Vincent Kee

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Education

Massachusetts Institute of Technology (MIT)   **Cambridge, MA**
Candidate for Bachelor of Science in Electrical Engineering and Computer Science   *June 2016*
Relevant Coursework: Robotics: Science and Systems, Advances in Computer Vision, Software Studio, Algorithms, Signals and Systems, Microelectronic Devices and Circuits, Probabilistic Systems Analysis, Artificial Intelligence
GPA: 4.7/5.0

Work Experience

Perception Systems Group, Draper Laboratory   **Cambridge, MA**
Advanced Undergraduate Researcher   *May 2015 - Present*
- Implemented methods to robustify the iterative closest point component of the KinectFusion algorithm to generate high quality 3D mesh models of the surrounding environment using RGB-D camera depth data in real time

Aerospace Controls Lab, MIT Laboratory for Information and Decision Systems (LIDS)   **Cambridge, MA**
Undergraduate Researcher   *January - May 2015*
- Worked on path planning algorithms for navigating a car through a pedestrian rich environment
- Developed software for competition where each team was provided a quadrotor with a camera to provide visual feedback for their sensorless iRobot Create tasked with navigating through a stochastic environment
- Designed a ROS program integrating RAVEN Vicon system data and generating visualizations with Vispy

Aerial Robotics Group, Aurora Flight Sciences   **Manassas, VA**
Electrical Engineering and Computer Science Intern   *June - August 2014*
- Developed path planning algorithms for scanning areas with UAVs along with workflow and software application
- Revamped flight data display application to maximize area available to display data
- Conducted two demos of mission planning tool and presented work to audience of over 50 company engineers

MIT-SUTD International Design Centre, Singapore University of Technology and Design (SUTD)   **Singapore**
Undergraduate Researcher   *July - August 2013*
- Designed and fabricated a nested reconfiguration modular robotics system capable of rearranging its own modules (intra-reconfiguration) and combining with other systems to form more complex systems (inter-reconfiguration)
- Demonstrated intra-reconfiguration into all seven one-sided tetrominoes with the hinged tetromino prototype

CELEST Neuromorphics Lab, Boston University   **Boston, MA**
Research Intern   *July - August 2011*
- Developed optic-flow detecting filters and navigational algorithms for autonomous robots
- Presented paper and poster to Boston University Integrated Circuits and Systems group and approximately fifty people at a Boston University public poster session

Projects

Robotics: Science and Systems Final Project - A Fully Autonomous Localizing Mobile Robot   **February - May 2015**
- Implemented a particle filter utilizing RGB-D camera sensor data and an adaptive RRT-based motion planning algorithm for a fully autonomous localizing mobile robot as part of a four person team

Technical Skills

Proficient: Java, Python *Familiar:* MATLAB, C++/C, NVIDIA CUDA, Robot Operating System (ROS), JavaScript

Awards

2nd Place in MIT Mobile Autonomous Systems Laboratory Robotics Competition   **January 2014**
- Designed, manufactured, and programmed a fully autonomous robot utilizing computer vision and ultrasonic sensor feedback for navigation in one month as part of a five person team

Publications

Kee, V., Rojas, N., Elara, M. R., & Sosa, R. (2014, July). Hinged-Tetro: A self-reconfigurable module for nested reconfiguration. In Advanced Intelligent Mechatronics (AIM), 2014 IEEE/ASME International Conference on (pp. 1539-1546). IEEE.