RUIXIANG DU

3 Homer St, Apt 3 · Worcester, MA 01602
http://rdu.im · ruixiang.du@gmail.com · (774)641-0660

EDUCATION

Worcester Polytechnic Institute (WPI), Worcester, MA USA
Doctor of Philosophy in Robotics Engineering, GPA: 3.92/4 — In Progress
Master of Science in Robotics Engineering, GPA: 3.83/4 — 06/2013
North China Electric Power University (NCEPU), Hebei China
Bachelor of Engineering in Automation, GPA: 87.9/100 — 07/2011

TECHNICAL SKILLS

Robotics: modeling, simulation, control and motion planning of robots
Programming Languages: C/C++, Matlab/Octave, Python
Software & Frameworks: ROS, V-REP, Gazebo, LCM, Git, GCC, Qt, wxWidgets
Embedded Hardware: AVR, HCS12, Cortex-M3/M4, MSP430, Raspberry Pi

PROJECTS

Physics-Based Robot Simulation Toolset, WPI — 07/2015-09/2015

- Constructed the simulation for the 2-link pelican robot arm, the AscTec Hummingbird quadrotor and an ackerman-steering RC car in V-REP
- Implemented code to interface with the simulator for each simulated robot with ROS and remote-API interfaces
- Integrated a C++ logger into the simulation/control code and wrote Matlab scripts to analyze log files generated by the logger

DARPA Robotics Challenge Trials & Finals, Team WPI-CMU, WPI — 09/2013-06/2015

- Participated in the discussion of overall team strategies and led a sub-team towards the completion of wall task
- Implemented the state machine and position & force controller for motions of wall cutting process
- Studied the whole-body manipulation controller developed by CMU and collaborated on the interfacing with task-level features
- Experimented on different strategies for the door task of DRC Trials to traverse different types of doors
- Developed the motions and user control interface for the door task using MoveIt and rqt ROS packages
- Performed numerous tests on both the real Atlas Robot and the Gazebo simulator to tune controller parameters and explore feasible motions

Robotics Enabled In-Home Environment Screening for Fall Risks, WPI 01/2014-05/2014

- Worked out a robotic framework for home fall risk assessment, including setting up the software for both the Turtlebot2 platform and the Gazebo simulator, adding new sensors and developing drivers, implementing a web interface based on the "Robot Management System" to make the system accessible from a web page
- Studied the navigation of mobile robots in home environment and potential applications of robotic technologies for improving the life quality of elderly people, prepared preliminary results for proposal of further research on this topic

Intelligent Portable Aerial Surveillance System - IPASS, WPI 12/2012-05/2013

- Developed the dynamics model of the aircraft model and simulated its control in Matlab
- Provided advice to the undergraduate team of this project for improving the mechanical design of the aircraft, based on the theoretical analysis
- Evaluated different image stitching techniques to get panoramas from cameras on the aircraft

Autonomous Flight Control of a Quadrotor, WPI 02/2012-12/2012

- Studied the kinematics and dynamics model of the quadrotor
- Simulated the attitude and position control algorithms and visualized the results in Matlab
- Implemented and tested the position control on the AscTec Hummingbird quadrotor

RESEARCH ASSISTANT

Robotics and Intelligent Vehicles Research Laboratory, WPI 10/2014-06/2015

TEACHING ASSISTANT

Real-time Embedded Systems, WPI	10/2015-12/2015
Embedded Computing in Engineering Design, WPI	08/2015-10/2015
Introduction to ECE, WPI	08/2014-10/2014
Robot Control, WPI	01/2014-05/2014
Power Electronics, WPI	10/2013-12/2013
Introduction to ECE, WPI	08/2013-10/2013

MEMBERSHIPS

Student Member, Robotics and Automation Society, IEEE	03/2013-Present
Member, Rho Beta Epsilon Robotics Honors Society, WPI	02/2013-Present

HONORS

Outstanding Graduate Award of Hebei Province, NCEPU, China	07/2011
Annual Academic Scholarship, NCEPU, China	2007-2010