# Jonathan McFee

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## Education

**University of Michigan, *College of Engineering*** **Ann Arbor, MI**
Computer Science, *Bachelor's of Science in Engineering* *Expected:* May '25

- ***GPA:* 3.7/4.0**
- *Course Highlights*: Operating Systems, Distributed Systems (Upcoming), Networking (Upcoming), Software Engineering, Data Structures and Algorithms, Linear Algebra, Computer Organization, Foundations of Computer Science, Discrete Mathematics
- *Awards/Honors*: Dean's List Fall '21, Winter '22, Fall '22, Winter '23, Fall '23, Winter '24

## Skills

*Programming Languages:* C/C++, PHP, Python, TypeScript/JavaScript, Bash, SQL, R, HTML, CSS, MATLAB, XML
*Technologies:* Git, Linux,, Amazon Web Services, DynamoDB, MS SQL Server, React.js, Node.js, Express.js, C++ STL, Multithreading, Networking, RobotOS, Schedulers, SQLite, MySQL, TCP/UDP, OpenCV, Numpy, Pandas, MatPlotLib

## Professional Experience

**Etsy** **Brooklyn, NY**
*Software Developer Intern - Risk Platform* May '24 - Aug '24

- Engineered high-performance data service delivering 500+ data points to fraud detection ML model using PHP and MySQL.
- Developed fullstack auto-documentation tool for data service with PHP + Redux, improving productivity of 50+ team members
- Optimized database queries, significantly reducing latency for time-sensitive risk and fraud detection services.

**Hatching Sparrow CRM** **Remote**
*Software Developer Intern* June '23 - Sep '23

- Implemented scalable backend for a customer relationship management system with Node.js and AWS 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.

## Projects

**Thread Library Implementation** Mar '24

- Developed a comprehensive thread library in C++ supporting single & multicore systems with customizable interrupt behavior.
- Implemented advanced synchronization primitives including mutex and condition variables.
- Engineered thread lifecycle management and error detection mechanisms for robust operation in complex environments.

**Multithreaded Chat Network** Jan '24

- Developed a multithreaded TCP Server in C++ using Winsock2 and Windows API to handle 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 3 MySQL Databases to store information gathered and analyzed data using MatPlotLib.

## Extracurriculars

**UM Autonomous Robotic Vehicle** **Ann Arbor, MI**
*Computer Vision Subteam* Jan '24-Present

- Integrated ZED camera with YOLO machine learning model and Python OpenCV to produce drivable area grid on Jetson.
- Designed RobotOS publisher-subscriber nodes to process ZED camera input and transmit occupancy grid for nav system.

**Reach Consulting Group** **Ann Arbor, MI**
*Project Manager* Oct '22-Present

- Acted as a pivotal link between team and client organization, ensuring effective communication and project alignment.
- Collaborated with team to develop data analytics solutions using Python, Pandas, Numpy, and SQLite