago, IL

### Book Chapters:

- Erin N. Cannon, Paul R. Cohen. Talk about motion: The semantic representation of verbs by motion dynamics. Forthcoming book on Language and Space, edited by Linda Smith.
- C. McGeoch, P. Sanders, R. Fleischer, P. Cohen, and D. Precup. “Using Finite Experiments to Study Asymptotic Performance” *Experimental Algorithmics: From Algorithm Design to Robust and Efficient Software*. R. Fleischer, B. Moret, E.M. Schmidt (Eds.) Springer, LNCS 2547. pp. 93 - 124. 2002.
- Oates, Tim; Firoiu, Laura; and Cohen, Paul R. Using Dynamic Time Warping to Bootstrap HMM-Based Clustering of Time Series. In Ron Sun and Lee Giles, editors, *Sequence Learning: Paradigms, Algorithms and Applications*. Springer-Verlag, 2001.
- M. Ramoni, P. Sebastiani and P. Cohen (2001). Sequence Learning via Bayesian Clustering by Dynamics. In L. Giles and R. Sun, editors, *Sequence Learning: Paradigms, Algorithms, and Applications*, Springer, New York, NY. 11-34.
- Paul R. Cohen, Tim Oates and Robert St. Amant. 1996. Simulation for ARPI and the Air Campaign Simulator. *Advanced Planning Technology: Technological Achievements of the ARPA/Rome Laboratory Planning Initiative*, A. Tate, Editor. AAAI Press, pp. 105-112.
- Paul R. Cohen, Scott Anderson and David Westbrook. 1996. Plan Steering and Mixed-Initiative Planning. *Advanced Planning Technology: Technological Achievements of the ARPA/Rome Laboratory Planning Initiative*, A. Tate, Editor. AAAI Press, pp. 113-118.
- Paul R. Cohen, Dawn E. Gregory, Lisa A. Ballesteros and Robert St. Amant. 1996. Two Algorithms for Inducing Structural Equation Models from Data. *Learning from Data: Artificial Intelligence and Statistics*, D. Fisher and H. Lenz (Eds.). Springer-Verlag, pp. 3-12.
- Tim Oates, Dawn E. Gregory and Paul R. Cohen. 1996. Detecting Complex Dependencies in Categorical Data. *Learning from Data: Artificial Intelligence and Statistics*, D. Fisher and H. Lenz (Eds.). Springer-Verlag, pp. 185-195.
- Robert St. Amant and Paul R. Cohen. 1996. Control Representation in an EDA Assistant. *Learning from Data: Artificial Intelligence and Statistics*, D. Fisher and H. Lenz (Eds.). Springer-Verlag, pp. 353-362.
- Paul R. Cohen, David M. Hart, Robert St. Amant, Lisa A. Ballesteros, and Adam Carlson. 1994. Path Analysis Models of an Autonomous Agent in a Complex Environment. *Selecting Models from Data: Artificial Intelligence and Statistics IV*, P. Cheeseman and R. W. Oldford (Eds.). Springer-Verlag, pp. 243-251.
- Adele E. Howe and Paul R. Cohen. 1994. Detecting and Explaining Dependencies in Execution Traces. *Selecting Models from Data: Artificial Intelligence and Statistics IV*, P. Cheeseman and R.W. Oldford (Eds.). Springer-Verlag, pp. 71-77.
- Paul R. Cohen. Architectures for Reasoning Under Uncertainty. 1990. *Readings in Uncertain Reasoning*. Glenn Shafer and Judea Pearl, Eds. Morgan Kaufmann Publishers, Inc.
- Paul R. Cohen and Thomas R. Gruber. 1984. Reasoning About Uncertainty: A Knowledge Representation Perspective. Pergamon Infotech State of the Art Report on Expert Systems.
- Gordon H. Bower and Paul R. Cohen. 1982. Emotional Influences on Learning and Cognition. *Affect and Cognition : 17th Annual Carnegie Symposium on Cognition*. Margaret S. Clark and Susan T. Fiske (Eds.), Hillsdale NJ: Erlbaum Associates.
- Paul R. Cohen. 1982. Models of Cognition. *The Handbook of Artificial Intelligence, Vol. 3*, Paul R. Cohen and Edward A. Feigenbaum (Eds.), Los Altos CA: William Kaufmann. Pp. 1-74.
- Paul R. Cohen. 1982. Planning. *The Handbook of Artificial Intelligence, Vol. 3*, Paul R. Cohen and Edward A. Feigenbaum (Eds.), Los Altos CA: William Kaufmann. Pp. 513-562.

