

OVERVIEW A Software Engineer with more than 5 years of experience in **security**, **low-level systems**, and **performance**, with a history of designing and implementing novel solutions to difficult problems.

PROFESSIONAL EXPERIENCE **Infrastructure Security Lead Engineer** at Asana (January 2019 - Present)

Leads the Infrastructure Security team. Prevents malicious actors from gaining access to customer data, and works with other teams to ship simpler and more compartmentalized infrastructure.

Accomplishments: Led various projects, including implementing isolation for untrusted services via AWS Lambda. Designed a novel approach for end-to-end encryption while supporting search.

Software Development Engineer at Green Hills Software (July 2016 - January 2019)

Worked on safety and performance critical code used around the world, particularly in hypervisors. Code I've written secures everything from millions of cars to critical systems for governments.

Accomplishments: Designed the world's highest-throughput mutex, developed a secure and high-performance GPU virtualization approach, ported a commercial operating system to Intel Skylake chips, and led a team building secure systems using hypervisors and separation kernels.

Security Research Intern at BAE Systems Applied Intelligence (June 2015 - August 2015)

Researched efficient and non-invasive taint analysis for zero-day detection and analysis of common off-the-shelf programs, such as Microsoft Word.

Accomplishments: Designed a scalable lock-free resizing hashtable, developed a 64-bit programmatic debugger, and contributed to a lock-free Python interpreter.

Security Intern at SilverSky (June 2014 - August 2014)

Led a successful project to defend against file-based exploits in common programs, such as Internet Explorer and Microsoft Word, through server-side monitoring.

Accomplishments: Developed an innovative framework that could successfully detect and prevent zero-day exploits without utilizing signature detection.

Teaching Assistant at Carnegie Mellon University (August 2013 - May 2016)

Teaching assistant for six semesters at CMU, including for 15-410 (*Operating System Design*) and 15-411 (*Compiler Design*). Interacted with hundreds of students while designing homeworks and projects, holding office hours, and teaching recitations.

Software Engineer Intern at SilverSky (June 2013 - August 2013)

Developed a custom automated functional/regression testing tool for SilverSky's Email Protection Suite, allowing it to be continuously validated. Added new features to the SilverSky email service, including the ability to transparently view Microsoft TNEF files in their email webclient.

Software Engineer Intern at Perimeter E-Security (June 2011 - August 2012)

Developed the mobile version of Perimeter's flagship email client from scratch, supporting hundreds of customers. Made various changes to the mail server and client, including adding support for POP3 over SSL and improving calendar usability.

EDUCATION **Carnegie Mellon University** (August 2012 - May 2016)

Bachelor of Science in **Computer Science**, Minor in Mathematics

LANGUAGES AND TOOLS Significant professional experience developing in **C**, **Python**, and **Javascript**. Working knowledge of **C++**, **x64 assembly**, **OCaml**, **Standard ML**, **PHP**, and **SQL**, and hoping to use more **Rust** professionally. Accustomed to integrating with large and diverse existing codebases, ranging from mailservers and webapps to operating systems.

Experience detecting and debugging issues by whatever means are necessary, including traditional debuggers, Valgrind, disassembly, and unique hardware-based approaches.