

## EDUCATION

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### University of Illinois, Urbana-Champaign

*Urbana, IL**Bachelor of Science in Computer Science & Statistics / GPA: 3.7/4.00*

Aug 2020 – Dec 2024

**Coursework:** Data Structures, Systems Programming, Computer Architecture, Algorithms & Models of Computation, Programming Languages and Compilers, Advanced Math & Statistics

**Extracurriculars & Honors:** Cybersecurity Club, Dean's List, Boxing Club, Jiu Jitsu Club

## EXPERIENCE

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### Sandia National Laboratories

*Albuquerque, NM**Software Engineer Intern*

May 2024 – Aug 2024

- Optimized runtime of a C++ correlation algorithm by 20% through advanced mathematical techniques and implementation of C++ best practices.
- Applied multivariate covariance analysis to improve algorithm stability, leading to a 100x reduction in numerical error.
- Refactored legacy C code to modern standards, increasing readability, maintainability, and security.
- Diagnosed and fixed bugs in correlation computations, preventing false positives in the model.

### ALDI USA

*Aurora, IL**NIT Intern*

May 2023 – Aug 2023

- Developed new classes & HTTP requests in C# for the ALDI Real Estate Portal allowing for additional store information, such as, grocery cart type, to be logged, edited, and deleted.
- Automated Java update identification for thousands of ALDI systems using Python, and speeding up the process of updating Java across the company, saving IT  $\approx$  2 hours each week throughout the update process.
- Automated the process of translating EMV codes using Python, saving IT critical debugging time during payment system outages.
- Contributed to AGILE development sprints, attended daily standups, and collaborated with a team of 5 developers to complete our sprint goals.

### University of Illinois

*Urbana, IL**Lead Data Structures Teaching Assistant*

Jan 2023 – Dec 2024

- Led a team of 5 staff in updating and maintaining course assignments and infrastructure for 1000+ students.
- Identified and patched a vulnerability in the course's autograder that allowed students to elevate to root and run arbitrary code.
- Automated configuration of students' developer environments using Docker and shell scripts.
- Created assignments covering the implementation of Bloom filters, the A\* algorithm, and BFS.

## PROJECTS

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### Real-Time Audio Recording and Sync App | Flutter, Dart, Python, AWS S3, WebSockets

- Developed a cross-platform app in Flutter enabling real-time group audio recording and synchronization.
- Designed and implemented a Python WebSocket server for group management, command broadcasting, and secure audio file handling.
- Integrated AWS S3 for presigned upload/download URLs, supporting efficient and secure audio file sharing.
- Built dynamic UI for group search, joining, and audio session management.

### Custom Unix Shell | Linux, POSIX, C

- Designed and implemented a custom Unix-like shell in C, supporting interactive and script-based command execution.
- Built support for foreground/background external commands, logical operators (&&, ||, ;) and input/output redirection (>, », <).
- Developed built-in commands: cd, exit, !history, #n, !prefix, ps, kill, stop, and cont.
- Added persistent command history loading/saving and script execution via command-line arguments.

### Deck Generator WebApp for Clash Royale | FLASK, Python, Javascript, MySQL, html, CSS

- Built a Flask-based web application to generate and search for Clash Royale decks using card data and player statistics.
- Integrated with the Clash Royale API to fetch real-time player and card data, storing it in a MySQL database for efficient querying.
- Designed RESTful endpoints to allow users to search for decks by card names or generate random meta decks.
- Implemented dynamic front-end features using JavaScript and AJAX for seamless user interaction.

## SKILLS & INTERESTS

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**Programming Languages:** Python | C++ | C | Java | JavaScript

**Computer Skills:** Docker | GitHub | GDB | Linux | Backend | Debugger | Valgrind

**Soft Skills:** Teaching | Interpersonal Skills | Communication | Writing | Problem Solving | Leadership | Time Management

**Interests:** Programming | Projects | Systems | Cybersecurity | Reading | Traveling