Curriculum Vita

Adele E. Howe
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Education

Ph.D. Computer and Information Science, University of Massachusetts, February 1993
Dissertation: *Accepting the Inevitable: The Role of Failure Recovery in the Design of Planners*

M.S. Computer and Information Science, University of Massachusetts, February 1987
Master's Project: *A Constructive Approach to Decision Making*

B.S.E. Computer Science and Engineering, University of Pennsylvania, May 1983
Bachelor's Project: *HOW? A Customizable, Associative Network Based Help Facility*

Professional Experience

7/03 - present: *Professor*. Computer Science Department, Colorado State University, Ft. Collins, CO.

9/09 - 1/10: *Acting Dept. Chair*. Computer Science Department, Colorado State University, Ft. Collins, CO.

2008-2009: *Consultant*. First RF Corp., Boulder, CO.

2006-2007: *Consultant*. (Occasional) DARPA, Arlington, VA.

7/98 - 6/03: *Associate Professor*. Computer Science Dept., Colorado State University, Ft. Collins, CO.

2000-2002: *Consultant*. (Occasional) Institute for Defense Analyses, Alexandria, VA.

8/92 - 6/98: *Assistant Professor*. Computer Science Dept., Colorado State University, Ft. Collins, CO.

9/85 - 8/92: *Research Assistant*. Experimental Knowledge Systems Lab, Univ. of Mass., Amherst, MA.

9/84 - 8/85: *Research Assistant*. AI in Mechanical Engineering Design, Univ. of Mass., Amherst, MA.

6/83 - 9/84: *Assistant Member Technical Staff*. ITT Advanced Technology Center, Shelton, CT.

Honors and Awards

- AAAI Fellow, elected 2015
- AAAI-14 Outstanding Senior Program Committee Member Award
- Colorado State University, College of Natural Sciences Professor Laureate 2010-2013
- Senior Member, AAAI 2012
- Best paper award for GA track (first author L.D. Whitley) for "Tunneling Between Optima: Partition Crossover for the TSP" at *Genetic and Evolutionary Computation Conference (GECCO)*, July 2009
- Faculty Excellence in Undergraduate Teaching Award given by Colorado State University, College of Natural Sciences, 2008-2009
- Honorable Mention for best student paper award (first author, Yui Man Lui) for "Evolution Stategies for Matching Active Appearance Models to Human Faces" at *First Conference on Biometrics: Theory, Applications and Systems*, Sept. 2007
- Runner-up for best student paper award (first author, L. Barbulescu) at *14th International Conference on Automated Planning and Scheduling* for "Trading Places: How to Schedule More in a Multiple Resource Over-Subscribed Scheduling Problem", June 2004

- Best paper award (first author, J.P. Watson) at *First Multidisciplinary International Conference on Scheduling* for "A Dynamic Model of Tabu Search for the Job-Shop Scheduling Problem", Aug. 2003
- Paper entitled "Toward a Descriptive Model Of Local Search Cost in Job-Shop Scheduling" (first author, J.P. Watson) received PLANET (European network of excellence in AI planning) prize for research excellence in 2001
- *Defense Science Study Group*, Institute for Defense Analyses, DoD, 2000-2001
- National Science Foundation CAREER Award, 1996.
- University of Pennsylvania, Moore School Council Cwikla Award, 1983
- National Merit Scholarship, 1979

Professional Activities

- Professional Society Service:
  - E;ected Member, AAAS Information, Computing and Communication Section Electorate Nominating Committee 2015
  - Elected Member, Executive Council of Association for the Advancement of Artificial Intelligence (AAAI), 2010-2013
  - Judge, Intel Science Fair 2004, representing AAAI
  - Secretary of Conferences and Tutorials Board of the IEEE Computer Society, 1993 and 1994.

- Editorial Service:
  - Editor, *Knowledge Engineering Review*, term: 1996 – 2006.
  - Book Reviews Editor, *AI Magazine*, 1997 – 1999.
  - Area Editor, ACM *SIGART Bulletin*, 1997 – 1999.
  - Award Track Editor, *Journal of Artificial Intelligence Research*, 2013 - present.
  - Associate Editor:
    * *IEEE Transactions on Knowledge and Data Engineering*, 1998 – 2002.
    * *Journal of Artificial Intelligence Research*, 2007-2010.
  - Member, Editorial Board, *Journal of Artificial Intelligence Research*, 2000 – 2003.
  - Member, Advisory Board, *Journal of Artificial Intelligence Research*, 2010-2015.

