

Jonathan McFee

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Education

University of Michigan, College of Engineering

Computer Science, Bachelor's of Science

Ann Arbor, MI

Expected: May '25

- **GPA: 3.7/4.0**
- **Course Highlights:** Operating Systems (current), Software Engineering (current), Data Structures and Algorithms, Linear Algebra, Computer Organization, Foundations of Computer Science, Discrete Mathematics, Physics 1 & 2
- **Awards/Honors:** Dean's List Fall '21, Winter '22, Fall '22, Winter '23, Fall '23

Professional Experience

Hatching Sparrow CRM

Backend Software Developer Intern

Remote

June '23 - Sep '23

- Implemented backend for a customer relationship management system with Amazon Web Services DynamoDB
- Designed and optimized data structures and queries to enhance operational efficiency within database infrastructure
- Coded secure HTTPS routes and REST APIs using Node.js and Express.js, driving development of robust backend solutions

GHS Corporation

Fullstack Software Developer

Battle Creek, MI

June '23 - Aug '23

- Designed a Microsoft SQL Server database for employee management and payment software, managing 30+ employees
- Compiled tension data from 500+ products and utilized HTML, CSS, and JavaScript to create guitar string tension calculator
- Performed equipment maintenance and upgrades on over 40 specialized machines for guitar string production

Projects

Thread Library Implementation

Mar '24

- Developed thread library in C++ with support for single and multiple CPU systems with customizable interrupt behavior
- Enhanced the thread library with mutex and condition variables for synchronization, implementing thread lifecycle management, interrupt handling, and error detection mechanisms to ensure robust operation under various conditions

Multithreaded Chat Network

Jan '24

- Developed a multithreaded TCP Server in C++ using Winsock2 and Windows API to handling multiple client connections concurrently and ensure thread safety with Mutex for effective synchronization
- Implemented and managed real-time client-server communication, showcasing skills in TCP/IP networking, real-time data transmission, and robust error handling in socket operations, gaining practical experience in networked applications

Pipelined CPU Simulation

Nov '23

- Demonstrated strong understanding of computer architecture by developing pipelined processor simulation in C
- Constructed using 32-bit simplified ARM architecture with support for R-Type, I-Type, O-Type and J-Type instructions
- Implemented detect-and-stall and data forwarding for data hazards and speculate-and-squash branch-not-taken for branches

Stock Price/Tweet Frequency

Apr '23

- Utilized Twitter and YFinance API to identify correlation between tweet frequency of Netflix's top 10 shows and stock price
- Created an SQL Database to store information gathered and analyzed data using Matplotlib

Extracurriculars

Reach Consulting Group

Project Manager

Ann Arbor, MI

Oct '22-Present

- Acted as a pivotal link between team and client organization, ensuring effective communication and project alignment
- Collaborated with team to develop high-end user interface/user experience, data analytics, and digital strategy solutions

UM Autonomous Robotic Vehicle

Computer Vision Subteam

Ann Arbor, MI

Jan '24-Present

- Managed RobotOS, integrated LiDAR and depth camera into Cartographer SLAM for navigation and obstacle detection
- Utilized custom A* path planning algorithm with D*Lite optimizations for dynamic path adjustment

Skills

Programming Languages: C/C++, Go (Golang), Python, JavaScript, Bash, SQL, R, HTML, CSS, MATLAB, XML

Technologies: Git, Linux, Visual Studio Code, Amazon Web Services, Postman, DynamoDB, MS SQL Server, NoSQL Workbench, Node.js, Express.js, C++ STL, Nvidia Jetson, Multithreading, Networking, RobotOS, Schedulers, SQLite, MySQL