

Patrick D. Ulam

CONTACT INFORMATION

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EDUCATION

Georgia Institute of Technology, Atlanta, Ga

MS Computer Science 2009

- Specialization: Mobile robotics and intelligent systems

University of Georgia, Athens, Ga

BS Computer Science 2000

PROFESSIONAL EXPERIENCE

Mobile Robot Laboratory - Georgia Institute of Technology

Atlanta, Ga

Research Assistant

2002 – Present

- Performed research and development in the area of mobile robotics for a variety of defense funded projects.
- Topics included: Multi-robot systems, task allocation, biomimetic robotics, simulation and mission design tools, communication-sensitive robot behavior, and pre-mission planning.
- Funding agencies included: The Defense Advanced Research Projects Agency (DARPA), Army Research Office (ARO), Naval Air Station Command (NAVAIR)
- Highlights:
 - Performed multi-institution joint demonstration of technology for military and DARPA officials at Fort Benning.
 - In joint work with Lockheed-Martin, conducted formal usability studies of software for multi-robot mission specification at PAX Naval Air Station.
 - Consistently advanced the state of the art in mobile robotics and communicated the results in peer-reviewed venues.

Applied Systems Intelligence, Inc.

Alpharetta, Ga

Intern

Summer 2008

- Developed a platform for the simulation of unmanned ground vehicles.

Sony Intelligence Dynamics Laboratory

Tokyo, Japan

Intern

June, 2006 – October, 2006

- Developed algorithms and software for high-level plan generation and execution on the humanoid entertainment robot, QRIO.
- Research and development culminated in patentable technology and demonstrations for high-level Sony executives.

Law School - University of Georgia

Athens, Ga

Programmer/Support

2000 – 2002

- Wrote custom software for faculty and staff, provided user support, and performed administrative duties.

School of Psychology - University of Georgia

Athens, Ga

Programmer

1997 – 2001

- Created and modified software to support research into primate cognitive abilities.
- Integrated electromechanical devices with this software.

SKILLS

- Robotics: Multi-robot Systems, Behavior-based control, Navigation, Planning, Task allocation
- Languages: C/C++, Java, Perl, Visual Basic, LISP, Prolog, Linux shell scripting, Microchip PIC Assembly, HTML, SQL
- Operating Systems: Windows 2000/XP/Vista, Linux (Redhat/Fedora/Ubuntu)
- Software: LaTeX, CVS, GNUPlot, Matlab

PUBLICATIONS

JOURNAL ARTICLES

- **Patrick Ulam** and Ronald C. Arkin. "Biasing Behavior with Intent in an Entertainment Robot", *Intelligent Service Robotics*, 2008, Vol. 1, No. 3, pp. 195-209.
- **Patrick Ulam** and Tucker Balch. "Using Optimal Foraging Models to Evaluate Learned Robotic Foraging Behavior", *Adaptive Behavior*, 2004, 12: 213-222.

REFEREED CONFERENCE AND WORKSHOP PAPERS

- Brittany Duncan, **Patrick Ulam**, Ronald C. Arkin, "Lek Behavior as a Model for Multi-Robot Systems". In the Proceedings of the 2009 IEEE International Conference on Robotics and Biomimetics, 2009. (To appear).
- Ronald C. Arkin and **Patrick Ulam**. "An Ethical Adaptor: Behavioral Modification Derived from Moral Emotions". In the Proceedings of the 8th IEEE International Symposium on Computational Intelligence in Robotics and Automation, 2009. (To appear).
- **Patrick Ulam**. "The Coordination of Deliberative Reasoning in a Mobile Robot". In the Proceedings of the International Conference on Advanced Robotics, 2009.
- **Patrick Ulam**, Joshua Jones and Ashok Goel. "Combining Model-Based Meta-Reasoning and Reinforcement Learning for Adapting Game-Playing Agents". In the Proceedings of AI-IDE, 2008.
- **Patrick Ulam**, Yoichiro Endo, Alan Wagner, and Ronald Arkin. "Integrated Mission Specification and Task Allocation for Robot Teams - Design and Implementation". In Proceedings of the 2007 International Conference on Robotics and Automation. Rome, Italy, 2007.
- Alan R. Wagner, Yoichiro Endo, **Patrick Ulam**, and Ronald C. Arkin. Multi-Robot User Interface Modeling. In *Distributed Autonomous Robotics Systems 7*. M. Gini and R. Voyles (eds.). Tokyo, Japan, Springer-Verlag, 2006.
- **Patrick Ulam**, Ashok Goel, Joshua Jones, and William Murdoch. "Using Model-Based Reflection to Guide Reinforcement Learning". *IJCAI Workshop on Reasoning, Representation and Learning in Computer Games*. Edinburgh, UK, 2005.
- **Patrick Ulam**, Ashok Goel, and Joshua Jones. "Reflection in Action: Model-Based Self-Adaptation in Game Playing Agents". *AAAI Challenges in Game AI Workshop*. San Jose, CA, 2004.
- **Patrick Ulam** and Ronald C. Arkin. "When Good Comms Go Bad: Communications Recovery for Multi-Robot Teams". *International Conference on Robotics and Automation*. New Orleans, LA, 2004.
- **Patrick Ulam** and Tucker Balch. "Niche Selection in Foraging Tasks in Multi-Robot Teams Using Reinforcement Learning". *2nd International Workshop on the Mathematics and Algorithms of Social Insects*, Atlanta, Georgia, 2003.

PROFESSIONAL ORGANIZATIONS

- Institute of Electrical and Electronics Engineers (IEEE)
- Association for the Advancement of Artificial Intelligence (AAAI)
- Association for Computing Machinery (ACM)