

J. Benton

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Education

Ph.D. Computer Science, Arizona State University, 2012 (Expected).

M.S. Computer Science, Arizona State University, August 2005.

B.S. Computer Science, Arizona State University, May 2001.

Research Experience

Research Assistant 2005–Present
advised by Subbarao Kambhampati Arizona State University
Working on finding high-quality solutions for over-subscribed planning problems where limited resources are available to solve for all goals. Also working on grant-funded projects on automated planning in real-world rescue scenarios. Providing supplemental teaching assistance for graduate-level course on automated planning.

Visiting Researcher September 2010
working with Patrick Eyerich and Robert Mattmüller University of Freiburg; Freiburg, Germany
Worked on improving temporal planning with time-based reward. Collaboration led to a workshop paper and is still on-going.

Visiting Researcher August 2006–August 2008
supervised by Minh Do and Wheeler Ruml Palo Alto Research Center (PARC)
Working on a domain-independent on-line planning simulator that simulates the arrival of goals during the planning and execution process; connecting the simulator to planners for testing planning techniques in such conditions. Collaboration is on-going and led to a pending patent (application 12/748,686, “AI Planning-Based Quasi-Monte Carlo Simulation Method for Probabilistic Planning”).

Intern Summer 2006
supervised by Minh Do and Wheeler Ruml Palo Alto Research Center (PARC)
Produced on-line planning simulator for a manufacturing domain where goals arrive during the planning and execution process.

Teaching Experience

Auxiliary Teaching Assistant, **Automated Planning & Learning**, Arizona State University, Spring 2008, Fall 2004.

Other Employment

Salt River Pima-Maricopa Indian Community Scottsdale, Arizona
Programmer II 1999–2005
Developed web-based software for tracking government oversight of land management, tribal enrollment, economic development, sales tax collection, and other operations.

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Journal Articles

Kartik Talamadupula, J. Benton, Subbarao Kambhampati, Paul Schermerhorn, Matthias Scheutz; **Planning for Human-Robot Teaming in Open Worlds**; *ACM Transactions on Intelligent Systems and Technology* (TIST), 1 (2): 14:1-14:2, November 2010.

J. Benton, Minh Do, Subbarao Kambhampati; **Anytime Heuristic Search for Partial Satisfaction Planning**; *Artificial Intelligence* (AIJ), 173 (5-6):562-592, April 2009.

Refereed Conferences and Symposia

J. Benton, Amanda Coles, Andrew Coles; **Temporal Planning with Preferences and Time-Dependent Continuous Costs**; *In the Proceedings of the International Conference on Automated Planning* (ICAPS), 2012. **Winner of Best Student Paper Award**

Ethan Burns, J. Benton, Wheeler Ruml, Minh Do, Sungwook Yoon; **Anticipatory On-line Planning**; *In the Proceedings of the International Conference on Automated Planning* (ICAPS), 2012

Rehj Cantrell, Kartik Talamadupula, Paul Schermerhorn, J. Benton, Subbarao Kambhampati, Matthias Scheutz; **Tell Me When and Why To Do It!: Run-time Planner Model Updates via Natural Language Instruction**; *ACM/IEEE International Conference on Human Robot Interaction* (HRI), 2012.

J. Benton, Kartik Talamadupula, Patrick Eyerich, Robert Mattmüller, Subbarao Kambhampati; **G-value Plateaus: A Challenge for Planning**; *In the Proceedings of the International Conference on Automated Planning* (ICAPS), 2010.

William Cushing, J. Benton, Subbarao Kambhampati; **Cost-based Search Considered Harmful**; *Symposium on Combinatorial Search* (SoCS), 2010.

Kartik Talamadupula, J. Benton, Paul Schermerhorn, Matthias Scheutz, Subbarao Kambhampati; **Integrating a Closed World Planner with an Open World Robot: A Case Study**; *In the Proceedings of the Conference on Artificial Intelligence, Integrated Intelligence Track* (AAAI-II), 2010.