- Conference/workshop Organization:
  - Program committee co-chair, AAAI 1995 Spring Symposium on Integrated Planning Applications
  - Publicity chair, 11th Knowledge Based Software Engineering Conference, 1996.
  - Member, Steering Committee: Intelligent Data Analysis Conference, 1997-2005.
  - Local Arrangements chair, 5th International Conference on AI Planning Systems (AIPS-2000).
  - Workshops chair, Autonomous Agents 2001 conference.
  - Co-chair, Pre-Tenure track, 2003 CRA-W Career Mentoring Workshop at ACM FCRC.
  - Doctoral Consortium Co-chair, Int'l Conf. on Automated Planning and Scheduling (ICAPS) 2005.
  - Workshop Co-chair, Twentieth National Conference on Artificial Intelligence (AAAI) 2005.
  - Member, Steering Committee: International Planning Competition, 2006-2007.
  - Program Co-chair, Twenty-Second Conference on Artificial Intelligence (AAAI) 2007.
  - Teaching Forum Co-Chair, Twenty-Third Conference on Artificial Intelligence (AAAI) 2008.
  - Program Co-chair, Int'l Conf. on Automated Planning and Scheduling (ICAPS) 2009
  - Secretary, Executive Council, Int'l Conf. on Automated Planning and Scheduling (ICAPS) 2009-2014

- – Workshop chair, Int'l. Joint Conference on Artificial Intelligence (IJCAI) 2011.
- – Member, Organizing Committee for *Broadening Participation in AI* events at AAAI-2014

- Member, Senior Program Committee:
  - – Int'l Conference on Autonomous Agents and Multi-Agent Systems Conference (AAMAS-06)
  - – National Conference on Artificial Intelligence (AAAI-06, AAAI-14, AAAI-16)
  - – Intelligent Data Analysis Conference (IDA 2010)
  - – International Joint Conference on Artificial Intelligence (IJCAI-13, IJCAI-15)

- Member, Conference Program Committee:
  - – National Conference on Artificial Intelligence (AAAI-97, AAAI-98, AAAI-99, AAAI-00, AAAI-04, AAAI-05, AAAI-08).
  - – International Conference on Artificial Intelligence Planning Systems (AIPS-98).
  - – Florida AI Research Symposium (FLAIRS-98, FLAIRS-99, FLAIRS-01).
  - – Thirteenth Annual International Conference on Industrial and Engineering Application of Artificial Intelligence and Expert Systems (IEA/AIE-2000).
  - – International Conference on Autonomous Agents 2000.
  - – International Conference on Autonomous Agents and Multi-Agent Systems Conference (AAMAS-2003, AAMAS-2004, AAMAS-2005, AAMAS-2012).
  - – Intelligent Data Analysis Conference (IDA-2001, IDA-2003, IDA-2005).
  - – Eleventh International World Wide Web Conference (WWW2002).
  - – 8th ACM SIGKDD International Conf. on Knowledge Discovery and Data Mining (KDD-2002).
  - – International Conference on Automated Planning and Scheduling (ICAPS-2004, ICAPS-2005, ICAPS-2006, ICAPS-2008, ICAPS-2010, ICAPS-2011, ICAPS-2012, ICAPS-2014)
  - – IEEE/WIC/ACM Conference on Web Intelligence 2008.
  - – International Joint Conference on Artificial Intelligence 2009.
  - – International Conference on Automated Planning and Scheduling (ICAPS-2013, ICAPS-2014) Special Journal Track.
  - – Grace Hopper Conference, AI Track reviewer 2015.

- Member, Workshop Program Committee:
  - – The RoboCup 2002 International Symposium.
  - – Workshop on "MAS Problem Spaces and Their Implications to Achieving Globally Coherent Behavior" at the AAMAS-2002.
  - – Workshop on PDDL at International Conference on Automated Planning and Scheduling 2003
  - – Workshop on "Representations and Approaches for Time-Critical Decentralized Resource Allocation" at AAMAS 2003
  - – Workshop on "Challenges in the Coordination of Large Scale Multi-Agent Systems" at AAMAS 2004 and AAMAS 2005.
  - – *Int'l Conference on Automated Planing and Scheduling Doctoral Consortium* 2006, 2007
  - – Workshop on "Oversubscribed Planning & Scheduling" at ICAPS 2008.
  - – Stochastic Local Search 2009 and 2011 Workshop on Engineering Stochastic Local Search Algorithms
  - – Workshop on "Heuristics for Domain-Independent Planning" at ICAPS-2009, ICAPS-2011 and ICAPS-2013.
  - – "Third Workshop on Learning and Planning" at ICAPS-2011

- Member, Planning Competition Committee for Fourth International Conference on Artificial Intelligence Planning Systems (AIPS-98)

