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) · C · Python · MATLAB · Javascript · Perl · Spin

Software Libraries

Boost · ZeroC Ice · Eigen · OpenCV · ROS · Qt · Thrust · Arduino

Electrical Engineering Tools

Altium Designer · Cadsoft Eagle · Surface Mount Assembly

Engineering Abilities

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

Experience

USC Computer Science Department

Fall 2007 - Present
Graduate Research Assistant in Laurent Itti's iLab

- Currently researching biologically inspired methods for monocular figure/ground segmentation.
- Implemented NRT, a C++ 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

Summers 2007 - 2011
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#.

Publications

Publications

Neuromorphic Bayesian Surprise for Far-Range Event Detection

R.C. Voorhies, L. Elazary, L. Itti
Proc. IEEE International Conference on Advanced Video and Signal Surveillance (AVSS) 2012
Winner of the Best Student Paper Award

Centralized Server Environment for Educational Robotics

R.C. Voorhies, C. Siagian, L. Elazary, L. Itti
Proc. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2009

Application of a Bottom-Up Visual Surprise Model for Event Detection in Dynamic Natural Scenes

R.C. Voorhies, L. Elazary, L. Itti
Vision Science Society Annual Meeting (VSS) 2010

Beobot 2.0: Cluster Architecture for Mobile Robotics

C. Siagian, C. Chang, R.C. Voorhies, L. Itti
Journal of Field Robotics (JFR) 2010

Honors

Member Phi Kappa Phi · Co-Chair of the "Education Robotics" session for IROS 2009