

EDUCATION

Colorado School of Mines

B.S. Computer Science; GPA: 3.45

Golden, CO

Expected May 2021

Coursework: Data Structures, Algorithms, Operating Systems, Compilers, InfoSec

EXPERIENCE

- **Verizon (ProtectWise)** Denver, CO
Software Engineering Intern *Aug 2019 – Present*
 - Write fully asynchronous and multi-threaded software for analyzing and capturing network packets to build the next generation of Intrusion Detection Systems.
 - Increase visibility into IDS health by implementing system metrics and counters.
 - Develop open source code that expands the Rust ecosystem.
 - Participate in weekly Agile standups and groomings.
- **ProtectWise** Denver, CO
Product Engineering Intern *Oct 2018 – May 2019*
 - Trained team members in the Rust Programming language. This included researching libraries needed for our product and pair programming with senior engineers to teach them Rust paradigms.
 - Implemented a multi-threaded, asynchronous packet capturing library using AF_PACKET C bindings. These bindings were then used in production code to act as input for our packet analysis engine.
 - Created tooling for debugging local instances of production code.
- **Colorado School of Mines** Denver, CO
Secure Robotic Systems Research Assistant *Aug 2018 – May 2019*
 - Presented on different adversarial machine learning attack methods, such as FGSM and JSMA.
 - Documented and prepared minutes for the secure robotics systems research group meetings.
 - Read and summarized research papers in Adversarial ML.

PROJECTS

- **WABI – WebAssembly Binary Interpreter** Rust
 - Developed a WebAssembly virtual machine and runtime true to the WebAssembly v1.0 specification to learn about virtual machines and their architectures.
- **Ciena Senior Project – BFDs with eBPFs and XDP** Go, gRPC, eBPFs, XDP, C
 - Bidirectional Forwarding Detection (BFD) using Go, eXpress Data Path (XDP), and eBPFs.
 - Implemented the core handler for gRPC requests, eBPF PerfEvents, and client data streams.
 - Architected the communication between the kernel and userspace BFD session controllers.
- **Cloud VPN Infrastructure** Rust, Docker, Microservices
 - Constructed a microservice infrastructure that dynamically creates secure VPNs on the Digital Ocean Cloud.

ACTIVITIES & AWARDS

- **1st Place, Facebook Global Hackathon** 2018
 - **HypAR Maps:** A completely offline Indoor Navigation System using ARCore and Kotlin.
 - Wrote the system for determining an image's transformation matrix.
 - Qualified at **MHacks 2018:** Facebook *Best Social Good Hack*, Google *Best Use of Google Cloud Platform*.
- **2nd Place, HackUTD** UoT@Dallas, 2019
 - **HealthcAir:** Travel application that combines travel with cheap, overseas medical operations.
 - Created an API that the backend queries for healthcare data.
- **2nd Place, CyberPatriot IX National Finals** 2017
 - Used Linux system hardening and networking skills to remove security vulnerabilities in user systems and servers.
- **Founder and President of OreSec – Mines CyberSecurity Club** 2019
 - Host and lead weekly meetings on CyberSecurity topics.
 - Present on Web Exploitation, Cryptography, Fuzzing and Binary Exploitation.
 - Grew membership to over 40 members.

SKILLS

- **Languages:** Rust, Python, C, Java, C++, German **B2 Technologies:** Git, Unix/Linux, Docker, AWS, GCP