Arjun Rawal

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Professional Experience

SDE II, S3 April 2022 -
SDE I, S3 September 2020 - March 2022
Amazon Web Services, Seattle, WA

- Designed, built, and operated Java-based distributed systems processing millions of batch jobs on billions of S3 objects per day.
- Improved operational health and service stability, enabling rapid usage and regional growth without manual action
- Led implementation and release of new features enabling 99% cost reduction when encrypting objects in S3.

Grader, Computer Science Department January 2020 - June 2020
Univeristy of Chicago, Chicago, IL

SDE Intern, S3 June 2019 - September 2019
Amazon Web Services, Seattle, WA

Software Development Engineer Intern June 2018 - September 2018
John D. and Catherine T. MacArthur Foundation, Chicago, IL

Software Development Engineer Intern June 2017 - November 2017
Halo Investing, Chicago, IL

Education

University of Chicago, Chicago, IL
B.S. in Computer Science, Mathematics. 2016 - 2020
M.S. in Computer Science. 2019 - 2020
Advisor: Andrew A. Chien
Master's Paper: *Exploiting Domain-Specific Data Properties to Improve Compression for High Energy Physics Data*

Skills

- Languages - Java, C, Python, Bash
- Specializations - Distributed systems, data storage, parallel processing, system architecture

Research Experience

Research Assistant, UChicago Databases Group March 2020 - December 2020
University of Chicago, Chicago, IL
Advisor: Raul Castro Fernandez

Research Assistant, Large-Scale Systems Group June 2018 - June 2020
University of Chicago, Chicago, IL
Advisor: Andrew A. Chien

Publications

Exploiting Domain-Specific Data Properties to Improve Compression for High Energy Physics Data
Arjun Rawal.
University of Chicago Technical Report
TR-2020-03

Programmable Acceleration for Sparse Matrices in a Data-Movement Limited World
Arjun Rawal, Yuanwei Fang, and Andrew A. Chien.
In *IEEE International Parallel and Distributed Processing Symposium Workshops*
DOI:10.1109/IPDPSW.2019.00016
IPDPSW, 2019

Presentations

Programmable Acceleration for Sparse Matrices in a Data-Movement Limited World
Arjun Rawal, Yuanwei Fang, and Andrew A. Chien
Heterogeneity in Computing Workshop (HCW).
Rio de Janeiro, Brazil, March 2019

Posters

Project 38: Accelerating Architecture Innovation into Fieldable Extreme-Scale Systems (A Cross-Agency Effort)
John Shalf, Dilip Vasudevan, David Donofrio, Anastasia Butko, Andrew A. Chien, Yuanwei Fang, Arjun Rawal, Chen Zou, Ray Bair, Kris Keipert, Arun Rodriguez, Maya Gokhale, Scott Lloyd, Xiaochen Guo, Yuan Zeng
SC19: The International Conference for High Performance Computing, Networking, Storage, and Analysis
Denver, CO, November 2019

Accelerating Sparse Matrix Computation Using the UDP/Recoding Engine
Arjun Rawal, Yuanwei Fang, and Andrew A. Chien
8th Greater Chicago Area Systems Research Workshop.
Chicago, IL, May 2019

Honors and Awards

Technical Committee on Parallel Processing Award Recipient 2019

University of Chicago Dean's List 2017 - 2020

Dean's Fund for Undergraduate Research Scholarship 2019

Community and Professional Service

Volunteer Speaker 2019
Hour of Code Initiative, Argonne National Lab

Relevant Coursework

Computer Science: Parallel Computing · Computer Architecture · Machine Learning · Security · Operating Systems · Database Systems · Networks · Distributed Systems · Cryptography · Algorithms · Programming Language Theory · Complexity Theory · Formal Languages

Mathematics: Abstract Linear Algebra · Basic Algebra · Real Analysis · Statistical Models and Methods · Discrete Mathematics