- Reviewer: National Science Foundation (1994-1998, 2002-2004, 2009-2010, 2014), Colorado Advanced Software Institute (1994-1998), AFOSR (1997, 2008, 2009), NASA (2000), University of California MICRO (2001, 2006), Grace Hopper Conference Travel Scholarships (2007-2009), National Information and Communications Technology Australia (2010).
- Journal referee: *ACM Transactions on Information Systems*; *ACM Transactions on Intelligent Systems and Technology*; *AI Communications*; *AI Magazine*; *Annals of Operations Research*; *Artificial Intelligence*; *Artificial Intelligence: Engineering, Design And Manufacturing*; *Autonomous Agents and Multi-Agent Systems Journal*; *Communications of the ACM*; *IEE Software*; *IEEE Computational Intelligence*; *IEEE Computer*; *IEEE Expert*; *IEEE Transactions on Knowledge and Data Engineering*; *IEEE Transactions on Reliability*; *IEEE Transactions on Software Engineering*; *IEEE Transactions on Systems, Man and Cybernetics*; *INFORMS Journal on Computing*; *Integrated Computer-Aided Engineering Journal*; *Intelligent Data Analysis Journal*; *Journal of Artificial Intelligence Research*; *Journal of Experimental and Theoretical Artificial Intelligence*; *Journal of Operations Research Society*; *Journal of Software Maintenance*; *Journal of Systems and Software*; *Logical Methods in Computer Science*; *Management Science*; *Mathematical and Computer Modelling*; *Software Testing, Verification and Reliability*; *SCS Transactions on Simulation*.
- Conference referee: *International Joint Conference on Artificial Intelligence*, 1991, 1993, 1995, 1999, 2003, 2005; *International Symposium on Software Reliability Engineering* 1993; *International Software Metrics Symposium* 1993; *Artificial Intelligence Planning Systems Conference* 1996, 1998; *International ACM SIGIR Conference on Research and Development in Information Retrieval* 1999, 2001, 2003.
- Book reviewer: Benjamin Cummings Publisher; Harcourt Brace Jovanovich Publishers; McGraw Hill.
- Miscellaneous Service
    - Member, Defense Science Board Summer Study on Autonomy, 2015
    - Member, Defense Science Board Task Force on Autonomy, 2010-2011
    - Participant, Colorado Academic Management Institute, Fall 2010
    - Dissertation Examiner for University of South Africa, Spring 2009
    - ADVANCE Eminent Scholar Mentor at University of Maryland Baltimore County, 2005-2007.
    - Member, Strategic Planning Board for USGS Biological Resources Division and Mountain Research Center, Greater Yellowstone Area, 1996-1997.
    - Script historian, National Science Foundation's Women and Science Conference, Computer Science segment, December 1995.
    - Invitee, NSF Workshop on *Expanding Opportunities for Women in Computer Science*, Colorado Springs, CO, October 1992.

Grants

- *Exploiting Elementary Landscapes for TSP, Vehicle Routing and Scheduling*, Co-PI with L.D. Whitley as PI, Air Force Office of Scientific Research FA9550-11-1-0088, $448,646, 6/11-5/15.

- *Web Mining and Repository Organization for Climate Change Information*, U.S. Geological Survey, 8/09-7/14, $119,004.

- *HCC-Medium: Intelligent Agents for Protecting Users in Cyberspace*, with Zinta Byrne and Indrajit Ray, National Science Foundation #0905232, 8/09-8/15, $977,776.

- *Travel Support for Doctoral Consortium at International Conference on Artificial Intelligence Planning and Scheduling 2009 (ICAPS09)*, National Science Foundation, $15,000, Fall 2009.

- *Landscape Analysis and Algorithm Development for Plateau Plagued Search Spaces*, with L. Darrell Whitley, Air Force Office of Scientific Research FA9550-08-1-0422, 8/08-11/10, $302,775.

- *Model Justified Search Algorithms for Scheduling Under Uncertainty*, with L. Darrell Whitley, Air Force Office of Scientific Research FA9550-07-1-0403, 4/07-5/08, $162,724.

- *Scheduling under Uncertainty: An Analysis of an Air Force Application*, with L. Darrell Whitley, Air Force Office of Scientific Research FA9550-06-1-0421, 6/06-11/06, $25,000.

- *Support for Doctoral Consortium at International Conference on Artificial Intelligence Planning and Scheduling 2005 (ICAPS05)*, DARPA/IPTO # HR0011-05-1-0034, $10,000, Summer 2005.

- *Travel Support for Doctoral Consortium at International Conference on Artificial Intelligence Planning and Scheduling 2005 (ICAPS05)*, National Science Foundation #0511705, $14,000, Summer 2005.

- *Advancing Air Force Scheduling through Modeling Problem Topologies*, with L. Darrell Whitley, Air Force Office of Scientific Research F49620-03-1-0233, 4/03-3/06, $405,000.

- *Modeling Domain Independent Planning to Advance Application*, National Science Foundation IIS-0138690, 8/15/02-7/31/05. $205,972.

- *Interactive Anticipatory Scheduling for Two Military Applications*, co-PI with L. Darrell Whitley. Air Force Office of Scientific Research F49620-00-1-0144, $345,000 for 1/1/00-12/31/02.

- *Adaptive Intelligent Methods for Distributed Learning and Data Mining*, L. Darrell Whitley, PI. TRW, Inc. $161,309 for 5/5/00-12/31/01.

- *Flexible Automated Software Test Generation Using AI Planning Technology*, Co-PI with Anneliese von Mayrhauser. National Science Foundation grant #CCR-9619787. $150,000 for 8/15/97-8/14/99.

- *Exploiting Problem Structure in Scheduling*, Co-PI with L. Darrell Whitley, Air Force Office of Scientific Research's New Vistas program F49620-97-1-0271, $390,408 for 4/1/97-12/31/99.

- *Evaluation as the Basis for AI Agent Design.* National Science Foundation, Career Award IRI-9624058, $209,494 for 8/96-8/00.

- *Evaluation Methods for Complex, Intelligent Information Driven Systems (CIIS).* Subcontractor to Sterling Software on ARPA grant F30602-95-0257. $93,576 for 9/95-9/97 (subcontractor portion).

- *Developing Reliable Plan Knowledge Bases.* National Science Foundation Research Initiation Award #RIA IRI-9308573. $96,056. 9/1/93 – 2/28/97.