- Avron B. Barr, Paul R. Cohen and Lawrence Fagan. 1981. Understanding Spoken Language. *The Handbook of Artificial Intelligence, Vol. 1*, Avron B. Barr and Edward A. Feigenbaum (Eds.), Los Altos CA: William Kaufmann. Pp. 323-361.
- Victor Ciesielski, James S. Bennett and Paul R. Cohen. 1981. Medicine. *The Handbook of Artificial Intelligence, Vol. 1*, Avron B. Barr and Edward A. Feigenbaum (Eds.), Los Altos CA: William Kaufmann. Pp. 175-222.
- William Clancy, James S. Bennett and Paul R. Cohen. 1981. Education. *The Handbook of Artificial Intelligence, Vol 1*, Avron B. Barr and Edward A. Feigenbaum (Eds.), Los Altos CA: William Kaufmann. Pp 223-294.
- James S. Bennett, Bruce G. Buchanan and Paul R. Cohen. 1981. Science and Mathematics. *The Handbook of Artificial Intelligence, Vol. 1*, Avron B. Barr and Edward A. Feigenbaum (Eds.), Los Altos CA: William Kaufmann. Pp. 77-174.

**Selected Recent Presentations**

- Modeling and Managing Complicated Systems. Keynote talk at Phenome2020, Tucson, AZ. Feb. 25, 2020
- Paul Cohen. Probabilistic Relational Agent-based Models. July 9, 2019. International Conference on Social Computing, Behavioral-Cultural Modeling, & Prediction and Behavior Representation in Modeling and Simulation.
- Sustainable Urban Systems. Invited talk at NSF Workshop on Sustainable Urban Systems. Pittsburgh, PA, July 29, 2019.
- Modeling and Managing the World's Complicated Systems: A Challenge for AI. National Academy President's Circle Meeting, Washington DC, April 17, 2018
- Mining for Causal Results. Invited talk at the Intelligent Data Analysis conference, London, 26 October, 2017
- Beyond Big Data. Presentation at the Defense Science and Technology Laboratory, Porton Down, England. Feb. 16, 2017
- Beyond Big Data. Data Sciences Institute Distinguished Lecture Series, Imperial College, London, England. Feb. 13, 2017
- Beyond Big Data. Seminar at the University of Birmingham Department of Computer Science, England. Feb. 9, 2017
- Beyond Big Data. Lecture at the University of Manchester Department of Computer Science, England. Feb. 8, 2017
- Big Mechanism and Watson. Presentation at IBM Almaden Research, Almaden CA, April 26, 2016.
- Big Mechanisms and World Models. Presentation at Microsoft Research, Redmond WA, April 29, 2016.
- Communicative Computers. Presentation at DARPA's Wait What? A Technology Forum. St. Louis, Sept. 10, 2015.
- Some Research Challenges to the Big Mechanism program. Seminar at the National Library of Medicine, Bethesda, MD., June 30, 2015.
- The Big Mechanism Program and the Future of Scholarship. Biology is Technology meeting, New York, NY, June 24, 2015.
- Big Mechanism vs. Big Data. ATARC Federal Big Data Summit, panel discussion. June 18, 2015.
- Publishing Models of Complicated Systems. Panel discussion at Society for Scientific Publishing, Washington D.C., May 28, 2015.
- Machines that Assemble Cancer Pathways by Reading the Primary Literature. Keynote speech at the Cancer Genome Atlas annual meeting, National Institutes of Health, Bethesda MD, May 11, 2015.
- Defense One Viewcast: Big Data for Defense and National Security: Maintaining the U.S. Technological Edge. Panel discussion. April 13, 2015.
- Acquiring Big Mechanisms by Reading Primary Literature. Computer Science Colloquium, John's Hopkins University, March 13, 2015.
- Artificial Intelligence and Autonomy. Briefing to JRAST. Pentagon, February 17, 2015.
- The Future of Scholarship. Presentation to TTI Vanguard Conference, San Francisco, Dec. 5, 2014.
- The Future of Artificial Intelligence. Panel at the Council on Foreign Relations, Washington, D.C., Oct. 6, 2014.

