

Amy Wang

CONTACT INFORMATION Personal E-mail: amywangsci@gmail.com Work E-mail: wanga84@gene.com
Website: <https://amywangsci.github.io>

EDUCATION **Stanford University**, Stanford, CA 2018-2023
Ph.D. Candidate, Chemical Engineering
Thesis: Mechanisms governing the force-dependent interactions between α E-catenin and F-actin
Advisors:
 William Weis (Depts. Structural Biology, Molecular and Cellular Physiology)
 Alexander Dunn (Dept. Chemical Engineering, Biophysics program)

Massachusetts Institute of Technology, Cambridge, MA 2014-2018
Bachelor of Science in Chemical Engineering, Minor in Polymers and Soft Matter

RESEARCH EXPERIENCE **Genentech** South San Francisco, CA
Senior Scientist, Prescient Design March 2023-Present
• Developing machine learning and physics-based methods for de novo drug design

Stanford University Stanford, CA
Graduate Student Researcher Apr 2019-March 2023
Advisors: William Weis & Alexander Dunn
• Experimentally demonstrated the force-dependent binding mechanism of a protein complex
• Developed theory and simulation to describe how protein function arises from structure
• Built a single-channel epi-fluorescent microscope and devised an automated experimental pipeline

Microsoft Research New England Cambridge, MA (*Virtual*)
BioML Research Intern Jun-Sept 2022
Advisors: Kevin Yang, Ava Amini & Alex Lu
• Incorporated biophysical priors into graph neural networks to improve protein property prediction

Stanford University Stanford, CA
Rotation Student Jan-Apr 2019
Advisor: Ron Dror
• Prepared and analyzed molecular dynamics simulations to study membrane protein ion transport

Massachusetts Institute of Technology Cambridge, MA
Undergraduate Researcher Jan 2016-Jun 2018
Advisor: Bradley Olsen
• Synthesized protein-polymer materials and quantified kinetics of functionalized proteins

Merck Research Labs West Point, PA
Discovery Pharmaceutical Sciences Research Intern Jun-Sept 2017
Advisor: Lauren Austin
• Synthesized and characterized nanoparticles for RNA-based vaccine technologies
• Quantified kinetics of peptide and nucleic acid degradation *in-vitro*

Koch Institute of Integrative Cancer Research Cambridge, MA
Undergraduate Researcher 2014-2016

Advisors: Robert Langer & Rohit Karnik

- Synthesized and characterized nanoparticles to improve insulin encapsulation
- Mentored an undergraduate researcher in biological lab techniques

Koch Institute of Integrative Cancer Research Cambridge, MA
Undergraduate Researcher June-Sept 2015

Advisors: Robert Langer & Daniel Anderson

- Measured *in-vitro* insulin responsiveness of microfabricated devices
- Quantified protein (insulin, EPO, VEGF) secretion from microfabricated devices in animal studies

PUBLICATIONS

NA Bax*, **A Wang***, DL Huang, S Pokutta, AR Dunn, WI Weis. Multi-level force-dependent allosteric enhancement of α E-catenin binding to F-actin by vinculin. *Journal of Molecular Biology* 2023. [Link]

A Wang, AR Dunn, WI Weis. Mechanism of the cadherin-catenin F-actin catch bond interaction. *eLife* 2022. [Link]

S Bose, LR Volpatti*, D Thiono*, V Yesilyurt, C McGladrigan, Y Tang, A Facklam, **A Wang**, S Jhunjhunwala, O Veiseh, J Hollister-Lock, C Bhattacharya, GC Weir, DL Greiner, R Langer, DG Anderson. A retrievable implant for the long-term encapsulation and survival of therapeutic xenogeneic cells. *Nat. Biomed. Eng.* 2020. [Link]

TA Chew*, BJ Orlando*, J Zhang*, NR Latorraca, **A Wang**, SA Hollingsworth, DH Chen, RO Dror, M Liao, L Feng. Structure and mechanism of the cation-chloride cotransporter NKCC1. *Nature* 2019 572:488-492. [Link]

A Huang, JM Paloni, **A Wang**, AC Obermeyer, HV Sureka, H Yao, BD Olsen. Predicting Protein-Polymer Block Copolymer Self-Assembly from Protein Properties. *Biomacromolecules* 2019, 20, 10, 3713-3723. [Link]

S Chopra, N Bertrand, J Lim, **A Wang**, O Farokhzad, R Karnik. Design of Insulin-Loaded Nanoparticles Enabled by Multistep Control of Nanoprecipitation and Zinc Chelation. *ACS Applied Materials & Interfaces* 2017 9 (13), 11440-11450. [Link]

WORKSHOP

A Wang, AP Amini, AX Lu, KK Yang. Learning from physics-based features improves protein property prediction. *Machine Learning in Structural Biology Workshop* 2022. [Link]

HONORS AND AWARDS

University Nominee for the Schmidt Science Fellows	2022
<i>8 Stanford students nominated</i>	
Valuation of Public Companies in the Life Sciences Pitch Competition - First Place	2020
Stanford Graduate Fellowship in Science & Engineering	2018
NSF Graduate Research Fellowship	2018
ChemH Chemistry/Biology Interface Travel Award	2018
Tau Beta Pi Honors Society	2017
MIT Chemical Engineering Departmental BP Academic Achievement Award	2016

INVITED TALKS	Bay Area Cytoskeleton Symposium - Full Talk	Oct 2022
	Centre for Mechanochemical Cell Biology – Motors in Quarantine Talk	Oct 2022
	Stanford Chemical Engineering Convocation – Distinguished Graduate Speaker	Sept 2022
	Stanford Chemistry/Biology Interface Training Program Retreat	June 2021
	Stanford Molecular & Cellular Physiology – Science Friday Seminar Series	March 2021
TEACHING EXPERIENCE	Chemical Kinetics and Reaction Engineering (Graduate-level) TA	2021
	Chemical Kinetics and Reaction Engineering (Graduate-level) TA	2020
	MIT Department of Chemical Engineering Undergraduate Tutor	2017-2018
OTHER WORK EXPERIENCE	Stanford Office of Technology Licensing <i>Intern</i>	Stanford, CA Oct 2021-Oct 2022
	• Evaluate invention disclosures, analyze patent landscape, and prepare marketing abstracts	
	ExxonMobil <i>Process Engineer Intern</i>	Houston, TX Jun-Sept 2016
	• Developed a process design model for a refinery unit	
	Goldman Sachs <i>Structured Credit Trading Analyst Intern</i>	New York, NY Jan 2016
	• Performed credit risk analyses and built financial valuation models	
SERVICE AND LEADERSHIP	Stanford Graduate Life Office, Head Community Associate	2021-2023
	Stanford Molecular & Cellular Physiology DEI Committee Liaison	2020-2022
	Stanford Graduate Life Office, Community Associate	2019-2021
	East Palo Alto Tennis & Tutoring Mentor	2019-2020
	Bay Area Graduate Pathways to STEM Mentor & Panel Speaker	2018-2020
	Stanford Future Advancers of Science and Technology Mentor	2018-2019
	MIT AIChE Vice President, External Relations	2016-2018
MIT Undergraduate Advising & Academic Programming Steering Committee	2015-2017	
SKILLS	Computation Python, Unix, PyTorch, NumPy, MATLAB, machine learning, parameter estimation, PyRosetta, Monte Carlo simulation	
	Experimental Optical tweezers, protein expression and purification, western blots, cloning, kinetic binding assays, mammalian and bacterial cell culture	