- *Experimental Methods for Evaluating Planning Systems.* Subcontractor to University of Massachusetts on ARPA Grant #F30602-93-C-0100. $240,385 for 7/30/93 – 1/11/97 (subcontractor portion).

- *Multiprocessor and Sensor Hardware for Vision, Learning, Planning and Parallel Processing Research.* Co-PI with J.R. Beveridge, C.W. Anderson, A.P. Bohm, M.E. Goss, and L.D. Whitley. National Science Foundation CISE Instrumentation Grant #CDA-9422007. $59,144. 1/1/95 – 12/31/95.

Travel and Other Small Grants

- NSF REU supplement, $7,620, 2011.

- Colorado State University TILT program. Funding for summer students to develop course software for testing programs.

- CRA/NSF Mentor for Summer 2004. Funding for two undergraduates for summer research project.

- CRA/NSF Mentor for Summer 2001. Funding for two undergraduates for summer research project.

- CRA/NSF Mentor for Summer 1994. Funding for an undergraduate for summer research project.

- *Artificial Intelligence Planning Research Infrastructure.* Colorado State University Diversity Career Enhancement Proposal. $4,200. Spring 1993.

- Travel grant, Workshop on Academic Careers for Women in Computer Science, San Diego, CA, 5/93.

Publications

Journal Articles Under Review

1. Z. Byrne, K. Dvorak, J. Peters, D. Sanchez, I. Ray, A. Howe. "From the User's Perspective: Perceptions of Risk Relative to Benefit Associated with Using the Internet." *Computers in Human Behavior.*

Journal Articles

1. A. Sutton, L.D. Whitley and A. Howe. 2012. "Computing the moments of k-bounded pseudo-Boolean functions over Hamming spheres of arbitrary radius in polynomial time", *Theoretical Computer Science*, Vol. 425, pp. 58–74.

2. D. Hains, L. D. Whitley, A. E. Howe."Revisiting the Big Valley Search Space Structure in the TSP", in *Journal of Operations Research Society*, Vol. 62, pp. 305–312, September 2010.

3. M. Roberts and A.E. Howe. 2009. "Learning from Planner Performance," *Artificial Intelligence*, Vol. 173, Issues 5-6, pp. 536-561, April.

4. B.M. Kim, Q. Li, A.E. Howe and Y.P. Chen. 2008. "Collaborative Web Agent based on Friend Network", *Applied Artificial Intelligence*, Vol. 22, No. 3.

5. L. Barbulescu, A.E. Howe, L. Darrell Whitley, M. Roberts. 2006. "Algorithm Performance Factors for an Oversubscribed Scheduling Application", *Journal of Artificial Intelligence Research*, Vol. 27, December, pp. 577-615.

6. L. Barbulescu, A.E. Howe and L.D. Whitley. 2006. "AFSCN Scheduling: How the Problem and Solution Have Evolved", in *Mathematical and Computer Modelling*, Vol. 43, No. 9-10, pp. 1023-1037, May.

7. J.P. Watson, A.E. Howe and L.D. Whitley. 2006. "Deconstructing Nowicki and Smutnicki's *i*-TSAB Tabu Search Algorithm for the Job-Shop Scheduling Problem", in *Computers and Operations Research*, Vol. 33, No. 9, pp. 2623-2644, September.

8. J.P. Watson, L.D. Whitley, and A.E. Howe. 2005. "Linking Search Space Structure, Run-Time Dynamics and Problem Difficulty: A Step Toward Demystifying Tabu Search", in *Journal of Artificial Intelligence Research*, Volume 24, pp. 221-261, August.

9. L. Barbulescu, J.P. Watson, L.D. Whitley, A.E. Howe. 2004. "Scheduling Space-Ground Communications for the Air Force Satellite Control Network", *Journal of Scheduling*, Vol. 7, Issue 1, pp. 7-34, January.

10. J.P. Watson, J.C. Beck, A.E. Howe, L.D. Whitley. 2003. "Problem Difficulty for Tabu Search in Job-Shop Scheduling", In *Artificial Intelligence*, Vol. 143, No. 2, pp. 189-217, February.

11. A.K. Amschler Andrews , C. Zhu, M. Scheetz, E. Dahlman, A. Howe. 2002. "AI Planner Assisted Test Generation", In *Software Quality Journal*, Vol. 10, No. 3, pp. 225-259, November.

12. R.S. Sojda, D. Dean, D.B. Hamilton, and A.E. Howe. 2002. "Development of an expert system for assessing trumpeter swan breeding habitat in the Northern Rocky Mountains", In *Waterbirds*, 25, Special Edition 1.

13. A.E. Howe and E. Dahlman. 2002. "A Critical Assessment of Benchmark Comparison in Planning", In *Journal of Artificial Intelligence Research*, Vol. 17, pp. 1-33, July.

14. J.P. Watson, L. Barbulescu, L.D. Whitley, A.E. Howe. 2002 "Contrasting Structured and Random Permutation Flow-Shop Scheduling Problems: Search Space Topology and Algorithm Performance", In *INFORMS Journal on Computing*, Vol. 14, No. 1, Spring.

