

# 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)

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## 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 together with bundle adjustment, to support functionality and enhance performance of AR/VR devices for 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

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## 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** • 1<sup>st</sup> class honors • *Hong Kong University of Science and Technology* • Hong Kong • Jun. 2011