Miriam Zimmerman

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Experience

Google: Software Engineer, Google Cloud Security — July 2015 –

- Worked on Trusted Platform Module code and related software:
  - Found bugs in Linux kernel's TPM 2.0 driver; wrote and merged fixes to upstream
  - Wrote code to generate Endorsement Key certificates
  - Implemented TPM register interface to public specification
  - Dramatically increased test coverage and added automated fuzzing
- Substantially increased difficulty for an attacker that manages to break out of a virtual machine to move laterally to other production machines.
- Evaluated several options for detecting the Spectre and Meltdown vulnerabilities using Intel hardware performance counters:
  - Reviewed research on side-channel cache attack detection
  - Proposed detection methods
  - Measured false positive/negative rates for proposed schemes
  - Wrote a widely-read internal report on detection options
- Designed, implemented, and evaluated several hardware performance counter options to attempt to detect specific malicious behavior on Google Compute Engine.
- Worked on implementation and test infrastructure for a minimal Type-I hypervisor. Automated test process and reduced time to run tests from roughly 30 minutes to roughly 5.
- Developed a plan to improve inclusiveness in the Cloud Security organization as it grows, shared it with the directors of the org, and met with one of them to discuss it in depth and further develop it.

TEALS: Volunteer Teacher — 2017-2018

- Began as a volunteer TA and stepped up to volunteer teacher when need arose
- Make and deliver lectures on Advanced Placement CS topics

Google: Software Engineering Intern — Summer 2014

- Worked on hardware key storage support for end-to-end
- Participated in a successful penetration testing exercise

Google: Site Reliability Engineering Intern — Summer 2013

- Improved reliability of a program that garbage collects old files
- Increased usability of a tool used to analyze monitoring files

Khan Academy: Software Engineering Intern — Summer 2012

- Simplified A/B testing for changes in certain key metrics
- Wrote a script to monitor rate of bug reports (git.io/dweXRw)

Education

Carnegie Mellon University, School of Computer Science — May 2015
B.S. in Computer Science with University Honors (GPA: 3.82)

Languages

C++, C, Python, bash, x86 assembly, Java, SML, LaTeX, JavaScript

Tools

vim, bazel, googletest, Abseil C++ libs, protobuf, git, Mercurial, svn, Eclipse