15. L.D. Pyeatt and A.E. Howe. 2000. "Evaluating Robustness in a Two Layer Simulated Robot Architecture", In *Journal of Experimental and Theoretical Artificial Intelligence*, Vol. 12, No. 2, pp. 213–234.

16. J. P. Watson, S. Rana, L. D. Whitley and A. E. Howe. 1999. "The Impact of Approximate Evaluation on the Performance of Search Algorithms for Warehouse Scheduling", In *Journal of Scheduling*, Vol. 2, pp. 79-98.

17. A. von Mayrhauser, A.M. Vans, and A.E. Howe. 1997. "Program Understanding Behavior During Enhancement of Large-Scale Software". In *Journal of Software Maintenance*, Vol. 9, pp. 299-327.

18. D. Dreilinger and A.E. Howe. 1997. "Experiences with Selecting Search Engines using Meta-Search". In *ACM Transactions on Information Systems*, Vol. 15, No. 3, pp. 195–222.

19. S. Rana, A.E. Howe, L.D. Whitley, K. Mathias. 1997. "A Genetic Algorithm Scheduler: Assessing the Contribution of Search, Heuristics and the Objective Function". In *Engineering Design and Automation Journal*, Vol. 3, No. 2, pp. 107-118.

20. A.E. Howe, A. von Mayrhauser, R.T. Mraz. 1997. "Test Case Generation as an AI Planning Problem". In *Automated Software Engineering*, Vol.4, No.1, pp. 77-106.

21. A.E. Howe and P.R. Cohen. 1995. Understanding Planner Behavior. In *Artificial Intelligence*, Special Issue on Planning. Vol. 76, No. 1-2, pp. 125–166.

22. A.E. Howe. 1995. Improving the Reliability of AI Planning Systems by Analyzing their Failure Recovery. In *IEEE Transactions on Knowledge and Data Engineering*, Special Issue on Dependability of AI Systems. Vol. 7, No. 1, pp. 14-25.

23. A.E. Howe, D.M. Hart, and P.R. Cohen. 1990. Addressing Real-Time Constraints in the Design of Autonomous Agents. In *Real-Time Systems Journal*. Vol. 2, No. 1/2, pp. 81-97.

24. A.E. Howe and P.R. Cohen. 1990. Steps Toward Automating Decision Making. In *Information and Decision Technologies*. Vol. 16, pp. 161-182.

25. P.R. Cohen and A.E. Howe. 1989. Toward AI Research Methodology: Three Case Studies in Evaluation. In *IEEE Transactions in Systems, Man and Cybernetics*. Vol. 19, No. 3. pp. 634-646.

26. J.R. Dixon, A.E. Howe, P.R. Cohen, and M.K. Simmons. 1987. DOMINIC I: Progress Towards Domain Independence in Design by Iterative Redesign. In *Engineering with Computers*, Vol. 2, No. 3, September.

27. A.E. Howe, P.R. Cohen, J.R. Dixon, and M.K. Simmons. 1986. DOMINIC: A Domain-Independent Program for Mechanical Engineering Design. In *International Journal for Artificial Intelligence in Engineering*, Vol. 1, No. 1, pp. 23-28. Also, Reprinted in *Expert Systems in Engineering*, D.T. Pham (Ed.), Springer-Verlag, NY 1988.

Refereed Magazine Articles

1. A.E. Howe and D. Dreilinger. 1997. "SavvySearch: A Meta-Search Engine that Learns Which Search Engines to Query". In *AI Magazine*, Vol. 18, No. 2, pp. 19–25.

2. P.R. Cohen, M.L. Greenberg, D.M. Hart and A.E. Howe. 1989. Trial by Fire: Understanding the Design Requirements for Agents in Complex Environments. *AI Magazine*. Vol. 10, No. 3, pp. 34-48. Reprinted in *Nikkei Artificial Intelligence,* Nikkei Business Publications, Inc., pp. 102-119. 1990.

3. P.R. Cohen and A.E. Howe. 1988. How Evaluation Guides AI Research. In *AI Magazine*, Winter, 1988. Vol. 9, No. 4, pp. 35-43. Also, Reprinted in *A Sourcebook of Applied Artificial Intelligence*, Gerald Hopple and Stephen Andriole (Eds.) TAB Books, Inc. 1990.

Refereed Conference Proceedings

1. S. Mukherjee, S. Weerawardhana, C. Dunn, I. Ray and A. Howe. "PsychoRithm: A Framework for Studying How Human Traits Affect User Response to Security Situations", Poster paper in *proc. of 22nd ACM Conference on Computer and Communications Security*, October 2015.

2. S. Weerawardhana, S. Mukherjee, I. Ray, and A. Howe "Automated Extraction of Vulnerability Information for Home Computer Security", In *Proceedings of The 7th International Symposium on Foundations & Practice of Security FPS2014*, Montreal, CA, November 2014.

3. R. Tinos, D. Whitley, A. Howe. "Use of Explicit Memory in the Dynamic Traveling Salesman Problem", In *Proceedings of GECCO 2014*, Vancouver, Canada, July 2014.

4. M. Roberts, A. Howe, I. Ray. "Evaluating Diversity for Classical Planning", In *Proceedings of International Conference on Automated Planning and Scheduling (ICAPS-2014)*, Portsmouth, NH, USA, June 2014.

