Scott C. Proper
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Objective

- To contribute to the computer science community via research in artificial intelligence. Specifically, I plan to finish my PhD and go on to a career in research, continuing work in reinforcement learning. I am currently seeking a post-doc position or an industry research position.

Education

- B.S. in Computer Science. Montana State University, Bozeman

- PhD in Computer Science Oregon State University
  Expected graduation date: Fall 2009

Computer related skills

- Programming languages: C/C++, BASIC, Lisp, Assembly, Perl, SQL
- Platforms: Linux, Windows, UNIX
- Web Skills and languages: HTML, Java, CGI

Relevant coursework

- Software Engineering, Programming Language Design
- Theory of Computation, Operating Systems, Compilers
- Computer Architecture, Computer Networks
- Computer Graphics, Image Processing, Databases
- Artificial Intelligence, Reinforcement Learning, Cybernetics
- Algorithms and Data Structures, Bayesian Networks, Graph Theory

Work History

- **Webmaster**, *Jet Propulsion Laboratories*, May 1999-December 1999. Primary designer of a web page for engineers, served across the JPL intranet.

- **Programmer**, *Dyonjet Research*, 2001 Primary programmer of numerous in-house utilities. Designed GUI software for release to the public.

- **Research Assistant**, *Oregon State University*, 2002-Present Current work includes research on scaling reinforcement learning, particularly in multiagent domains.

Research Contributions

- Developed several techniques to mitigate the "three curses of dimensionality" (explosions in state, action, and stochastic branching factor) of reinforcement learning problems, including a new kind of function approximation that generalizes both tables and linear functions -- "Tabular Linear Functions" -- and the creation of a new average-reward model-based value iteration algorithm based on afterstates, "ASH-learning".
- Developed a new technique -- "Assignment-based Decomposition" -- for decomposing states and actions in multi-agent, multi-task domains that greatly mitigates the three curses of dimensionality by dividing the action-selection step of a reinforcement learning algorithm into two stages: an upper assignment level and a lower task performance level.
- Further developed and expanded upon assignment-based decomposition by showing how to integrate coordination graphs into the lower task performance level, how to use it together with transfer learning to enable multi-agent domains to scale to large numbers of agents, and how to use search techniques to quickly assign agents to appropriate tasks.

Publications

- Proper, S., Tadepalli, P., Tang, H., Logendran, R., **A Reinforcement Learning Approach for Product Delivery by Multiple Vehicles,**
  for *IIE/IERC 2003: Institute of Industrial Engineers/Industrial Engineering Research Conference.*

- Proper, S., Tadepalli, P., **Scaling Average-reward Reinforcement Learning for Product Delivery,**
  for *AAAI Real Life Reinforcement Learning Fall Symposium 2004*.

- Proper, S., Tadepalli, P., **Scaling Model-Based Average-reward Reinforcement Learning for Product Delivery,**
  in *ECML 2006: Proceedings of the 17th European Conference on Machine Learning*, p 735-742.

- Proper, S., Tadepalli, P., **Solving Multiagent Assignment Markov Decision Processes,**
  in *AAMAS 2009: Proceedings of the 8th International Joint Conference on Autonomous Agents and Multiagent Systems.*, p 681-688

- Proper, S., Tadepalli, P., **Transfer Learning via Relational Templates,**
  in *ILP 2009: Proceedings of the 19th International Joint Conference on Inductive Logic Programming.* (to appear)