Paul Schermerhorn, J. Benton, Matthias Scheutz, Kartik Talamadupula, Subbarao Kambhampati; **Finding and Exploiting Goal Opportunities in Real-time during Plan Execution**; *In the Proceedings of the International Conference on Intelligent Robots and Systems* (IROS), 2009.

Sungwook Yoon, J. Benton, Subbarao Kambhampati; **An On-line Learning Method for Improving Over-subscription Planning**; *In the Proceedings of the International Conference on Automated Planning* (ICAPS), 2008.

Menkes van den Briel, J. Benton, Subbarao Kambhampati, Thomas Vossen; **An LP-Based Heuristic for Optimal Planning**; *In the Proceedings of the International Conference on Principles and Practice of Constraint Programming* (CP), 2007.

J. Benton, Menkes van den Briel, Subbarao Kambhampati; **A Hybrid Linear Programming and Relaxed Plan Heuristic for Partial Satisfaction Planning Problems**; *In the Proceedings of the International Conference on Automated Planning and Scheduling* (ICAPS), 2007.

Minh Do, J. Benton, Menkes van den Briel, Subbarao Kambhampati; **Planning with Goal Utility Dependencies**; *In the Proceedings of the International Joint Conference on AI* (IJCAI), 2007.

J. Benton, Minh Do, Subbarao Kambhampati; **Over-subscription Planning with Numeric Goals**; *In the Proceedings of the International Conference on AI* (IJCAI), 2005.

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Workshops and Unarchived Symposia

J. Benton, Patrick Eyerich, Subbarao Kambhampati; **Enhancing Search for Satisficing Temporal Planning with Objective-driven Decisions**; *Workshop on Heuristics for Domain-independent Planning* (HDIP), 2011

William Cushing, J. Benton, Subbarao Kambhampati; **Cost-based Satisficing Search Considered Harmful**; *Workshop on Heuristics for Domain-independent Planning* (HDIP), 2011

Kartik Talamadupula, Subbarao Kambhampati, Paul Schermerhorn, J. Benton, Matthias Scheutz; **Planning for Human-Robot Teaming**; *Scheduling and Planning Applications Workshop* (SPARK), 2011

Sofia Lemons, J. Benton, Wheeler Ruml, Minh Do, Sungwook Yoon; **Continual On-Line Planning as Decision-Theoretic Incremental Search**; *The AAAI Spring Symposium on Embedded Reasoning: Intelligence in Embedded Systems*, 2010.

Kartik Talamadupula, J. Benton, Paul Schermerhorn, Subbarao Kambhampati, Matthias Scheutz; **Integrating a Closed World Planner with an Open World Robot: A Case Study**; *Workshop on Bridging the Gap Between Action and Motion Planning*, 2009.

Sophia Kelly, J. Benton, Lorie Sinclair; **Refining the Phoenix Basin Sand Petrofacies Model for Identification Using a Binocular Microscope**; *Conference of the Arizona Archaeological Council*, Fall 2009.

Allen Hubbe, Wheeler Ruml, Sungwook Yoon, J. Benton, Minh Do; **On-line Anticipatory Planning**; *Workshop on A Reality Check for Planning and Scheduling Under Uncertainty*, 2008.

J. Benton, Menkes van den Briel, Subbarao Kambhampati; **Finding Admissible Bounds for Over-subscription Planning Problems**; *Workshop on Heuristics for Domain Independent Planning: Progress, Ideas, Limitations and Challenges*, 2007.

J. Benton, Minh B. Do, Wheeler Ruml; **A Simple Testbed for On-line Planning**; *Workshop on Moving Planning and Scheduling Systems into the Real World*, 2007.

Minh Do, J. Benton, Subbarao Kambhampati; **Planning with Goal Utility Dependencies**; *Workshop on Preferences and Soft Constraints in Planning*, 2006.

