Pascal Sturmfels

✍ 1760 Broadway Street, Apartment N214
Ann Arbor, MI 48105
☎ (510) 220 0281
✉ psturm@umich.edu
psturmfels.github.io

Work Experience

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%
- Devised methods to more quickly publish billions of financial records from the cloud to a client-queryable state

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
- Implemented safe persistent storage and stored-object relationships in Swift using the iOS Core Data framework
- 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
- Tested novel scheduling algorithms on Facebook scheduling data to demonstrate performance on real-world data

Computational Biology Researcher
University of California, Berkeley
May 2015 – July 2016

- Developed data visualization tools for next-generation sequencing software
- Reduced storage size of genomic data by an order of magnitude
- Designed pachterlab.github.io/lair/, which automatically analyzes and serves data from published papers

Education

April 2018 — **BSE in Computer Science**
Minor in Mathematics
University of Michigan, Ann Arbor

Courses — *Machine Learning*
Natural Language Processing
Data Mining
Design and Analysis of Algorithms

Personal and School Work

2017 **Instructional Aide**

- Teaching Machine Learning: covering linear classification, SVMs, Deep Learning, and clustering
- Taught Theory of Computation: covered algorithm paradigms, complexity classes, and analysis of algorithms

2017 **iPhone Game Development**

- Solo-developing Avalanche, an iOS game, using SpriteKit, GameKit and StoreKit
- Designed interactive scenes and sprites in Illustrator

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, Páll 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.