

## EDUCATION

**Rice University**, Houston, TX

B.S., Computer Science with a minor in Mathematics

**May 2024**

- 3.69/4.00 Cumulative GPA
- 3.69/4.00 Major GPA

RESEARCH  
EXPERIENCE**Rice University**, Houston, TX

Undergraduate Research Assistant

**August 2023–Present**

- Working with Dr. Nathan Dautenhahn on analyzing the information leaked by programs running in containers.
- Combining static program analysis and process time measurements to extract secret values through side channels in process lists.

Undergraduate Research Assistant

**March–August 2022**

- Worked with Dr. Dan Wallach on a TypeScript implementation of Microsoft's ElectionGuard SDK for our partner, Enhanced Voting.
- Implemented robust codecs interoperable with the python reference implementation using *fp-ts* and *io-ts*.
- Wrote property-based tests and unit tests using *fast-check* and *jest* to achieve statement coverage of over 90%.
- Contributed new CLI commands to generate and submit test ballots to the open-source *electionguard-python* implementation.

**Max Planck Institute for Security and Privacy**, Bochum, Germany

Software Security Research Intern

**May–August 2023**

- Worked with Dr. Marcel Böhme on quantifying information leakage of programs from just a small number of samples using statistical methods from ecology.
- Optimized experiment runtime from 20 to 2 hours by using fewer resamples and parallelizing mutual information computation in the Jackknife estimator.
- Implemented a prototype of our method in Python and plotted its mutual information estimates alongside those of state-of-the-art methods to find anomalies.

PROFESSIONAL  
EXPERIENCE**RiceApps**, Houston, TX

Tech Lead

**August 2022–May 2023**

- Led a team of eight developers to build an app for in-community music sharing.
- Helped developers use Flutter to build the cross-platform frontend and NodeJS with TypeScript to develop the backend.
- Prototyped backend routing and database design using *Koa* and *TypeORM*.

Software Developer

**August 2021–May 2022**

- Developed the Rice Carpool React app with a team of seven other developers.
- Made over 15 pull requests fixing issues across the stack, including GraphQL performance improvements and preventing invalid rides from being created.
- Implemented email notifications in our Node.js backend using *nodemailer*, allowing users to receive real-time notifications of ride changes.

**Cummins Inc.**, Indianapolis, IN

Software Engineering Intern

**June–August 2022**

- Fixed issues with the E-Commerce search system, including incorrect handling of edge-case queries and missing results.
- Enhanced the product checkout experience, improving accessibility and resolving bugs such as an inconsistent subproduct order for some products.
- Participated in code reviews, quality assurance, and DevOps, performing thorough testing and managing deployments.

**Pashi**, Remote

Software Engineering Intern

**May–July 2020**

- Built a prototype for Pashi’s interactive, visual programming language with JQuery and HTML5 Canvas.
- Worked with a REST API that controlled production lines to connect user-written code to real-world effects.
- Explored React and vanilla JavaScript as alternate stack choices by creating interactive, minimally viable demos.

MANUSCRIPTS

- [1] S. Lee, S. Minocha, and M. Böhme, “Accounting for missing events in statistical information leakage estimation,” **In submission.**

TALKS

- “Accounting for Missing Events in Statistical Information Leakage Estimation” Max Planck Institute for Security and Privacy, August 2023

TEACHING  
EXPERIENCE

**Rice University**, Houston, TX

Instructor

- Introduction to CTFs (COLL 123) **Spring 2023**
  - Developed and taught an activity-based course introducing students to capture-the-flag competitions.
  - Covered the basics of web exploitation, reverse engineering, binary exploitation, cryptography, and digital forensics through lectures and demos.
  - Eleven students enrolled; Overall quality rating of 1.22 vs. Rice mean of 1.72 (1 = Outstanding, 5 = Poor).

Teaching Assistant

- Operating Systems and Concurrent Programming (COMP 421) **Spring 2024**
- Concurrent Program Design (COMP 318) **Fall 2023**
- Systems Software (COMP 621) **Summer 2023**
- Introduction to Computer Systems (COMP 321) **Fall 2022, Spring 2023**

LEADERSHIP &  
OUTREACH

Rice Information Security Club

- President **Fall 2023–Present**
- Co-founder and Vice President **Spring 2023**

HackRice 13 CTF, Co-organizer and challenge developer

**Fall 2023**

- Organized a 36-hour capture-the-flag competition for over 25 participants.

RiceApps OSA Mentor

**June–August 2022**

- Introduced six students to full-stack development six students.

AWARDS

- Rice Undergraduate Scholars Program

**2023–24**

Selected in a cohort of 25 students to receive a \$1000 honors thesis grant.

- Second Place Team, HackRice 12

**September 2022**

Built an encrypted chat platform to connect students with mental health resources.

- Eighth Place Team, UTCTF 2023

**March 2023**

- US-Canada Top 15 Team, CSAW CTF '22 Qualifiers

**September 2022**

- Second Place Team, Education Track, HackRice 11

**September 2021**

Built a tool to generate lecture summaries from audio lectures.

- Google Code-in 2018 Grand Prize Winner

**December 2019**

Completed over 20 tasks for Wikimedia Foundation.