Nicholas Donald Malone

CONTACT INFORMATION	Department of Computer Science The University of New Mexico Albuquerque, NM 87131	*Fax:* +1-505-277-6927 *E-mail:* nmalone@cs.unm.edu

RESEARCH INTERESTS

Robotic task learning and path planning, specifically in the area of object manipulation and sensing.

EDUCATION

The University of New Mexico, Albuquerque, NM

Ph.D., Computer Science, Starting August 2009
- Adviser: Professor Lydia Tapia
- Adviser: Professor John Wood
- Expected Graduation: Fall 2013

The University of Tulsa, Tulsa, OK

M.S., Computer Science, May 2009
- Adviser: Professor Sandip Sen
- Area of Study: Multi-agent systems

B.C.S., Computer Science, May 2007
- Minor in Mathematics

WORK EXPERIENCE

The University of New Mexico, Albuquerque, NM

Graduate Research Assistant   **May 2011 to Present**
- Research focused on autonomous robotic task learning with Barrett Whole Arm Manipulator, utilizing Probabilistic Roadmap Methods (PRMs). Current research is focused on incorporating uncertainty into PRMs for use with error prone sensed data.

Teaching Assistant   **August 2009 to May 2010**
- Teaching assistant for Design of Large Programs.
- Duties involved teaching of lab classes, grading and aiding students during office hours.

The University of Tulsa, Tulsa, OK

Teaching Assistant   **August 2007 to May-2009**
- Teaching assistant for Scientific Programming.
- Teaching assistant for Introduction to Programming.
- Duties involved teaching of lab classes, grading and aiding students during office hours.

PUBLICATIONS

[1] Nick Malone, Aleksandra Faust, Brandon Rohrer, John Wood, Lydia Tapia, "Efficient Motion-based Task Learning," Accepted to Robot Motion Planning Workshop, IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Vilamoura, Portugal, October 2013.

[2] Nick Malone, Brandon Rohrer, Lydia Tapia, Ron Lumia, John Wood, "Implementation of an Embodied General Reinforcement Learner on a Serial Link Manipulator," IEEE International Conference on Robotics and Automation (ICRA), St. Paul, Minnesota, May 2012

SKILLS   Robotic Hardware:
- Barrett Whole Arm Manipulator - 7DoF Variant
- TurtleBot with Kinect
- FIRST Robotics Kit

Computer Programming:
- Java, MATLAB, Simulink, C, C++, Prolog, Haskell, Lisp, UNIX shell scripting, Mathematica, Visual Basic

Version Control:
- SVN, CVS

Productivity Applications:
- Eclipse, TeX (LaTeX, BibTeX, Beamer), Kile, TexLipse, Microsoft Office (Word, Excel, Power Point), Adobe Photoshop, Blender, Libre Office (Calc, Writer, Draw, Impress), Most other common productive packages (for Windows and Linux platforms)

Operating Systems:
- Microsoft Windows family (98 to Windows 7), Linux (Ubuntu and other variants), Android

EXPERTISE   Robotics and path planning:
- Probabilistic Roadmap Methods
- Rapidly Exploring Random Trees

Machine Learning:
- Reinforcement learning
- Decision trees
- Expectation maximization
- Artificial neural networks
- Support vector machines
- Spectral clustering

Artificial Intelligence:
- Informed and uniform search strategies
- Adversarial search strategies (minimax and optimizations)
- Constraint satisfaction
- Propositional and Prepositional Logic
- MDP and POMDP
- Bayesian logic/networks

Specialized Optimization Techniques:
- Genetic algorithms
- Genetic programming
- Simulated annealing