

Pascal Sturmfels

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EDUCATION	Ph.D. in Computer Science , Institute for Protein Design, University of Washington <ul style="list-style-type: none">I was supervised by David Baker. My research focused on developing deep learning models for protein design and structure prediction, and in particular predicting the structure of protein-ligand complexes. I was generally interested in applications in drug discovery, including docking and virtual screening.From 2018 to 2020 I worked in the AIMS Lab developing methods for explainable machine learning.	June 2024
	B.E in Computer Science, Minor in Mathematics , University of Michigan	Fall 2017
EMPLOYMENT	Meta AI Research , <i>Research Intern</i> <ul style="list-style-type: none">Supervised by Alexander Rives and Adam LererDeveloped large language models for protein sequence diversification tasks	Summer 2022
	Salesforce Research , <i>Research Intern</i> <ul style="list-style-type: none">Supervised by Nazneen Rajani, Jesse Vig and Ali MadaniWorked on novel, self-supervised pre-training tasks for protein language models	Summer 2020
	MLD3 Lab , <i>Research Assitant</i> <ul style="list-style-type: none">Supervised by Jenna WiensDesigned new CNN architectures for predicting properties from MRI scans	September 2017 - May 2018
	Microsoft , <i>Software Engineering Intern</i> <ul style="list-style-type: none">Worked on the Core Services Engineering and Operations Team (CSEO)	Summer 2017
	CAAR REU , <i>Research Assistant</i> <ul style="list-style-type: none">Supervised by Samir KhullerWorked on approximation algorithms for online machine scheduling problems	Summer 2016
	Pachter Lab , <i>Research Assistant</i> <ul style="list-style-type: none">Supervised by Lior Pachter and Harold PimentalWorked on data visualization tools for differential expression analysis.	May 2015 - July 2016
TEACHING EXPERIENCE	Teaching Assistant , University of Washington <ul style="list-style-type: none">CSE 312: Foundations of ComputingCSE 427: Computational BiologyCSE 546: Machine Learning	Summer 2021 Spring 2021 Fall 2018
	Teaching Assistant , University of Michigan <ul style="list-style-type: none">EECS 445: Machine LearningEECS 376: Theory of Computation	Fall 2017 Winter 2017
PUBLICATIONS	[1] Krishna, Rohith, Jue Wang, Woody Ahern, Pascal Sturmfels , Preetham Venkatesh, Indrek Kalvet, Gyu Rie Lee et al. "Generalized biomolecular modeling and design with RoseTTAFold All-Atom." <i>Science</i> (2024). [2] Sturmfels, Pascal , Roshan Rao, Robert Verkuil, Zeming Lin, Ori Kabeli, Tom Sercu, Adam Lerer, and Alexander Rives. "Seq2MSA: A Language Model for Protein Sequence Diversification." <i>Machine Learning for Structural Biology, NeurIPS Workshop</i> (2022). [3] Rutherford, Saige, Pascal Sturmfels , Mike Angstadt, Jasmine Hect, Jenna Wiens, Marion I. van den Heuvel, Dustin Scheinost, Moriah Thomason, and Chandra Sripada. "Observing the origins of human brain development: automated processing of fetal fMRI." <i>Neuroinformatics</i> (2021): 1-13. [4] Beebe-Wang, Nicasia, Safiye Celik, Ethan Weinberger, Pascal Sturmfels , Phillip L. De Jager, Sara Mostafavi, and Su-In Lee. "Unified AI framework to uncover deep interrelationships between gene expression and Alzheimer's disease neuropathologies." <i>Nature communications</i> 12.1 (2021): 1-17.	

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- [6] Erion, Gabriel*, Joseph D. Janizek*, **Pascal Sturmfels***, Scott Lundberg, and Su-In Lee. "Improving performance of deep learning models with axiomatic attribution priors and expected gradients." *Nature Machine Intelligence* (2021): 1-12.
- [7] Evtimov, Ivan, **Pascal Sturmfels**, and Tadayoshi Kohno. "FoggySight: A Scheme for Facial Lookup Privacy." *Proc. Priv. Enhancing Technol.* 2021.3 (2021): 204-226.
- [8] **Sturmfels, Pascal**, Jesse Vig, Ali Madani, and Nazneen Fatema Rajani. "Profile Prediction: An Alignment-Based Pre-Training Task for Protein Sequence Models." *Machine Learning for Structural Biology, NeurIPS Workshop* (2020).
- [9] **Sturmfels, Pascal**, Scott Lundberg, and Su-In Lee. "Visualizing the impact of feature attribution baselines." *Distill* 5, no. 1 (2020): e22.
- [10] Khuller, Samir, Jingling Li, **Pascal Sturmfels**, Kevin Sun, and Prayaag Venkat. "Select and permute: An improved online framework for scheduling to minimize weighted completion time." *Theoretical Computer Science* 795 (2019): 420-431.
- [11] **Sturmfels, Pascal**, Saige Rutherford, Mike Angstadt, Mark Peterson, Chandra Sripada, and Jenna Wiens. "A Domain Guided CNN Architecture for Predicting Age from Structural Brain Images." *In Machine Learning for Healthcare Conference*, pp. 295-311. 2018.
- [12] Pimentel, Harold, **Pascal Sturmfels**, Nicolas Bray, Páll Melsted, and Lior Pachter. "The Lair: a resource for exploratory analysis of published RNA-Seq data." *BMC bioinformatics* 17, no. 1 (2016): 490.