

Amber Campbell

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EDUCATION

University of Michigan-Ann Arbor

Ann Arbor, MI

B.S. Computer Science, Minor in History of Health and Medicine

May 2025

- 3.96/4.0 GPA
- **Relevant Coursework:** Advanced Operating Systems, Web Systems, Data Structures and Algorithms, Practical Data Science, Applied Biostatistics, Introduction to Computer Architecture, Agent-Based Modeling
- **Extracurriculars:** Sexual Assault Prevention and Awareness Center Volunteer (Art Show Chair, 2022-24), Girls in EECS, Alpha Delta Pi Sorority (Director of Inclusion, 2022), Public Health Association

University of College London

London, England

Exchange Semester in History and Philosophy of Science

Jan. 2024 – May 2024

SKILLS

Programming Languages: C++, PHP, Python, JavaScript, HTML/CSS, SQL, R

Frameworks and Libraries: Laravel, Flask, Django, React, Redux, RESTful APIs, Pandas, CPLEX, Boost

Databases: PostgreSQL, MySQL, SQLite

Tools: Docker, Postman, WSL/Ubuntu, Git, JIRA, GDB, Visual Studio, VSCode, AWS (EC2)

WORK EXPERIENCE

Center For Healthcare Engineering and Patient Safety

University of Michigan — Ann Arbor, MI

Software Engineering Intern

Aug. 2023 – Jan. 2024, Aug. 2024 – Current

- Developed modular Python libraries incorporating design patterns to bootstrap simulation optimization projects for healthcare operations, with functionality to read inputs, store data, and generate metrics
- Designed algorithms using CPLEX to generate optimized shift schedules based on working constraint and time off requests, increasing operational efficiency for 20+ trauma physicians and administrators

DOCSI Health

Minneapolis, MN

Software Engineering Intern

June 2024 – Aug. 2024

- Implemented dynamic, mobile-friendly dashboard features for a surgical waste elimination platform using React, engaging 50+ physicians and providing real-time insight into supply usage and cost reduction opportunity
- Built and deployed scalable back-end services with PHP (Laravel) and PostgreSQL, developing RESTful APIs to streamline communication between the front-end and database while providing efficient data access

Menlo Innovations

Ann Arbor, MI

Software Engineering Intern

June 2023 – Aug. 2023

- Developed a web application using Django and PostgreSQL to evaluate blood-thinner prescriptions, integrating with EHR systems via FHIR standards and ensuring HIPAA compliance for secure data handling.
- Implemented an asynchronous Alert Engine with cron jobs to dynamically process data, deployed on AWS, and optimized for Epic Hyperspace to reduce prescription error, resulting in interventions in 79% of cases

PROJECTS

Michigan Plan For Appropriate Tailored Healthcare (MiPATH)

Michigan Medicine — Ann Arbor, MI

Computational Research Assistant

June 2023 – Aug. 2023

- Implemented dynamic features for a C++ discrete-event simulation using real-world data to improve prenatal appointment scheduling, enhance clinical operations, and support research on clinic efficiencies.
- Authored abstract on prenatal care utilization published in *American Journal of Obstetrics and Gynecology*

Networked File Server

University of Michigan — Ann Arbor, MI

Advanced Operating Systems

Fall 2024

- Co-designed and implemented a multi-threaded network file server with a hierarchical file system in C++, leveraging socket programming and Boost threading for efficient communication and robust concurrency
- Optimized concurrency with upgradable reader/writer locks and ensured crash-resilient file system integrity through streamlined disk I/O and secure handling of untrusted inputs