

Pascal Sturmfels

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

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EDUCATION

APRIL 2018	BSE in Computer Science Minor in Mathematics 4.0/4.0 <i>University of Michigan, Ann Arbor</i>
COURSES	<i>Machine Learning</i> <i>Natural Language Processing</i> <i>Data Mining</i> <i>Design and Analysis of Algorithms</i>

PERSONAL AND SCHOOL WORK

2017	Instructional Aide <ul style="list-style-type: none">• Teaching Machine Learning: covering regression, optimization techniques, SVMs, Deep Learning, and clustering• Taught Theory of Computation: covered algorithm paradigms, complexity classes, and analysis of algorithms
2017	iPhone Game Development <ul style="list-style-type: none">• 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.