

# Zachary Marcus

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## EDUCATION

### Northeastern University

Boston, MA

*Candidate for Bachelor of Science in Computer Engineering and Computer Science*

GPA: 3.8 • Graduation Date: December 2018

Honors: Dean's List, National Merit Scholar

## WORK EXPERIENCE

### Google LLC

Mountain View, CA

*Software Engineering Intern | ChromeOS*

April 2018 - Present

- Refactoring test design and hierarchy to reduce technical debt and facilitate further tests
- Improving test infrastructure of ChromeOS wifi performance by automating changes to test environment

### Facebook, Inc.

Menlo Park, CA

*Software Engineering Intern | Infrastructure - TAO Team*

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 0.6%
- Decreased queries per second to leader machines, saving millions in operating costs

### MIT Lincoln Laboratory

Lexington, MA

*Software Engineering Co-op | Embedded and Open Systems Group*

January 2017 - September 2017

- Created C++ library to facilitate radar subsystem integration between defense contractors
- Analyzed performance bottlenecks and optimized real-time signal processing
- Developed mission-critical software in C++ for use in distributed 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 Group*

January 2016 - August 2016

- Designed Python tool to streamline driver performance analysis
- Collaborated with hardware engineers to determine performance metrics for applications
- Developed test cases and internal transcompiler for compiler's new intermediate language specification
- Improved performance of 2 major applications by 15% or more by optimizing cache and register usage

## RESEARCH EXPERIENCE

### International Supercomputing Competitions

Boston, MA

*Northeastern University Team Application Leader*

July 2015 - Present

- Gained hands-on experience in high performance hardware and optimized configurations for applications
- Profiled application-specific performance characteristics to make source-code modifications
- Earned first place nationally at SC 2017; was invited to submit results for a feature in Parallel Computing
- Broke the competition record for Linpack at ISC 2017 in Frankfurt, Germany

### Computer Architecture Research Lab

Boston, MA

*Undergraduate Research Assistant*

May 2015 - May 2016

- Developed Android binaries for side-channel analysis of mobile device chipsets
- Presented findings at Research, Innovation, and Scholarship Expo at Northeastern University
- Expanded Android app for simplified GPU benchmarking, porting a heterogeneous benchmark suite

## SKILLS AND ACTIVITIES

*Proficient Languages:* C++, Python, C, Java

*Familiar Languages:* MIPS Assembly, SystemVerilog, JavaScript, HTML, CSS, XML

*Development Tools:* Git, Mercurial, SVN, Perforce, Linux, Windows

*Technical Experience:* MPI, OpenMP, Embedded C, CUDA, OpenCL, TensorFlow, Soldering

*Clubs and Activities:* Planetary Lander Software Lead, IEEE Webmaster, NEU Hardware Hackathon (1st), MakeBU Hackathon (1st), Pavlok Hardware Hackathon (2nd)

*Volunteer Work:* Husky Ambassadors, Hostelling International, Generation Citizen