Randolph C. Voorhies

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Education

Ph.D. in Computer Science
In Progress
University of Southern California
GPA: 3.930

M.S. in Computer Science - Intelligent Robotics
August 2009
University of Southern California
GPA: 3.910

B.S. in Computer Engineering & Computer Science
December 2006
University of Southern California
GPA: 3.497

Technical Skills

Programming Languages
C++ (11) · Python · MATLAB · Javascript · Perl · Spin

Electrical Engineering Tools
Altium Designer · Cadsoft Eagle · Surface Mount Assembly

Software Libraries
Boost · ZeroC Ice · Eigen · OpenCV · ROS · Qt · Thrust

Engineering Abilities
Image Processing · Robotics Perception & Localization · Distributed Programming · Circuit Board Design

Experience

NASA / Jet Propulsion Laboratory
Summer 2012
Intern in the Computer Vision for Surface Applications Group
- Performed work on a visual odometry and stabilization system for automomous quadrotors, including image preprocessing, debugging and tuning.
- Ported a rapidly-exploring-random-tree implementation to run in real-time on the quadrotors.
- Implemented a simulation library for quadrotor controls and dynamics.
- Implemented a fast state estimation and data fusion filter.

USC Computer Science Department
Fall 2007 - Present
Graduate Research Assistant in Laurent Itti's iLab
- Implemented NRT, a modular programming framework for image processing and robotics.
- Implemented tracking and object recognition systems for DARPA's Neovision2 project.
- Implemented a distributed attention system for DARPA's Cognitive Technologies Threat Warning System (CT2WS) project.
- Performed circuit design, assembly, and embedded programming for Beobot2.0, iLab's next generation 16-core robot.

South Pasadena Educational Foundation
Fall 2007 - Present
Teacher Trainer
- Designed a robotics curriculum to be taught to middle school students.
- Provided weekly training sessions for teachers.

USC Computer Science Department
Fall 2007 - 2009
CS445 Introduction to Robotics Lab Assistant
- Designed and taught curricula for weekly three-hour lab sessions.
- Designed and built a custom robotics controller board based on a 600Mhz Overo processor.
- Built a software architecture and library to help the students cross-compile and upload code, as well as libraries for motion control, data acquisition, image processing, and communication.

Microsoft
Summer 2004
Intern in the Security Division
- Developed security database migration tools in C#.