Shin Lee

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https://www.shinlee.org

Education

University of Michigan　　　　　　　　　　　　　　　　　　　　　　　　　　**Ann Arbor, MI**

Bachelor of Science in Computer Science, Honors　　　　　　　　　　　　　　　Aug. 2022 - May. 2025

- GPA: 3.85/4.00
- Course Highlights: Advanced Compilers, Computer Architecture, Distributed Systems, Operating Systems
- Awards/Honors: James B. Angell Scholar, University Honors.
- Senior Thesis: Optimizing Arbitrary Precision Integer operations in R1CS Circuit Compilers
- Leadership: Technical Lead, Wolverbot Kickers; Engineering Manager, Michigan Daily

Work Experience

Trail of Bits　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　**Remote, US**

Research & Engineering Intern, Compilers　　　　　　　　　　　　　　　　　　Dec. 2024 - Jan. 2025

- Worked on extending VAST, an LLVM/MLIR compiler infrastructure for code analysis, and its dialects.
- Optimized conversion from high-level dialect to parser dialect for Libc and Gnulib sourced functions.
- Increased dialect conversion coverage, from 1096 non-converted high-level call operations to 339 remaining, allowing richer context in SARIF analysis

Chatham Financial　　　　　　　　　　　　　　　　　　　　　　　　　　　**Littleton, CO**

Full Stack Software Developer Intern, Capital Markets　　　　　　　　　　　　　Jun. 2024 - Aug. 2024

- Developed a full-stack web application using C# .NET for backend and React (Typescript) for frontend.
- Designed a fully-scalable system with parallelized components for performance and reliability.
- Crafted various pipeline stages for testing, coverage reports, automatic deployment, and integration with other organizations.
- Incurred 50+ employees in usability testing and deployed in production for Capital Markets team usage.

Biomeme Inc., Korea　　　　　　　　　　　　　　　　　　　　　　　　　　**Seoul, South Korea**

Firmware Engineer Intern　　　　　　　　　　　　　　　　　　　　　　　　　Jun. 2023 - Jun. 2023

- Implemented thread-safe internal C++ library that manages SPI/I2C protocols, IRQs, Power Control, EEPROM Memories, and Display Output Management as part of a firmware for medical devices.
- Formulated custom library to render blueprint files to on-device display and set up a custom build system to obfuscate and compile source code.

Extracurriculars

The Michigan Daily　　　　　　　　　　　　　　　　　　　　　　　　　　**Ann Arbor, MI**

Application Developer | Engineering Manager　　　　　　　　　　　　　　　　　Sept. 2022 - Current

- Developed various full-stack applications, including the Mobile and internal/external Web applications of the Daily.
- Deployed applications incurred over 250K monthly users from all 50 states and 100+ countries over the world.
- Lead the Engineering division, consisting of 10+ Engineers and Developers, building services and customized web applications with different divisions of the Daily.

MITRE eCTF 2025　　　　　　　　　　　　　　　　　　　　　　　　　　　**Ann Arbor, MI**

Individual Contributor, Cryptography & Development　　　　　　　　　　　　　Jan. 2025 - Current

- Competing in the 2025 MITRE eCTF, an embedded systems CTF Competition themed around Satellite Systems.
- Designed encode/decoding cryptographic protocols and fault-tolerant embedded firmware.
- Crafted GCC GIMPLE Compiler Passes that enable deep reevaluation of conditional branches, protecting against Fault Injection attacks and side channel attacks.