Zachary Marcus

zacharyjmarcus@gmail.com • https://zmarcus.com • 704.763.5707

WORK EXPERIENCE

Google Sunnyvale, CA
Software Engineer II | Core Systems - Architecture and Optimization March 2019 - Present
- Maintain large-scale data pipelines; migrated highest-cost pipelines to more robust frameworks
- Maintain and update http://github.com/google/perf_data_converter to process performance data
- Debug and address production issues as part of a monthly oncall rotation
- Optimized and increased reliability of internal high-traffic proxy and privilege escalation service
- Established highly reliable process for evaluating safety and monitoring of system calls

Google Mountain View, CA
Software Engineering Intern | ChromeOS - WiFi April 2018 - August 2018
- Designed and implemented new features to detect regressions during device analysis and bring-up
- Refactored test design to reduce technical debt and facilitate reliability and performance testing
- Collaborated with other engineers and a third-party vendor to incorporate new test chamber
- Improved performance measurements by leveraging chamber to characterize real-world WiFi behavior

Facebook Menlo Park, CA
Software Engineering Intern | Infrastructure - TAO January 2018 - March 2018
- Improved consistency across Facebook's major data store, a distributed cache written in C++
- Designed and implemented a new method of evicting stale cache items, improving hit rate by 0.7%
- Decreased upstream QPS to leader machines by 1.8%, saving considerable operating costs

MIT Lincoln Laboratory Lexington, MA
Software Engineering Co-op | Embedded and Open Systems January 2017 - September 2017
- Created C++ library to facilitate radar subsystem integration between defense contractors
- Developed mission-critical software in C++ and analyzed bottlenecks for real-time signal processing
- Designed data collection and image analysis framework; earned first in fake news detection hackathon

Advanced Micro Devices (AMD) Boxborough, MA
Software Engineering Co-op | Shader Compiler January 2016 - August 2016
- Designed pipeline in Python to streamline driver performance analysis
- Developed test cases and internal transcompiler for compiler's new intermediate language specification
- Improved performance of two AAA videogames by 15% by optimizing cache and register usage

RESEARCH EXPERIENCE

International Supercomputing Competitions Boston, MA
Northeastern University Team Application Leader July 2015 - September 2018
- Primary author of paper published in *Parallel Computing* October 2018
- Profiled application-specific performance characteristics to make source code modifications
- Earned first place nationally at SC 2017 and broke Linpack competition records at ISC 2017

Computer Architecture Research Lab Boston, MA
Undergraduate Research Assistant May 2015 - May 2016
- Developed Android binaries and performed side-channel analysis of mobile device chipsets

EDUCATION

Northeastern University Boston, MA
Bachelor of Science in Computer Engineering December 2018
Honors: GPA: 3.8 (*magna cum laude*), Dean's List, Eta Kappa Nu, Tau Beta Pi, National Merit Scholar
Coursework: High Performance Computing, Object Oriented Design, Networks & Distributed Systems, Algorithms & Data, Embedded Design, Logic & Computation, Electronics, Web Development

SKILLS AND ACTIVITIES

Proficient Languages: C++, Python, C, Go, Typescript, Java
Development Tools: Git, Mercurial, Perforce, SVN, Linux, Windows
Technical Experience: MPI, OpenMP, React, Angular, Ionic, HTML+CSS, CUDA, OpenCL, Soldering
Clubs and Activities: Senior Capstone 1st place, NEU Hardware Hacks (1st), MakeBU Hackathon (1st)