

SARAH STEC

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WORK EXPERIENCE

COLLEGE OF ENGINEERING - UNIVERSITY OF MICHIGAN

Ann Arbor, MI

Data Structures and Algorithms Teaching Assistant

Jan 2022 - Dec 2024

- Enhanced student learning of **data structures and algorithms** in **C++** for 950+ students per term by instructing weekly labs of 30+ undergraduates, providing 1-on-1 office hours and answering 300+ questions on course Piazza forum per term
- Led exam-grading sessions with 15+ instructors per exam, refining grading rubrics to ensure fairness and alignment with student performance

SCHOOL OF INFORMATION - UNIVERSITY OF MICHIGAN

Ann Arbor, MI

Full Stack Developer - Intern

May 2024 – Sep 2024

- Developed data visualization components and integration tests for the Michigan Public Health Integrated Center for Outbreak Analytics and Modeling's \$17.5M vaccination tracking system, utilizing **Next.js**, **MaterialUI**, and **Django**
- Built **Python** backend endpoints using the **REST API** framework to support a vaccine tracking tool and leveraged SwaggerUI for comprehensive API documentation, ensuring seamless data transmission to the frontend

INFORMATION AND TECHNOLOGY SERVICES - UNIVERSITY OF MICHIGAN

Ann Arbor, MI

Full Stack Developer - Intern

May 2023 – Aug 2023

- Engineered a full-stack web application to support network testing via **Vue.js**, **Node.js**, and **MongoDB**, empowering network engineers to facilitate customized wireless testing
- Pioneered configuration file deployment pipeline, which automatically provisions network analysis tasks to 100+ Raspberry Pi computers via **Ansible**
- Provisioned 20+ **Microsoft Azure** subscriptions to support generative AI deployment to 30,000+ students and faculty

DYNAMIC MAP PLATFORM NORTH AMERICA (FORMERLY USHR INC.)

Ann Arbor, MI

Software Engineer - Intern

May 2022 – Aug 2022, May 2021 – Aug 2021

- Implemented an interactive data analysis dashboard with **Python** and **Pandas** for speed limit propagation algorithm, resulting in the correction of over 2,000 speed sign discrepancies through systematic review
- Authored automated test cases in **Python**, enhancing code reliability and test-driven development of data extraction tool

PROJECTS

COGNITIVE MUSICAL TUTOR

Oct 2024 - Dec 2024

- Built a cognitive tutor with **Next.js**, **Flask**, and **SQLite** to teach musical rhythms, improving learning outcomes by 54.5%

LLM INFERENCE SCHEDULING

Sep 2024 - Dec 2024

- Invented and implemented a novel scheduling algorithm in **Python** for LLMs that combines Round-Robin (RR) and Shortest Job First (SJF) approaches to minimize request latency and improve fairness

REAL-TIME ASL TRANSLATION

Sep 2023 - Dec 2023

- Architected a **React.js** application with **Mediapipe** that displays real-time translation of American Sign Language (ASL) aimed at reducing communication barriers, achieving 90% accuracy in translating the English alphabet

EDUCATION

UNIVERSITY OF MICHIGAN

Ann Arbor, MI

Master of Science in Engineering in Computer Science

Jan 2024 - Dec 2024

Relevant Coursework: Randomness and Computation, Foundations of Artificial Intelligence, Systems for Generative AI

UNIVERSITY OF MICHIGAN

Ann Arbor, MI

Bachelor of Science in Engineering in Computer Science, Minor in Mathematics

Aug 2020 - Dec 2023

Relevant Coursework: Data Structures and Algorithms, Web Systems, UI Development, Cybersecurity, Differential Equations

HOBBIES

- Piano & guitar – Classical performance, composition, improvisation, playing by ear
- Live music – Regularly attend concerts to explore diverse music genres, from classical to indie to rhythm & blues
- Running – Enjoy short distance running for fitness and mental clarity; currently training for a 10K