- From Big Data to Big Mechanisms: Understanding Causes and Effects in Very Complicated Systems. DataLead Conference, UC Berkeley, Sept. 30, 2014
- Discovering Big Mechanisms by Reading the Literature. Presentation at the AAAI Workshop on Discovery Informatics. July 27, 2014.
- Big Mechanisms and the Future of Big Data. Invited talk to the Big Data Steering Committee, Networking and Information Technology Research and Development (NITRD). White House Conference Center, March 27, 2014.
- Big Mechanism. Invited talk at the Beyond Watson workshop, Arundel Preserve, Maryland, February 4, 2014.
- The Information School, Polymathy and the Liberal Arts. Invited talk at the University of Nebraska. Lincoln. Nov. 15, 2013
- Invited Speaker: Sketches of an Analyst’s Workbench. Advanced Analytics Workshop: Enhancing the User Experience Through Machine Learning. Washington DC. August 13, 14, 2013.
- Invited Speaker: Acquisition of Spatial Language. Dagstuhl Seminar on Mechanisms of Ongoing Development in Cognitive Robotics, Dagstuhl Castle, Germany, February 2013
- Information and Immortality. Public lecture to 3000 citizens of Tucson at the College of Science series on Living Beyond 100. February 2012.
- Word meanings for robots. Cognitive Science Colloquium, University of Colorado, Boulder, Sept. 29, 2011.
- How robots represent and learn verb meanings. Invited presentation at the Italian Institute for Technology (Genoa). July 4, 2011.
- Word meanings for robots. Invited presentation at the Florida Institute for Human and Machine Cognition. June 13, 2011.
- Empirical Methods for Artificial Intelligence. Tutorial at the International Joint Conference on Artificial Intelligence, Hyderabad, India, January, 2007.
- Colloquium on Tutoring Systems (with Carole Beal). Indian Institute of Information Technology, Hyderabad, India. January, 2007.
- Assessing the Intelligence of Cognitive Decathletes. NIST Workshop on the Design of Cognitive Decathlons. Sponsored by DARPA/IPTO. January 2006.
- Learning by Doing: First Results on Transfer Learning. DARPA Tech. August 2005
- Paul Cohen, Clayton Morrison, Erin Cannon. Maps for Verbs: The relationship between interaction dynamics and verb use. International Joint Conference on Artificial Intelligence. Edinburgh. July 2005.
- Toward a Cognitive Architecture: Chunking and Memory. Symposium on Representation and Learning in Humans and Animals. University of Edinburgh. July 2005.
- Tutorial: Empirical Methods for Artificial Intelligence. 20th National Conference on Artificial Intelligence. Pittsburgh. July, 2005.
- Evaluation of the CIA-sponsored KDD Challenge. Las Vegas. October, 2005.
- AAAI Invited Talk: “If not Turing’s Test, then what?” July 28 2004, San Jose.
- ATAT: The Asymmetric Threat Assessment Tool. 14th Conference on Behavior Representation in Modeling and Simulation (BRIMS). May, 2005.
- ISAT meeting on evaluation May 4, 2004, IBM Yorktown Heights. Lessons from PAL for Evaluating Cognitive Systems.

- Department of Computer Science, USC, May 5, 2004, Patterns in Time. ISD AI Seminar. June 25 2004
- TTI Vanguard meeting. Tots and 'bots: How the mind deals with complexity. Sept. 27 2004.
- DARPA/IPTO meeting on Grand Challenges. The Handy Andy challenge. Jan 12 2005
- Invited Speaker: How Robot Baby Learns Meaningful Representations. Second International Conference on Knowledge Capture. Sanibel Island. 10/23 - 10/26 2003.
- Meaning from Movement: How Learning Algorithms Bias Lexical Semantics. At the Symposium on Language and Space, Indiana University, October 13, 2003.
- Invited Speaker: It's About Time: Challenges of Robot Baby. FLAIRS 2003, St. Augustine FL. 5/13/2003
- Invited speaker: It's About Time: Challenges of Robot Baby. presentation at the Information Sciences Institute (1/13/03), Indiana University (1/23/03), North Carolina State University (1/27/03), Ohio State University (2/4/03).
- Synthesis, Gaps and Challenges: Semantic Autonomy. Workshop on the Future of Artificial Intelligence. Ito, Japan. 15/12/02.
- Are Patterns Real? International Conference on Data Mining. Maebashi City, Japan. 10/12/02.
- Toward Universal, Objective Features of Patterns. Workshop on Patterns. Imperial College, London. 17/9/02.
- Empirical Methods for Computer Science. Tutorial at the Autonomous Agents and Multiagent Systems conference, Bologna, July 15, 2002.
- Finding Patterns in Time. Invited talk at Yale University, January 2001.
- The development of robot minds. Invited talk at Birmingham University and at Brunel University. November, 2000
- Patterns and Episodes. Invited talk at Edinburgh University and at Aberdeen University. November, 2000.
- Statistical methods for finding patterns in time. Invited talk at Imperial College, London, February 2000.
- On Dretske's theory of Contentful Mental States. Invited talk at the Knowledge Media Institute, The Open University, February 2000
- Empirical Methods for Computer Science. Tutorial with Ian Gent and Toby Walsh at Fourteenth European Conference on Artificial Intelligence, Berlin, August, 2000.
- Empirical Methods for Artificial Intelligence and Computer Science. Tutorial with Ian Gent and Toby Walsh at Seventeenth National Conference on Artificial Intelligence, Austin, TX, August, 2000.
- Learning Representations and Meanings from Robot Sensor Data. Co-author with Carole Beal. MARS Meeting, Houston, Texas, May, 2000.
- Invited Speaker: Data Analysis and the Development of Robot Minds. Third Symposium on Intelligent Data Analysis, Amsterdam, August 1999.
- Keynote Speaker: Fourteen Comments on Empirical Methods. Workshop on Empirical AI, Sixteenth International Joint Conference on Artificial Intelligence, Stockholm, Sweden, August 1999.
- Invited Speaker: The Mind-Reading Problem. Workshop on Mixed Initiative Planning, Sixteenth National Conference on Artificial Intelligence, Orlando, FL, July 1999.
- Invited Speaker: Agent Systems, the Semantic Challenge. Dagstuhl Seminar on Agent-Oriented Software Approaches in Distributed Modeling and Simulation: Challenges and Methodologies, Dagstuhl Castle, Germany, July 1999.

Invited Speaker: Tot's and 'bots: The Development of Cognition. British Computer Society Specialist Group on Applied Artificial Intelligence and Knowledge-Based Systems, London, Birbeck College, August 4, 1999.