5. D. Hains, D. Whitley, A. Howe, W. Chen, "Hyperplane Initialized Local Search for MAXSAT", in *Proceedings of Genetic and Evolutionary Computation Conference*, July 2013.

6. W. Chen, D. Whitley, D. Hains, A. Howe, "Second Order Partial Derivatives for NK-landscapes", in *Proceedings of Genetic and Evolutionary Computation Conference*, July 2013.

7. D. Whitley, A. Howe, D. Hains, "Greedy or Not? Best Improving versus First Improving Stochastic Local Search for MAXSAT", in *Proceedings of the Twenty-Seventh AAAI Conference on Artificial Intelligence*, July 2013.

8. M. Urbanska, M. Roberts, I. Ray, A. Howe and Z. Byrne, "Accepting the Inevitable: Factoring the User into Home Computer Security", short paper in *Proceedings of Third ACM Conference on Data and Application Security and Privacy (CODASPY)*, February 2013.

9. L.D. Whitley, W. Chen, A.E. Howe, "An Empirical Evaluation of O(1) Steepest Descent for NK-Landscapes", in *Proceedings of Parallel Problem Solving from Nature (PPSN 2012)*, Taormina, Italy, September 1-5, 2012.

10. D. Hains, L.D. Whitley and A.E. Howe, "Improving Lin-Kernighan-Helsgaun with Crossover on Clustered Instances of the TSP", in *Proceedings of Parallel Problem Solving from Nature (PPSN 2012)*, Taormina, Italy, September 1-5, 2012.

11. Z. Byrne, J. Weidert, J. Liff, M. Horvath, C. Smith, A. Howe and I. Ray, "Perceptions of Internet Threats: Behavioral Intent to Click Again", In *Proceedings of the 27th Society for Industrial and Organizational Psychology Conference*, April 2012.

12. A. Howe, I. Ray, M. Roberts, M. Urbanska, Z. Byrne. "The Psychology of Security for the Home Computer User", In *Proceedings of the 2012 IEEE Symposium on Security and Privacy*, pp. 209-223, May 2012.

13. A. Sutton, L.D. Whitley and A.E. Howe, "Mutation Rates of the (1+1)-EA on Bounded Pseudo-Boolean Functions", In *Proceedings of the 13th annual Conference on Genetic and Evolutionary Computation (GECCO'11)*, Dublin, Ireland, July 2011.

14. Z. Byrne, J. Liff, J. Weidert, C. Smith, A. Howe and I. Ray, "Start-up Effects in Policy-Capturing: Stabilizing Regression Coefficients After Warm-up", In *Proceedings of the Society for Industrial and Organizational Psychology Conference*, April 2011.

15. A. Sutton, L.D. Whitley and A.E. Howe, "Approximating the Distribution of Fitness over Hamming Regions", In *Proceedings of Foundations of Genetic Algorithms XI (FOGA 2011)*, Schwarzenberg, Austria, January 2011.

16. L.D. Whitley, D. Hains and A. Howe, "A Hybrid Genetic Algorithm for the Traveling Salesman Problem using Generalized Partition Crossover", *Proceedings of Parallel Problem Solving from Nature XI*, September 2010.

17. A. M. Sutton, A. E. Howe, and L. D. Whitley. "Directed Plateau Search for MAX-k-SAT." In *Proceedings of the Third Annual Symposium on Combinatorial Search*, Atlanta, GA, July 2010.

18. C. Redman and A. Howe. "Evaluating Multi-Agent Traffic Controllers", In *Proceedings of FLAIRS-2010 Conference*, May 2010.

19. A.M. Sutton, L.D. Whitley and A.E. Howe, "A polynomial time computation of the exact correlation structure of k-satisfiability landscapes", In *Proceedings of Genetic and Evolutionary Computation Conference (GECCO 2009)*, Montreal, Canada, July 2009.

20. L.D. Whitley, D. Hains and A.E. Howe, "Tunneling Between Optima: Partition Crossover for the TSP", in *Proceedings of Genetic and Evolutionary Computation Conference (GECCO 2009)*, Montreal, Canada, July 2009.

21. A.E. Howe and R.D. Forbes, "Re-Considering Neighborhood-Based Collaborative Filtering Parameters in the Context of New Data", poster paper in *ACM Conference on Information and Knowledge Management 2008*, Napa, CA, October.

22. M. Roberts, A.E. Howe, M. desJardins and B. Wilson, "What Makes Planners Predictable?", In *Proc. of the International Conference on Artificial Intelligence Planning and Scheduling Systems*, Sydney, Australia, September 2008.

23. L.D. Whitley, A.M. Sutton and A.E. Howe. "Understanding Elementary Landscapes", In *Proc. of the Genetic and Evolutionary Computation Conference (GECCO-08)*, Atlanta, GA, July 2008.

24. A. Sutton, A.E. Howe and L.D. Whitley. "Using Adaptive Priority Weighting to Direct Search in Probabilistic Scheduling", in *Proc. of International Conference on Automated Planning and Scheduling 2007*, Providence, RI.

25. D.S. Bolme, J.R. Beveridge and A. Howe. "Person Identification using Text and Image Data", in *Proceedings of the First Conference on Biometrics: Theory, Applications and Systems*, Washington, D.C., September 2007.

