Ka Wai (Karry) Wong, Ph.D.

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Professional Profile

Versatile and collaborative software engineer utilizing 3 years in tech and research to deliver impactful algorithm and data structure solutions in 3D geometry and computer vision used in Augmented Reality and Virtual Reality (AR/VR). Applied math PhD, avid coder, and multilingual professional in software engineering.

Core Proficiencies

Programming Languages: Python, C++, MATLAB
Languages: English, German, Mandarin (fluent), Cantonese (native), and Hebrew (conversational)

Professional Experience

Meta Reality Labs • Burlingame, CA
Visiting Researcher Jun. 2022 – Present

- Develop computer vision algorithms focused on large-scale 3D reconstruction and mapping, accurate user localization, and structure from motion with bundle adjustment, to support functionality and enhance performance of AR/VR devices such as Oculus Quest and Ray-Ban Stories
- Conduct experiment to identify false positives in map alignment, developing rejection mechanism to resolve merge errors and ensure maps of different physical spaces are not combined inadvertently
- Build benchmarking system to profile different components of on-cloud map merging pipeline

Lawrence Livermore National Laboratory • Livermore, CA
Postdoctoral Researcher Oct. 2021 – Jun. 2022

- Achieved first-ever 3D temperature measurement of nuclear fusion hotspot via computed tomography and 3D geometry modeling by developing noise-robust 3D reconstruction algorithms (MATLAB)
- Enabled data-driven and machine learning analysis (Bayesian inference, Markov-Chain Monte-Carlo) on experimental data using Python libraries emcee and large simulation dataset

Graduate Student Researcher Dec. 2019 – Jun. 2021

- Earned 2x higher accuracy in x-ray emission measurement of nuclear fusion experiments by developing image denoising algorithms to analyze 100+ 2D x-ray images, featured in 3-min SLAM video

Autodesk • San Francisco, CA
Software Engineer Intern Jun. 2021 – Sept. 2021

- Developed stochastic algorithm to compute volume enclosed by lattice structures for 3D printing
- Solved various 3D computational geometry problems involving implicit modeling, B-rep, and NURBS

Rohde & Schwarz USA • Beaverton, OR
Software Engineer Intern Jul. 2019 – Sept. 2019

- Fixed 10+ critical bugs in object-oriented programming codebase (Python/C++, 3000+ lines) by implementing automated unit tests in WiFi technology (various WLAN 802.11 standards)

Software Testing Engineer (Munich, Germany) Apr. 2016 – Sept. 2016

- Designed and developed automated unit test cases for Wideband Callbox on 4G LTE

Center for Educational Effectiveness, University of California, Davis • Davis, CA
Graduate Student Researcher Summers 2017/18/19

- Recipient of Outstanding Graduate Student Teaching Award out of 2,000+ teaching assistants, in recognition of outstanding communication for classes in calculus and advanced math topics

Education

Ph.D. Applied Math • *University of California, Davis* • Davis, CA • Sept. 2021 • GPA 3.9
M.Sc. Math • *Technical University of Munich* • Munich, Germany • Sept. 2015
Visiting researcher • *Hebrew University of Jerusalem* • Jerusalem, Israel • Sept. 2014 – Jun. 2015
Academic exchange • *Technion* • Haifa, Israel • Sept. 2012 – Sept. 2013
B.Sc. Math • 1st class honors • *Hong Kong University of Science and Technology* • Hong Kong • Jun. 2011