

Kevin Yang

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EXPERTISE

- 3+ years scientific computing in Python, including NumPy, SciPy, Pandas, scikit-learn, keras, and TensorFlow.
- 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, especially of biological sequence data
- 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 design integral membrane channelrhodopsins for efficient eukaryotic expression and plasma membrane localization" 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*. 10 Mar 2017.

Oral Presentation: "Machine Learning to Predict Eukaryotic Expression and Plasma Membrane Localization of an Integral Membrane Protein." Proteins Gordon Research Seminar, Holderness, NH. 17 June 2017.

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

EDUCATION

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

PhD candidate in Chemical Engineering

Relevant coursework: Advanced Topics in Machine Learning; 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)

- Design and implement machine learning algorithms to predict and optimize protein properties
- Process and analyze protein and DNA sequence data

Graduate Teaching Assistant

California Institute of Technology, Pasadena, CA

Introduction to Biomolecular Engineering (September – December 2016)

- Designed homework assignments aligned to lectures and goals for the course
- Coached 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

Undergraduate Kinetics (January – March 2016)

- Designed homework assignments aligned to lectures and goals for the course
- Planned and delivered two review lectures

Physics and Math Teacher

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

- Developed and implemented a novel curriculum for 9th 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

- Chemistry and Chemical Engineering Teaching Assistantship Award (2017)
- Rosen Center Scholar Award (2016)
- Runner-up, Best Applications Poster, Southern California Machine Learning Symposium (2016)
- Caltech Biotechnology Leadership Program Trainee (2015 – present)
- NSF Research Experience for Educators (RET) scholarship (2013)
- NSF Graduate Research Fellowship (2011)