

## **Kevin Yang**

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### **QUALIFICATIONS**

- 2+ years in scientific computing in Python, including NumPy, SciPy, Pandas, and scikit-learn
- 8+ years scientific computing in Matlab
- Skilled in molecular cloning and expression, including cell culture, DNA/protein extraction and purification, gel electrophoresis, interpreting sequencing data
- Proficient in statistical analysis and machine learning
- Experience with software development, including the Unix command line and version control using git/Github

### **PUBLICATIONS AND PRESENTATIONS**

Bedbrook, C. N., **Yang, K. K.**, Rice, A. J., Gradinaru, V., Arnold, F.H. (2017). "Machine learning to predict eukaryotic expression and plasma membrane localization of engineered integral membrane proteins." In preparation.

Bedbrook, C. N., Rice, A. J., **Yang, K. K.**, Ding, X., Chen, S., LeProust, E. M., Gradinaru, V., Arnold, F.H. (2017). Structure-guided SCHEMA recombination generates diverse chimeric channelrhodopsins. *PNAS*. In press.

**Presenter.** "Using Gaussian process models to predict channelrhodopsin plasma membrane localization" Southern California Machine Learning Symposium. 18 Nov 2016, Pasadena, CA

### **EDUCATION**

**California Institute of Technology**, Pasadena, California (August 2014 – present)

*PhD candidate in Chemical Engineering*

Relevant coursework: Introduction to Biomolecular Engineering; Machine Learning and Data Mining; Linear Algebra; Bioinformatics; Data Analysis for the Biological Sciences

**The Ohio State University**, Columbus, Ohio (Sept 2007 – June 2011)

*Degree: B.S. in Chemical and Biomolecular Engineering; minor in Music*

### **EXPERIENCE**

**Graduate Research Assistant**, Professor Frances Arnold's Group

*California Institute of Technology, Pasadena, CA (August 2014 - Present)*

- Write machine learning software to predict and optimize the properties of algal channelrhodopsins for optogenetic applications in mammalian cells
- Clean and process protein and DNA sequence data
- Design and build recombination libraries of proteins
- Clone, transfect/transform, and express proteins in mammalian and bacterial systems
- Design and implement fluorescent and HPLC screens for directed evolution

**Graduate Teaching Assistant**

*California Institute of Technology, Pasadena, CA*

Undergraduate Kinetics (January – March 2016)

- Wrote and graded homework assignments and exams
- Planned and delivered two review lectures

Introduction to Biomolecular Engineering (September – December 2016)

- Wrote and graded all homework assignments

- Provided feedback to students as they wrote a proposal and a *Nature*-style News and Views article
- Prepared and delivered lecture on machine learning for protein engineering
- Overall rating of Excellent (highest rating) on Teaching Quality Feedback Report

### **Physics and Math Teacher**

*Animo Inglewood Charter High School, Inglewood, CA (August 2011 – August 2014)*

- Developed and implemented a novel curriculum for 9<sup>th</sup> grade physics and math
- Collaborated with educators across grade levels and subjects at a low-income, high-need school
- Founded and coached FIRST Robotics Team

### **AWARDS AND ACHIEVEMENTS**

- Runner-up, Best Applications Poster, Southern California Machine Learning Symposium (2016)
- Caltech Biotechnology Leadership Program Trainee (2015 – present)
- Rosen Center Scholar Award (2016)
- NSF Research Experience for Educators (RET) scholarship (2013)
- NSF Graduate Research Fellowship (2011)