Systems

Planning for Agents with Changing Goals; Kartik Talamadupula, Paul Schermerhorn, J. Benton, Subbarao Kambhampati, Matthias Scheutz; *International Conference on Automated Planning and Scheduling* (ICAPS), 2011; **Placed 3rd for “Best Demo”**

Yochan^{PS}; J. Benton, Minh Do, Subbarao Kambhampati; Winner of a “distinguished performance” award in the 5th *International Planning Competition*, 2006.

An Agent-Based Model of Dual-Processual Theory; M. Thompson, J. Benton; *Systems Demo at the Conference for Archaeological Sciences of the Americas*, 2006.

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Other Publications

J. Benton; **Partial Satisfaction Planning: Representations and Solving Methods**; *International Conference on Automated Planning and Scheduling (ICAPS) Doctoral Consortium*, 2011.

J. Benton, Kartik Talamadupula, Subbarao Kambhampati; **A Heuristic for Soft Deadline Goals**; *International Conference on Automated Planning and Scheduling (ICAPS) Doctoral Consortium*, 2008.

J. Benton, Menkes van den Briel, Subbarao Kambhampati; **A Hybrid Linear Programming and Relaxed Plan Heuristic for Partial Satisfaction Planning Problems**; *International Conference on Automated Planning and Scheduling (ICAPS) Doctoral Consortium*, 2007.

J. Benton; **Solving Goal Utility Dependencies and Simple Preferences in Partial Satisfaction Planning**; *International Conference on Automated Planning and Scheduling (ICAPS) Doctoral Consortium*, 2006.

M. Thompson, J. Benton; **An Agent-Based Model of Dual-Processual Theory**; Poster session on Archaeological Theory and Method. *The 72nd Annual Meeting of the Society for American Archaeology*, 2007.

J. Benton, Subbarao Kambhampati, Minh Do; **YochanPS: PDDL3 Simple Preferences as Partial Satisfaction Planning**; *5th International Planning Competition booklet*, 2006.

J. Benton; **Java Annotations and apt**; *Dr. Dobb's Journal*; July 2005.

Invited Presentations & Service

M. Thompson, J. Benton; **An Agent-Based Model of Dual-Processual Theory**; *Society for American Archaeology 73rd Annual (SAA) Meeting; Symposium on Connected Pasts: Current Network Approaches in Archaeology*, (presented by *M. Thompson*) March 2008.

J. Benton, Minh Do, Wheeler Ruml; **The Manufacturing Plant Domain**; *International Conference on Automated Planning and Scheduling (ICAPS); International Competition on Knowledge Engineering for Planning and Scheduling (ICKEPS)*, (presented by *Wheeler Ruml*) Sept. 2007.

J. Benton, Minh Do, Subbarao Kambhampati; **Planning with Goal Utility Dependencies**; *NASA Ames Research Center*, (presented by *J. Benton*) August 2006.

Program Committee: International Conference on Automated Planning and Scheduling (ICAPS) 2012, ICAPS 2011, National Conference on Artificial Intelligence (AAAI) 2011, AAAI 2008

Reviewer: Artificial Intelligence Journal (AIJ), Journal of Scheduling (JOSH), ACM Transactions on Intelligent Systems and Technology (TIST).

Auxiliary Reviewer: ICAPS 2009, ICAPS 2008, ICAPS 2007, International Joint Conference on Artificial Intelligence (IJCAI) 2007, ICAPS 2006, AAAI 2005.

J. Benton, Minh Do, Wheeler Ruml; *International Competition for Knowledge Engineering in Planning and Scheduling (ICKEPS)*; April 2007. Provided a planning domain simulator.

Honors and Awards

International Conference of Automated Planning and Scheduling Best Student Paper Award, 2012.

International Conference of Automated Planning and Scheduling 3rd Place for Best Demo, 2011.

Achievement Rewards for College Scientists (ARCS) Foundation Fellowship, 2009-2010.

Distinguished Performance Award at the 5th International Planning Competition, 2006.