Kevin Qi

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EDUCATION

University of California, Berkeley   Berkeley, CA

B.S. Engineering Physics | GPA: 3.506   *Aug. 2015 – May 2019*

EXPERIENCE

University of California, Berkeley   Berkeley, CA

Undergraduate Researcher | Crommie Group | Physics   *April 2016 - June 2019*

- Fabricated devices with novel 2D materials for STM studies
- Adapted a dual polymer transfer method to achieve atomically clean device surfaces
- Fabricated graphene device for non-invasive, real-time imaging of electric fields from live cells
- Revamped the assembly process of nc-AFM sensors for a 10-fold increase in quality factor
- Pioneered the effort to produce large single crystal monolayer graphene in the group
- Designed software in Labview to measure performance of cantilevers using lock-in detection

University of California, Berkeley   Berkeley, CA

Undergraduate Instructor | Biophotonics Lab   *Jan 2019 - May 2019*

- Assisted Prof. Gerard Marriott to teach a open-ended Biophotonics research lab course
- Worked closely with students to design and implement their own unique projects

PROJECTS

Beverage Consumption Tracker App   *Oct 2019 - Present*

- Implemented a grouping functionality for sharing progress with friends
- Built the front end interface with React Native and the back-end server with Firebase
- Collaborated with people with diverse backgrounds and expertise

Machine Learning Guided Directed Evolution   *May 2019 - Present*

- Utilized an empirical protein fitness data set to build a testbed to benchmark algorithms
- Adapted the learning-to-rank models to rank proteins
- Implemented custom neural network designs from literature in PyTorch
- Applied auto-encoders to learn compact representations of proteins
- Experimented with using Gaussian processes as the guidance mechanism

A Monte Carlo method for Decomposition of Tryptophan Fluorescence Spectra   *Sep. - Nov. 2018*

- Proposed a Monte Carlo algorithm to decompose fluorescence spectrums
- Achieved comparable performance with the analytical solution to the decomposition problem

Single Cell Measurements of Hybridoma Antibody Production   *Jan. - May 2018*

- Designed a micro-patterned agarose gel device that can trap and isolate single cells
- Streamlined a research plan to execute multiple approaches in parallel with limited lab time
- Worked closely with a small group to overcome challenges in a resource limited teaching lab

SKILLS

Languages: Python, JavaScript, Java, SQL, Matlab, Labview, C#

Frameworks: React, React Native, Firebase, Keras, Pytorch, Numpy, Pandas

Research: Chemical vapor deposition, Dry/Wet transfer of 2D materials, Photolithography, Raman spectroscopy, AFM, STM, E-beam/Thermal evaporation, Sputtering, Reactive Ion Etching, Cell culturing