

Security engineer currently working on vehicle product security. Actively involved in the larger security industry. Significant background in software engineering including embedded systems, web systems, and client-side software. **Primarily interested in the reliability, safety, and security of software systems.**

Experience

HARMAN International

Senior Security Engineer

April 2019 - PRESENT, NOVI, MI

Security Engineer

JANUARY 2018 - April 2019, NOVI, MI

- Led the design and implementation of a full-stack web service used to automate vulnerability management across the organization.
- Led the design and implementation of an “automated threat modelling” toolchain which has reduced the time to complete complicated threat modelling by over 25%.
- Performed implementation audits on C/C++/Java codebases and reported over 50 security vulnerabilities.
- A critical player in creating and performing many aspects of the “Secure Development Lifecycle”, including threat analysis and risk assessment, secure development practices, and incident response.
- Acted as lead incident responder several times and was publicly thanked by a researcher.
- Provided security training courses to developers and testers with an average feedback rating of 4/5.

Lear Corporation / Cybersecurity Engineering Intern

MAY 2017 - DECEMBER 2017, ANN ARBOR, MI

- Responsible for research, design, and implementation of an in-house CAN network intrusion detection system that will be provided as options to automotive OEMs.
- Created the “Threat Analysis and Risk Assessment (TARA)” process and co-authored the corresponding template used to analyze internal programs.
- Performed TARAs on various programs which found (and suggested mitigations to) many security issues.
- Technical lead for a formal analysis of static analysis tools in order to improve security quality across the global organization.
- Research and implementation of secure “Over-The-Air” update frameworks for embedded systems.

HARMAN International / Software Engineering Intern (Navigation)

MAY 2016 - APRIL 2017, NOVI, MI

- Navigation product engineering for high-end, QNX-based, automotive infotainment systems.
- Designed, built, and supported an internal, automated, navigation testing infrastructure that caught several critical crashes before entering production.
- Developed a code performance analysis library for use in several projects.

Lathrup Industries / Software & Database Developer

JANUARY 2015 - SEPTEMBER 2016, NOVI, MI

- Co-created Lathrup’s internal database management system. Built API wrappers for various languages to be used in many in-house applications. System valued at \$200,000 / year.
- Found a security vulnerability in a third-party’s server-side document generator application and replaced it with a client-side, in-house version. This saved the company >\$1000 / year.
- Developed in-house applications, public-facing websites, and automation services.

Education

Georgia Institute Of Technology / MS Computer Science

JANUARY 2019 - PRESENT (Expected Graduation: 2022), Remote

- Coursework: Advanced Operating Systems

The University of Michigan / BSE Computer Science / 3.4 GPA / Cum Laude

JANUARY 2016 - APRIL 2018, Ann Arbor, MI

- Significant technical coursework including algorithms, operating systems, computer architecture, security, compiler design, and more.

External Work

- Involved in the Auto-ISAC Best Practices Working Group.
 - APRIL 2018 - PRESENT
- Represent Harman on the Uptane project (a framework for secure over-the-air updates).
 - This includes involvement in the IEEE-ISTO Uptane working group.
 - APRIL 2018 - PRESENT
- Active contributor to open source projects like Mozilla Thunderbird for many years.
 - Front-end, theme, and UX from 2012 - 2015
 - Security from 2018 - 2019