Khiem Vuong

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Education

Carnegie Mellon University, The Robotics Institute — Pittsburgh, PA
M.S. in Robotics (thesis) — *Sep. 2021 – Present*
- **Advisor**: Prof. Srinivasa Narasimhan
- **Cumulative GPA**: 4.17/4.3.

University of Minnesota (Twin Cities) — Minneapolis, MN
B.S. Computer Science (with high distinction) — *Aug. 2017 – May 2021*
- **Major GPA:** 4.0/4.0 | **Cumulative GPA:** 3.98/4.0.

Relevant Coursework: Computer Vision, Machine Learning, Robot Localization and Mapping, Linear/Convex Optimization, Linear Algebra, Computer Graphics, Data Structures and Algorithms, Operating Systems.

Publications

[1] T. Do, **K. Vuong**, S. I. Roumeliotis, and H. S. Park, "Surface Normal Estimation of Tilted Images via Spatial Rectifier", in *European Conference on Computer Vision (**spotlight presentation**)*, Springer, Aug. 2020, pp. 265–280.

[2] T. Ke, T. Do, **K. Vuong**, K. Sartipi, and S. I. Roumeliotis, "Deep Multi-view Depth Estimation with Predicted Uncertainty", in *Proc. of the IEEE International Conference on Robotics and Automation*, Xi'an, China, May 2021.

[3] K. Sartipi, T. Do, T. Ke, **K. Vuong**, and S. I. Roumeliotis, "Deep Depth Estimation from Visual-Inertial SLAM", in *Proc. of the IEEE/RSJ International Conference on Intelligent Robots and Systems*, Virtual Conference, Oct. 2020.

Work Experience

Graduate Research Assistant — Pittsburgh, PA
Illumination and Imaging Laboratory (ILIM), Carnegie Mellon University — *Oct. 2021 – Present*
Advisor: Prof. Srinivasa Narasimhan
- Currently working on discovering and resolving anomalies in smart cities using data from traffic/surveillance cameras.

Undergraduate Research Assistant — Minneapolis, MN
Multiple Autonomous Robotic Systems Lab (MARS), University of Minnesota — *Sep. 2019 – May 2021*
Advisor: Prof. Stergios Roumeliotis & Prof. Hyun Soo Park
- Research focus: *3D perception, visual scene understanding.*
- Developed a robust end-to-end visual-inertial perception system that performs 3D scene reconstruction (localization and mapping with depth/normal estimation) from a sequence of images using deep neural networks (publications [1], [2], [3]).

Software Development Intern — Chicago, IL
Enfusion Systems — *Jun. 2019 - Aug. 2019*
- Developed a JUnit dynamic regression testing framework for Portfolio Management System that massively increased testing coverage for trade compliance rules and position rebalancing calculator through unit and integration tests.
- Optimized and maintained a data pipeline which faciliates data transfer between local database and Google BigQuery that allows Visual Analytics System to provide real-time, instant access to on-demand portfolio analysis reports.

Technical Skills

- **Languages:** Python, Java, C/C++, MATLAB, OCaml.
- **Developer Tools**: Git, Docker, Travis-CI, PyCharm, IntelliJ, Google Cloud Platform.
- **Libraries**: PyTorch, NumPy, OpenCV, Open3D, Matplotlib, Numba, pandas, NLTK, gensim, spaCy.

Honors and Awards

- Spotlight Presentation (top 5% of submissions) in *European Conference on Computer Vision 2020* (acceptance rate 27%).
- Undergraduate Research Opportunities Program (UROP) Scholarship, University of Minnesota (Spring 2020).
- Global Excellence Scholarship, University of Minnesota (Fall 2017, upon admission).