

# Peter Pao-Huang

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## EDUCATION

### Stanford University

*Ph.D. in Computer Science*

Palo Alto, California

Sep 2024 – May 2029

### University of Illinois at Urbana-Champaign

*B.S. in Computer Science*

Champaign, Illinois

Sep 2020 – May 2024

## PUBLICATIONS

**Pao-Huang, P.**, Black, M., Qiu, X., 2025. Geometric Generative Modeling with Noise-Conditioned Graph Networks. *International Conference on Machine Learning*.

**Pao-Huang, P.**, Thrush, K., Montemayor, D., Levine, M., 2023. Unpaired Single Cell Dataset Alignment with Wavelet Optimal Transport. *In Conference Submission*.

**Pao-Huang, P.**, Jing, B., Berger, B., 2023. Scalable Multimer Structure Prediction using Diffusion Models. *NeurIPS 2023 AI4Science Workshop*.

Jing, B., Erives, E., **Pao-Huang, P.**, Corso, G., Berger, B. and Jaakkola, T., 2023. EigenFold: Generative Protein Structure Prediction with Diffusion Models. *ICLR MLDD Workshop*.

Zhao, Y., Sharif, H., **Pao-Huang, P.**, Shah, V., Sivakumar, A. N., Valverde Gasparino, M., ... & Adve, V. (2023). ApproxCaliper: A Programmable Framework for Application-aware Neural Network Optimization. *Proceedings of Machine Learning and Systems*.

## RESEARCH EXPERIENCE

### Altos Labs

*Research Intern, Advised by Professor Morgan Levine*

San Diego, California

Jun 2023 – Oct 2023

- Worked with the Morgan Levine group on generative modeling efforts for single-cell omics and imaging in cellular rejuvenation.
- Created a novel optimal transport method (“Wavelet Optimal Transport”) for unpaired modality alignment using spectral graph wavelets.

### Computation & Biology Group (MIT CSAIL)

*Research Assistant, Advised by Professor Bonnie Berger*

Cambridge, Massachusetts

Oct 2022 – Jun 2023

- Researched generative modeling and physics-informed deep learning applied to drug discovery.
- Developed a novel diffusion-based generative model for protein conformation sampling and folding.
- Created a new diffusion SE(3)-equivariant model to predict large multimeric structures that is more scalable than previous methods.

### LLVM Research Group

*Research Assistant, Advised by Professor Vikram Adve*

Urbana, Champaign

Sept 2020 – Sept 2022

- Co-authored paper published in MLSys for neural network optimization (structured pruning, low-rank factorization, and quantization) and approximate computing on edge computing devices.
- Developed PyTorch-based federated semi-supervised learning framework for distributed, computer vision-based systems.

## WORK EXPERIENCE

### Two Sigma Investments

*Software Engineering Intern*

New York, New York

Jun 2022 – Aug 2022

- Integrated Bayesian statistical modeling to critical classes of forecast models.
- Built framework for evaluating probabilistic programming languages (PPLs) like PyMC and Stan, used by quantitative researchers to select the optimal language to express Bayesian models.

### Avant

*Machine Learning Intern*

Chicago, Illinois

May 2021 – Aug 2021

- Developed a Python-based machine learning library utilizing distributed computing to enable model training and scoring on large-scale datasets.

- Deployed library through Docker on production Kubernetes clusters used for in-house model training and evaluation tasks.
- Created parallelized versions for Scikit-learn models, transforms, & hyperparameter optimization

## AWARDS & FELLOWSHIPS

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<b>National Science Foundation Graduate Research Fellowship (NSF GRFP)</b>	2025–2028
<b>Stanford School of Engineering Fellowship</b>	2024–2025