26. Y.M. Lui, J.R. Beveridge, A.E. Howe and L.D. Whitley. "Evolution Stategies for Matching Active Appearance Models to Human Faces", in *Proceedings of the First Conference on Biometrics: Theory, Applications and Systems*, Washington, D.C., September 2007. *Honorable Mention Best Student Paper*

27. A. Sutton, D. Whitley, M. Lunacke and A. Howe. 2006. "PSO and Multi-Funnel Landscapes: How Cooperations Might Limit Exploration", *Proc. of Genetic and Evolutionary Computation Conference*, July, pp. 75-81. (Nominated for a Best Paper Award).

28. M. Rogers, A.E. Howe, and L.D. Whitley."Looking for Shortcuts: Infeasible Search Analysis for Oversubscribed Scheduling Problems", in *Proceedings of ICAPS 2006*, June, pp. 314-323.

29. A. Sutton, L.D. Whitley and A.E. Howe. 2006. "Spacetrack: Trading off Quality and Utilization in Oversubscribed Schedules", in *Proceedings of ICAPS 2006 short paper*, June, pp. 430-433.

30. B.M. Kim, W. Li and A.E. Howe. "A Decentralized CF Approach Based on Cooperative Agents", abstract in *poster Proceedings of WWW 2006*, Edinburgh, Scotland, 2006.

31. E.S. Boese and A.E. Howe. "Effects of Web Document Evolution on Genre Classification," in *Proceedings of ACM Fourteenth Conference on Information and Knowledge Management*, pp. 632-639, Bremen, Germany, October 2005.

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2. M. Urbanska, I. Ray, A.E. Howe, and M. Roberts, "Structuring a Vulnerability Description for Comprehensive Single System Security Analysis", In *Rocky Mountain Celebration of Women in Computing Working Notes*, November 2012.

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5. C. Redman and A.E. Howe, "A Web Search Assistant for Finding Climate Change Information", in *Proceedings of CCWIC 2010*, November 4-5, 2010, Golden Colorado.

6. D. Hains, A. Howe and D. Whitley, "Smoothing Funnels in the TSP with Genetic Algorithms", in *Proceedings of CCWIC 2010*, November 4-5, 2010, Golden Colorado.

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9. M. Roberts and A.E. Howe. "Local Search Topology: Implications for Planner Performance", in *Working Notes of ICAPS2007 Workshop on Heuristics for Domain-independent Planning: Progress, Ideas, Limitations, Challenges*, Providence, RI, September 2007.

10. M. Roberts and A.E. Howe. "Learned Models of Performance for Many Planners", in *Working Notes of ICAPS2007 Workshop on Artificial Intelligence Planning and Learning*, Providence, RI, September 2007.

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15. A.E. Howe, L.D. Whitley, L. Barbulescu, J.P. Watson. Mixed Initiative Scheduling for the Air Force Satellite Control Network, *Second International NASA Workshop on Planning and Scheduling for Space*, March 2000.

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20. A.E. Howe and E. Dahlman. Structural Analysis of POP Domains. In *Working Notes of AIPS Workshop on Planning as Combinatorial Search: Propositional, Graph-Based, and Disjunctive Planning Methods*, Pittsburgh, PA, June 1998.

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8. S. Parsons and A. Howe. Special Issue: Perspectives on Intelligent Agents Research ... One Year Later. *Knowledge Engineering Review*, Vol. 14, No. 2, pp. 105-107, 1999.

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10. A. Howe. "Evaluating Robot Planning Systems: Some Issues and Successes", in *IJCAI-99 Workshop on Robot Action Planning*, Stockholm, Sweden, July 1999.

11. A. Howe and S. Parsons. Special Issue: Perspectives on Recent Intelligent Agents Research as Viewed through Two Conferences. *Knowledge Engineering Review*, Vol. 13, No. 2, pp. 129-130, June 1998.

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15. D. Dreilinger and A.E. Howe. An Information Gathering Agent for Querying Web Search Engines. Colorado State University, Computer Science Dept. TR 96-111. April 1996.

16. A. Borg, A. Howe, and M.J. Irwin. Women's Science Contributions Celebrated. In *Computing Research News*, Vol. 8, No. 2, March 1996.

17. A.E. Howe. 1995 Spring Symposia Report: Integrated Planning Applications. In *AI Magazine*, Vol. 16, No. 3, Fall 1995.

18. R. Srinivasan and A.E. Howe. New Methods for Plan Selection and Refinement in a Partial-Order Planner. Colorado State University, Computer Science Dept. Technical Report CS-95-103. July 1995.

19. R.S. Sojda, D. J. Dean, and A.E. Howe. Development of a Decision Support System for Wetland Management on National Wildlife Refuges. In *AI Applications*, 8(2):44-50, 1994.

20. A.E. Howe. Pipeline Issues and Visibility of Women in CS: Increasing the Number of Role Models. Invited paper for *NSF Workshop on Improving the Status of Women in Computing Sciences*, October 1992, Colorado Springs, CO.

21. P.R. Cohen and A.E. Howe. Benchmarks Are Not Enough; Evaluation Metrics Depend on the Hypothesis. In *Collected Notes from on Benchmarks and Metrics Workshop*, NASA Ames, June 25, 1990.

