SHREYAS MINOCHA   shreyasminocha@rice.edu · shreyasminocha.me

---

EDUCATION

Rice University, Houston, TX

B.S., Computer Science with a minor in Mathematics   **May 2024**
- 3.72/4.00 Cumulative GPA
- 3.71/4.00 Major GPA

PUBLICATIONS

[1] S. Lee, S. Minocha, and M. Böhme, "Accounting for missing events in statistical information leakage estimation," in *47th International Conference on Software Engineering (ICSE)*, 2025.

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.

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.