Yang Song

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SUMMARY

Passionate about robotics and self-driving technologies. Experienced with motion/path planning algorithms (A^*, PRM, RRT^*) and open-source libraries, including OMPL, ROS navigation stack, and Utexas-art-ros-pkg (Austin Robot Technology, 2007 DARPA Urban Challenge). Startup spirit and a creditable YC startup internship.

EDUCATION

University of South Carolina, Columbia, SC
Ph.D. Candidate, Computer Science — Dec. 2015
University of New Mexico, Albuquerque, NM
M.S., Electrical Engineering — Dec. 2009
China University of Geosciences, Wuhan, Hubei
B.S., Electrical Engineering — June 2007

WORK EXPERIENCE

Auro Robotics, Inc. (YCombinator S15), Sunnyvale, CA
Robotics Engineer Intern — June 2015 – Aug. 2015
- Developed and tested motion planning algorithms for the self-driving shuttle
- Cooperated with the technical lead to implement a waypoint-following path planner
- Implemented an OMPL-based RRT^* path planner using a costmap of perception
- Conducted autonomous drive tests of our autopilot software with the vehicle

RESEARCH EXPERIENCE

South Carolina Autonomous Robotics Research (SCARR) Lab, USC
Decentralized Formation Algorithm for Multi-Robot Systems — Aug. 2013 – Present
- Innovated a distributed formation algorithm for the multi-robot systems
- Promoted a provably-correct decentralized formation algorithm with time-bounded executions and optimized formation qualities
- Developed ROS-based software simulations with C++, Python, and Bash
- Designed and built a GUI with the GTK+ and the Boost libraries

SCARR Lab, USC
Planning Algorithm under Uncertainty — Aug. 2010 – May 2011
- Promoted a geometric algorithm for robot planning under uncertainty
- Accomplished the algorithm and simulations using C++
- Achieved the same level of performance as using the approach that computed the high-fidelity information states, but with a small fraction of the computational cost

Multi-Agent, Robotics, Hybrid, and Embedded Systems (MARHES) Lab, UNM
Multi-Robot Control Algorithm — Aug. 2009
- Implemented a cyclic pursuit algorithm for nonholonomic vehicles with Matlab/C++
- Implemented simulations with Player/Gazebo

LANGUAGE & TOOLS

C/C++, Python, Ruby, Java, HTML/CSS, JavaScript, LaTeX
ROS, Git, CMake, OMPL, OpenCV, Bootstrap, Boost

HONORS & AWARDS

Member of Upsilon Pi Epsilon
NSF Student Travel Grant Award — May 2014