

Michael De Rosa

(412)-956-4016 • mderosa@cs.cmu.edu • 327 South Pacific Avenue #3, Pittsburgh, PA 15224

Education

- Currently a fifth-year Ph.D. candidate at **Carnegie Mellon University**
Researcher on the Claytronics (DPR) project, focusing on algorithms and tools for large-scale modular robotic systems (target graduation date: December 2009)
- BA in Computer Science - **Dartmouth College**, June 2003
Graduation Cum Laude, High Honors in Computer Science
Honorable Mention, CRA Outstanding Undergraduate Award program, 2003
John G. Kemeny Computing Prize, Software Design, 2003
Minors in Engineering (Electrical) and Japanese

Coursework

- Type Systems for Programming Languages, Optimizing Compilers for Modern Architectures, Physically-Based Modeling & Interactive Simulation, Machine Learning, Advanced Operating Systems & Distributed Systems, Graduate Algorithms, Low-Power Computing

Teaching

- Spring 2007: [Carnegie Mellon] 15-462 Computer Graphics (TA)
- Spring 2006: [Carnegie Mellon] 15-745 Advanced Optimizing Compilers (Graduate Course, TA)
- Spring 2004: [Dartmouth] ENGS62 Microprocessors in Engineered Systems (TA)

Professional Experience

Google Inc., Pittsburgh, PA Summer 2008

Engineering Intern, Infrastructure

Implemented significant optimizations to an internal distributed storage system. Tested, profiled and deployed the optimizations on production servers. Demonstrated significant performance and storage savings for several client applications.

Intel Research, Pittsburgh, PA Summer 2005, 2006, 2007

Research Intern, Claytronics/DPR Project

Over the course of three summer internships, developed distributed motion planning, debugging, and programming facilities for large-scale modular robots. Authored five different publications, which were presented at major robotics conferences. Demonstrated algorithm functionality for high-level Intel staff and external visitors.

Decimus Inc., Pittsburgh, PA February 2005-September 2008

Independent Contractor, Synk 5/6

As a part-time contractor, maintained and extended a best-of-breed backup solution for Mac OSX. Implemented new features for the existing Synk 5 product, provided user support, implemented the user interface and front-end functionality for the three new products comprising the Synk 6 product line.

Dartmouth ISTS, Hanover, NH April 2002-August 2004

Main Application Programmer, ABC-Care/ARTEMIS Project

Implemented a Java-based bio-medical application suite which utilized mobile code and ad-hoc wireless routing technologies to provide remote physiological monitoring and automated triage. Presented the application to U.S. Army medics stationed at Fort Drum and incorporated their feedback into a revised prototype. Transitioned system to the first-responder domain, and deployed a proof-of-concept testbed on COTS hardware.

Dartmouth ISTS, Hanover, NH June 2001-August 2002

Systems Programmer, ActComm Project

Created traffic generation and log analysis tools to measure the performance of multihop wireless routing algorithms.

Publications

- Dewey, D., Srinivasa, et. al. "Generalizing Metamodules to Simplify Planning in Modular Robotic Systems", IEEE IROS, Sept. 2008.
- De Rosa, M., Goldstein, S., Lee, P., Campbell, J., Pillai, P. "Programming Modular Robots with Locally Distributed Predicates", IEEE ICRA, May 2008.

Publications

- Ashely-Rollman, M., De Rosa, M., et al. “**Declarative Programming for Modular Robots**”, IEEE IROS 2007 Workshop on Modular Robotics, Oct. 2007.
- De Rosa, M., Goldstein, S., Lee, P., Campbell, J., Pillai, P. “**Distributed Watchpoints: Debugging Large Multi-Robot Systems**”. International Journal of Robotics Research, Vol. 27, No. 3, Mar. 2008.
- *Also:* IEEE ICRA, April 2007.
- *Also:* RSS’06 workshop on Self-reconfigurable Modular Robotics, August 2006 [extended abstract]
- De Rosa, M., Goldstein, S., Lee, P., Campbell, J., Pillai, P. “**Scalable Shape Sculpting Via Hole Motion: Motion Planning in Lattice-Constrained Modular Robots**”. IEEE ICRA, May 2006. [best student paper nominee]
- Goldstein, S. et. al. “**The Ensemble Principle**”. 13th Foresight Conference of Advanced Nanotechnology, 2005.
- Aksak, B., Bhat, P., et. al. “**Demo Abstract:Claytronics—Highly Scalable Communications, Sensing, and Actuation Networks**”. 3rd international conference on embedded networked sensor systems (SenSys), 2005.
- Li, Q., De Rosa, M., & D. Rus. “**Distributed Algorithms for Guiding Navigation across a Sensor Network**”. ACM MOBICOM 2003, pp 313-325. Sept. 2003.
- *Also:* Dartmouth Technical Report TR2002-435. Nov. 2002.
- De Rosa, M. “**Power Conservation in the Network Stack of Wireless Sensors**”. Dartmouth Technical Report TR2003-458. June 2003.
- Li, Q., Peterson, R., De Rosa, M., & D. Rus. “**Reactive Behavior in Self-reconfiguring Sensor Networks**”. ACM Mobile Computing and Communications Review, Vol. 6 No. 4, Oct. 2002.
- *Also:* ACM MOBICOM Student Poster, Sept. 2002.

References

Prof. Peter Lee (Advisor, Carnegie Mellon) petel@cs.cmu.edu
Prof. Seth Goldstein (Advisor, Carnegie Mellon) seth@cs.cmu.edu
Jason Campbell (Internship Mentor, Intel Research Pittsburgh) jason.d.campbell@intel.com