22. P.R. Cohen, A.E. Howe, and D.M. Hart. Intelligent Real-Time Problem Solving: Issues and Examples. In *Intelligent Real-Time Problem Solving (IRTPS): Workshop Report*, L.D. Erman (Ed.) December, 1989.

23. A.E. Howe. 1987. A Constructive Approach to Decision Making. Unpublished Master's project.

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25. A.E. Howe. Learning to Design Mechanical Engineering Problems. *EKSL Working Paper 86-01*, University of Massachusetts. January, 1986.

26. A.E. Howe. HOW? A Customizable, Associative Network Based Help Facility, *CIS Technical Report MS-CIS-83-14*, University of Pennsylvania. July, 1983.

Teaching, Advising and University Service

Courses Taught

- Freshman Seminar (CS192, undergraduate)

- Foundations in Programming (CS160, undergraduate)

- Data Structures and Algorithms (CS200, undergraduate)

- Programming Languages (CS253, undergraduate)

- Foundations of Computer Science (CS301, undergraduate)

- Introduction to Artificial Intelligence (CS440, undergraduate)

- Artificial Intelligence (CS540, graduate)

- Empirical Methods in Computer Science (CS580, experimental graduate course)

- Building Web-based Information Systems (CS580, experimental graduate course)

- Topics in Artificial Intelligence (CS640/641, graduate)

- Multimedia Information Retrieval (CS696V, experimental graduate course)

Graduate Advisees

Keith Freedman, M.S. Fall 1994, Thesis: "A System for Ground-Based Radar Placement with Airborne Radar Flight Track Generation"

Raghavan Srinivasan, M.S. Fall 1995, Thesis: "Improving the Search Efficiency of a Partial Order Planner"

Daniel Dreilinger, M.S. Summer 1996, Thesis: "Description and Evaluation of a Meta-Search Agent"

Thomas Thorpe, M.S. Spring 1997 (with C. Anderson), Project: "Vehicle Traffic Light Control Using SARSA"

Gabriel Somlo, M.S. Fall 1997, Thesis: "State Transition Dependency Detection"

Larry D. Pyeatt, Ph.D. Summer 1999, Dissertation: "Integration of POMDP Planning and Reinforcement Learning for a Simulated Robotic Environment"

Jean-Paul Watson, M.S. Fall 1999 (with D. Whitley). Thesis: "The Impact of Approximate Evaluation on the Performance of Search Algorithms for Warehouse Scheduling"

Laura Barbulescu, M.S. Fall 1999 (with D. Whitley). Thesis: "Lower Bound Computation for Structured Flowshop Scheduling",

Ming Bao, M.S. Fall 2003: Project: "Tabletop Robot"

Jean-Paul Watson, Ph.D. Fall 2003 (with D. Whitley). Thesis: "Empirical Modeling and Analysis of Local Search Algorithms for the Job-Shop Scheduling Problem"

Elizabeth Boese, M.S. Spring 2005. Thesis: "Stereotyping The Web: Genre Classification of Web Documents"

Laura Barbulescu, Ph.D. Fall 2005 (with D. Whitley). Thesis: "Analysis of Algorithm Performance for an Oversubscribed Scheduling Problem"

Gabriel Somlo, Ph.D. Fall 2005. Thesis: "Agents for Personalized Client-Side Information Gathering From the Web"

Mark Roberts, M.S. Fall 2005. Thesis: "Modeling Choices in Two Oversubscribed Scheduling Problems"

Mark Rogers, M.S. Fall 2006. Thesis: "Infeasible Search in Oversubscribed Satellite Scheduling"

Andrew Sutton, M.S. Fall 2006. Thesis: "A Two-Phase Dynamic Local Search Algorithm for Maximizing Expected Success in On-Line Orbit Track Scheduling"

Landon Flom, M.S. Spring 2008. Thesis: "Comparison of the Behavior and Performance of Supervised and Unsupervised Tree-Like Hybrid Models"

Ryan Forbes, M.S. Summer 2008. Thesis: "An Evaluation of Collaborative Filtering Baseline Parameterization on Multiple Data Sets"

Crystal Redman, M.S. Spring 2009. Thesis: "Performance Trade-Offs in Multi-Agent Urban Traffic Control"

Andrew Sutton, Ph.D. Spring 2011 (with D. Whitley). Thesis: "An Analysis of Combinatorial Search Spaces for a Class of NP-hard Problems"

Michael Barber, M.S. Spring 2012. Thesis: "Classification Ensemble Methods for Mitigating Concept Drift with Online Data Streams"

Doug Hains, Ph.D. Fall 2013 (with D. Whitley). Thesis: "Structure in Combinatorial Optimization and its Effect on Heuristic Performance"

Wenxiang Chen, M.S. Fall 2013 (with D. Whitley). Thesis: "A Step Toward Constant Time Local Search For Optimizing Pseudo Boolean Functions"

Mark Roberts, Ph.D. Fall 2013 (with I. Ray). Thesis: "A Tale of 'T' Metrics: Choosing Tradeoffs in Multiobjective Planning"

Malgorzata Urbanska, M.S. Spring 2014 (with I. Ray). Thesis: "Automated Security Analysis of the Home Computer"