Jeffrey Chang

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Education	Ph.D. student in Physics, Harvard University	2020–
	B.S. in Physics, Stanford University (GPA: 4.03)	2016–'20

Career

Graduate Researcher in Michael Desai Lab   2021–
Harvard Dept. of Organismic and Evolutionary Biology
- Using high-throughput measurements of binding affinity
  to study sequence-to-function landscapes of antibodies

Rotation Student in Wesley Wong Lab   2021–
Wyss Institute at Harvard University
- Single-molecule force spectroscopy and Bayesian inference for
  characterizing polyclonal antibodies

Biophysics / Statistical Modeling Consultant   2020–
Manifold Biotechnologies, Inc.
- Algorithmic development of a proprietary platform for
  highly multiplexed quantification of barcoded proteins

Textbook Author with Prof. Steven A. Kivelson and Dr. Jack M. Jiang   2019–
Stanford Dept. of Physics
- Writing an undergraduate textbook, "Statistical Mechanics
  of Phases and Phase Transitions"

Undergrad Researcher in Steve Boxer Lab   2017–'19
Stanford Dept. of Chemistry
- X-ray crystallography to study photochemical pathways
  in fluorescent proteins

Software Engineering Intern   2017
Schrödinger, Inc.
- Helped develop python GUI for protein structure visualization

Publications

"Structural Evidence of Photoisomerization Pathways in Fluorescent Proteins", J. Chang, M. G. Romei, S. G. Boxer, *Journal of the American Chemical Society*, **141**, 15504-15508 (2019). [link]

"Binding affinity landscapes constrain the evolution of broadly neutralizing anti-influenza antibodies", A. M. Phillips, K. R. Lawrence, A. Moulana, T. Dupic, J. Chang, M. S. Johnson, I. Cvijovic, T. Mora, A. M. Walczak, M. M. Desai, *eLife*, **10**, e71393 (2021). [link]

Teaching

Teaching Assistant, Harvard Dept. of Applied Math   2021
- Applied Math 104: Complex and Fourier Analysis (Aut. 21-22)

Teaching Assistant, Stanford Dept. of Physics   2019–'20
- Physics 216: Back of the Envelope Physics (Aut. 19-20)

- Physics 63: Electricity, Magnetism, and Waves (Wtr. 19-20)

Peer Tutor, Stanford Center for Teaching and Learning   2019
- Tutored Stanford undergraduates in math and physics through a free tutoring program

Honors	Harvard Dept. of Physics James Mills Peirce Fellowship	2020
	National Science Foundation Graduate Research Fellowship	2020
	Stanford Deans' Award for Academic Achievement	2020
	Stanford Undergraduate Research and Advising Small Grant	2019
	Stanford Bio-X IIP Symposium Best Poster Award	2018
	Stanford Bio-X Undergraduate Fellow	2018

Skills

Next-generation sequencing. Sample preparation, data analysis
Molecular biology. Sequence design, cloning, library generation
Biochemistry. Protein production and purification, X-ray crystallography
Statistics. Bayesian inference, machine learning
Programming. Python, C++, R

Interests

Music Composition. Horn sonatas, wind quintets, jazz tunes, and more [link]
French Horn. Four years principal horn experience, ringer for local orchestras
French. Fluent speaker with six years of coursework