

**Home Address**  
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**ERIN FRECK**

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**School Address,**  
Blacksburg, VA 24061

## EDUCATION

**Virginia Tech, Blacksburg, VA** – M.S. Computer Science, Graduate Certificate in Cybersecurity

Expected December 2024

**Virginia Tech, Blacksburg, VA** – B.S. Computer Engineering, Minors in Computer Science and Cybersecurity

Expected May 2023

Cumulative GPA: 3.95/4.00

In Major GPA: 3.98/4.00

**Relevant Classes:** Software Reverse Engineering, Principles of Computer Security, Computer Networking, Cryptography, embeddedCTF, ML, AI

**Honor Societies:** Eta Kappa Nu (IEEE), Tau Beta Pi (Engineering), Phi Beta Kappa (Liberal Arts and Sciences)

## WORK EXPERIENCE

**MITRE, Bedford, MA** – Graduate Intern on Cyber Threat Intelligence and Adversary Emulation

MAY 2023 - AUGUST 2023

- Developed malware to be used in round two of MITRE ATT&CK Evaluations Managed Services
- Implemented persistence and user configurable capabilities for a Linux backdoor, modified a custom C2 framework by adding a handler to communicate with the implant, and analyzed the creation of custom ethernet packets in Go utilizing Wireshark
- Observed the red team during a cyber exercise which evaluated deception technologies

**Google, Remote** - SWE Intern on Google Cloud Event Threat Detection

MAY 2022 - AUGUST 2022

- Built two customer-configurable detection modules using Java to identify IAM-based privilege escalation attacks, processing tens of millions of customer logs and petabytes of data per second
- Collaborated with a UX team to design a UI for customers to use the two custom modules
- Helped build a system using C++, C, and Go to allow security engineers to run YARA-L and SQL rules against GCP logs in real time

**Google, Remote** - STEP Intern on Google Ads Open Measurement

MAY 2021 - AUGUST 2021

- Worked on the Cross Media Measurement team to measure ad views across media platforms to provide users with more diverse ads and advertising companies with more accurate data
- Designed and tested a library in C++ and Bazel for encrypting identifier-payload pairs as needed for a Panel Match Batch Lookup Workflow to be scaled to billions of users through Apache Beam pipelines
- Wrote design documents on the implementation of encryption methods such as Deterministic Commutative Encryption, AES, HKDF, and SHA256
- Utilized Git and GitHub to effectively collaborate with engineers at Google, Facebook, and Amazon

## RESEARCH EXPERIENCE

**IT Security Lab, Blacksburg, VA** - Undergraduate Researcher

SEPTEMBER 2021 - PRESENT

- Developing a website using JavaScript and HTML to identify the best data storage options for user's needs

**BOLT Electric Motorcycle, Blacksburg, VA** - Controls Subteam

OCTOBER 2019 - MAY 2023

- Controls Lead ('22-'23): Leading the team on a data collection project utilizing CAN, rotary encoders (wheel speed), linear potentiometers (suspension travel), rotary potentiometer (throttle), tire temperature sensors and an inertial measurement unit
- SEC Representative ('21-'22): Attended SEC meetings and events in order to get funding for our team
- Developed a PCB for signals management using Altium Designer, created several wiring harnesses from scratch, aided in high voltage work, worked on aux pack testing, and wrote code for an IMU, wheel speed sensors, and position sensors

## LEADERSHIP EXPERIENCE

**Cybersecurity Club, Blacksburg, VA** - Treasurer

AUGUST 2022 - PRESENT

- Treasurer ('23-'24): Organized finances, created the club's corporate sponsor package, and developed a network of industry contacts

**Society of Women Engineers, Blacksburg, VA** - President

AUGUST 2019 - PRESENT

- President ('22-'23): Oversee the section and communicate with company representatives to secure sponsorships and support the officer board in organizing events and piloting new ideas
- Treasurer ('21-'22): Managed SWE finances and worked closely with the board members to allot money and reimbursements
- EWI Chair ('20-'21): Organized SWE's annual networking event, invited company sponsors, advertised to student, and handled finances

**Galipatia LLC, Blacksburg, VA** - Data Committee Liaison

AUGUST 2019 - MAY 2022

- Data Committee Liaison ('21-'22): Led and organized committee meetings, and developed and maintained the event management system
- Studio Training Committee Member ('20-'21): Trained individuals within the living learning committee on soldering
- Mentor ('20-'21): Mentored 5 freshmen in study skills, college life and activities, and opportunities within the industry

## ACTIVITIES

**Fencing Club** Sabre, AUGUST 2022 - CURRENT

**Intramural Sports** Member, AUGUST 2019 - CURRENT

**UKIRK - Church Ministry** Member, AUGUST 2019 - CURRENT

**Music Classes** Violist, AUGUST 2019 - MAY 2022

## SKILLS

Java, C/C++, Rust, Ghidra, Git, Verilog, Data Structures, Algorithms, Altium Designer, Soldering, Embedded Systems, Python, Wireshark

## LinkedIn

