Pascal Sturmfels

WORK EXPERIENCE

Deep Learning Researcher
University of Michigan
SEPTEMBER 2017 – MAY 2018

- Developed a novel CNN architecture to predict age from 3D structural MRI, which reduced per-patient loss by over 15% and training time by over 30%
- Developed the first robust, CNN-based pipeline to segment brains from fetal fMRI image; the pipeline is orders of magnitude faster than hand-labeling fetal images.

Software Engineering Intern
Microsoft, Redmond
MAY 2017 – JULY 2017

- Implemented a Spark Pipeline to simulate concurrent, high-intensity SQL queries to stress-test client-facing SQL databases
- Designed a modular system to automatically monitor and scale Azure SQL databases, reducing our organization's usage expenditure by up to 30%

Mobile Developer
University of Michigan, Ann Arbor
JANUARY 2016 – DECEMBER 2016

- Developed a peer-to-peer communication app that is resilient to censorship and network blocking
- Designed and implemented protocols to simulate mesh-networking using the iOS Multipeer Connectivity framework

Algorithms Researcher
University of Maryland, College Park
JUNE 2016 – AUGUST 2016

- Designed a general, online framework to improve approximation ratio of scheduling algorithms in multiple settings
- Developed the first exponential-time algorithm to optimally solve a certain scheduling problem

Computational Biology Researcher
University of California, Berkeley
MAY 2015 – JULY 2016

- Developed data visualization tools for next-generation sequencing software
- Designed pachterlab.github.io/lair/, which automatically analyzes and serves data from published papers

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EDUCATION

CURRENT	**PhD in Computer Science** *University of Washington, Seattle*
DEC. 2017	**BSE in Computer Science** **Minor in Mathematics** 4.0/4.0 *University of Michigan, Ann Arbor* *EECS Scholar* *James B. Angell Scholar*

PERSONAL AND SCHOOL WORK

Teaching Assistant
University of Washington
SEPTEMBER 2018 – DECEMBER 2018

- CSE 546: Machine Learning

Teaching Assistant
University of Michigan
JANUARY 2017 – DECEMBER 2017

- EECS 445: Machine Learning
- EECS 376: Theory of Computation

PUBLICATIONS

[1] S. Khuller, J. Li, P. Sturmfels, K. Sun, and P. Venkat. "Select and Permute: An Improved Online Framework for Scheduling to Minimize Weighted Completion Time". In: *ArXiv e-prints* (Apr. 2017). arXiv: 1704.06677 [cs.DS].

[2] Harold Pimentel, Pascal Sturmfels, Nicolas Bray, Pall Melsted, and Lior Pachter. "The Lair: a resource for exploratory analysis of published RNA-Seq data". In: *BMC Bioinformatics* 17.1 (2016), p. 490. ISSN: 1471-2105. DOI: 10.1186/s12859-016-1357-2.

[3] Saige Rutherford, Pascal Sturmfels, Mike Angstadt, Jasmine Hect, Jenna Wiens, Marion I van den Heuval, Dustin Scheinost, Moriah Thomason, and Chandra Sripada. "Observing the origins of human brain development: Automated processing of fetal fMRI". In: *bioRxiv* (2019), p. 525386.

[4] Pascal Sturmfels, Saige Rutherford, Mike Angstadt, Mark Peterson, Chandra Sripada, and Jenna Wiens. "A Domain Guided CNN Architecture for Predicting Age from Structural Brain Images". In: *arXiv preprint arXiv:1808.04362* (2018).