

Menghua (Rachel) Wu

EDUCATION

Massachusetts Institute of Technology

CAMBRIDGE, MA

2020 - 2025	PhD candidate	Computer Science
2019 - 2020	MEng	Computer Science
2015 - 2019	BS	Computer Science, Mathematics

SELECTED PUBLICATIONS

Menghua Wu, Russell Littman, Jacob Levine, Lin Qiu, Tommaso Biancalani, David Richmond, Jan-Christian Huetter. [Contextualizing biological perturbation experiments through language](#). *International Conference on Learning Representations (Poster)*, 2025.

Menghua Wu, Umesh Padia, Sean H. Murphy, Regina Barzilay, Tommi Jaakkola. [Predicting perturbation targets through causal differential networks](#). *Preprint*, 2025.

Wenxian Shi, **Menghua Wu**, Regina Barzilay. [Predicting sub-population specific viral evolution](#). *Transactions on Machine Learning Research*, 2025.

Menghua Wu, Yujia Bao, Regina Barzilay, Tommi Jaakkola. [Sample, estimate, aggregate: A recipe for causal discovery foundation models](#). *Preprint*, 2024.

Bo Qiang, Wenxian Shi, Yuxuan Song, **Menghua Wu**. [PROflow: An iterative refinement model for PROTAC-induced structure prediction](#). *GEM workshop at ICLR (Oral)*, 2024.

Wenxian Shi, Jeremy Wohlwend, **Menghua Wu**, Regina Barzilay. [VaxSeer: Selecting influenza vaccine strains through evolutionary and antigenicity models](#). *Preprint*, 2024.

Mohamed Amine Ketata, Cedrik Laue, Ruslan Mammadov, Hannes Stärk, **Menghua Wu**, Gabriele Corso, Céline Marquet, Regina Barzilay, Tommi S. Jaakkola. [DiffDock-PP: Rigid Protein-Protein Docking with Diffusion Models](#). *ICLR Machine Learning for Drug Discovery Workshop*, 2023.

Yujia Bao*, **Menghua Wu***, Shiyu Chang, Regina Barzilay. [Few-shot Text Classification with Distributional Signatures](#). *International Conference on Learning Representations (Poster)*, 2020.

Menghua Wu, Marina Sirota, Atul Butte, Bin Chen. [Characteristics of drug combination therapy in oncology by analyzing clinical trial data on ClinicalTrials.gov](#). *Pacific Symposium on Biocomputing (Oral)* 20:68-79. 10.1142/9789814644730_0008 (2015).

INVITED TALKS

[PROflow: An iterative refinement model for PROTAC-induced structure prediction](#)

May 11, 2024,
VIENNA, AUSTRIA

Generative and Experimental Perspectives for Biomolecular Design Workshop, ICLR 2024.

SERVICE

- Organizer for Generative AI and Biology workshop at 2023 Conference on Neural Information Processing Systems (NeurIPS)
- Organizer for Molecular Machine Learning conference (MoML), 2022-2024
- Reviewer for Machine Learning in Structural Biology workshop at NeurIPS 2023
- Reviewer for *Scientific Reports*, *Bioinformatics*

TEACHING

Machine Learning

Teaching Assistant

Massachusetts Institute of Technology

Fall 2018

Introduction to Machine Learning

Teaching Assistant

Massachusetts Institute of Technology

Spring 2019

Teaching Assistant

Fall 2017

Grader

Spring 2017

EECS Associate Advising

Advised students regarding EECS course selections

Massachusetts Institute of Technology

2018-2019

AWARDS

NSF Graduate Research Fellowship

2020

IBM Outstanding Poster Award

2020

Intel Science Talent Search Semifinalist

2015

USA Biology Olympiad Semifinalist

2015

National Merit Finalist

2015

Presidential Scholar Candidate

2015

WORK EXPERIENCE

Genentech

SOUTH SAN FRANCISCO, CA

Summer Intern - Biology Research | AI Development

MAY 2024 / AUG 2024

Modeling single cell perturbation data through knowledge graphs and large language models.

Emerald Innovations

CAMBRIDGE, MA

Software Engineering Intern

JUN 2020 / AUG 2020

Deep learning on RF signals (3D videos) for person re-identification.

MIT-IBM AI Watson Lab

CAMBRIDGE, MA

Summer Intern - Biology Research | AI Development

JUN 2019 / AUG 2019

Semi-supervised approaches for information extraction. Transfer learning for natural language.

Bloomberg LP

Software engineering intern

Statistical analysis of large-scale mortgage bonds for anomaly detection.

NEW YORK CITY, NY

JUN 2018 / AUG 2018

Amazon Lab 126

Software development intern

Developed React web app for IoT monitoring.

CUPERTINO, CA

JUN 2016 / AUG 2016

MAY 2017 / AUG 2017

Stanford School of Medicine

Stanford Institutes of Medicine Summer Research Program (SIMR)

Statistical analysis of clinical trials with drug combinations.

STANFORD, CA

JUN 2014 / AUG 2014

National Institutes of Health

Research intern

Created DNA constructs for genetic network to monitor intercellular signaling.

BETHESDA, MD

JUN 2013 / AUG 2013

LANGUAGES

Native English, Mandarin Chinese

Limited Spanish, Japanese