Vincent Kee

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Education

Massachusetts Institute of Technology (MIT)   **Cambridge, MA**

Candidate for Master of Engineering in Electrical Engineering and Computer Science GPA: 5.0/5.0   *December 2017*

   Concentration: Artificial Intelligence
   Relevant Courses: Matrix Methods in Data Analysis, Signal Processing, and Machine Learning, Cognitive Robotics

Bachelor of Science in Electrical Engineering and Computer Science; GPA: 4.6/5.0   *June 2016*

   Relevant Courses: Robotics: Science and Systems, Computer Vision, Feedback Systems, Algorithms

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Work Experience

2getthere   **Utrecht, Netherlands**

Intern   *June - August 2017*

- Developed a LiDAR-based simultaneous localization and mapping (SLAM) system for an autonomous transit system operating in urban environments
- Validated and benchmarked performance on the KITTI dataset and company test site

Perception and Localization Group, Draper   **Cambridge, MA**

Draper Fellow   *June 2016 - Present*

- Developing a real-time SLAM system that constructs object maps in dynamic environments
- Working on the perception pipeline to enable an autonomous robot to perform an oil change on any car
- Implemented a real-time object pose estimator using semantic segmentation and point cloud registration

Draper Laboratory Undergraduate Research and Innovation Scholar   *May 2015 - May 2016*

- Integrated deformation graphs into the dense visual SLAM algorithm KinectFusion to improve scene reconstruction quality in large-scale environments using RGB-D camera depth data

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

MIT-SUTD International Design Centre, Singapore University of Technology and Design (SUTD)   **Singapore**

Undergraduate Researcher   *July - August 2013*

- Designed, fabricated, and programmed a modular robotics system capable of rearranging its own modules and combining with other systems to form more complex systems

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Projects

Cognitive Robotics Grand Challenge - SLAM for an Autonomous Mobile Robot   **May 2017**

- Implemented a laser-based SLAM system creating 2D occupancy grids in one week as part of a five person team

Advances in Computer Vision Final Project - Scene Recognition   **November - December 2015**

- Designed and trained convolutional neural networks for scene recognition as part of a three person team

Robotics: Science and Systems Grand Challenge - An Autonomous Mobile Robot   **February - May 2015**

- Implemented Monte Carlo localization and adaptive RRT-based motion planning as part of a four person team

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Technical Skills

C++, Python, Java, Robot Operating System (ROS), GTSAM, Julia, MATLAB, JavaScript

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Awards

2nd Place in MIT Mobile Autonomous Systems Laboratory Robotics Competition   **January 2014**

- Designed, manufactured, and programmed an autonomous robot utilizing computer vision and ultrasonic sensors for navigation in one month as part of a five person team

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Selected Publications

Wong, J. M., **Kee, V.**, et. al. (2017). SegICP: Integrated Deep Semantic Segmentation and Pose Estimation. IEEE International Conference on Intelligent Robots and Systems (IROS'17).