

James P. Roney

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Education

Massachusetts Institute of Technology
Ph.D. Computational and Systems Biology

Cambridge, MA
September 2024–Present

Harvard University
A.B. Computer Science and A.M. Statistics
Summa Cum Laude with Highest Thesis Honors

Cambridge, MA
September 2018–May 2022

Experience

DE Shaw Research
Research Engineer

New York, NY
August 2022–September 2024

- Worked on problems at the intersection of machine learning and drug discovery

Sergey Ovchinnikov Lab
Undergraduate Researcher

Cambridge, MA
September 2021–November 2022

- Investigated the internal workings of AlphaFold
- First author on paper published in *Physical Review Letters*

DE Shaw Research
Machine Learning Intern

New York, NY
May – August 2021, May – August 2020

- Designed and built a 3D-Equivariant generative model for small molecules
- Created a novel 3D-Equivariant transformer architecture for end-to-end protein structure prediction
- Developed a deep learning model to predict protein structures using attention mappings from self-supervised machine learning

Franziska Michor Lab
Undergraduate Researcher

Cambridge, MA
December 2018–February 2020

- Created novel statistical methods for Bayesian estimation of arbitrary branching process models
- First author on paper published in *Bioinformatics*

Harvard University
Teaching Fellow

Cambridge, MA
January 2020 – January 2021

- Teaching assistant for *CS 121: Introduction to Theoretical CS* at Harvard (Fall 2020)
- Teaching assistant for *Stat 111: Statistical Inference* at Harvard (Spring 2020)
- Held sections and office hours, prepared materials for students, graded student work

Honors and Awards

- Hertz Fellowship (\$250,000 fellowship to support my graduate studies at MIT)
- Hoopes Prize (\$5,000 award for an outstanding senior thesis at Harvard)
- Elected to Phi Beta Kappa, Alpha Iota of Massachusetts
- Harvard Certificate of Distinction in Teaching

Publications

1. Roney J, and Ovchinnikov S (2022). State-of-the-Art estimation of protein model accuracy using AlphaFold. *Physical Review Letters*.
2. Roney J, Appel T, Piniseti P, Mickens J (2021). Identifying valuable pointers in heap data. *Workshop on Offensive Technologies*.
3. Roney J, Ferlic J, Michor F, McDonald TO (2020). ESTIpop: A computational tool to simulate and estimate parameters for continuous-time Markov branching processes. *Bioinformatics*.