

TIM OH

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EDUCATION

University of Waterloo

Expected Graduation 2027

Bachelor of Mathematics, Co-op

- President's Scholarship of Distinction

EXPERIENCE

Advanced Micro Devices (AMD)

Sept 2025 – Present

Full-Stack Software Engineer Intern

- Reduced manual data collection time by 80% by architecting an automated AI report generation pipeline that aggregates unstructured online data via a custom web search MCP and Python extractor.
- Ensured hallucination-resistant reports with 100% source attribution by engineering a multi-stage LLM processing engine using a distill-and-generate architecture to consolidate 500+ raw user comments.
- Cut draft creation time to under 15 seconds by optimizing report generation latency, executing parallel asynchronous LLM calls alongside deterministic database carry-forward logic in Node.js/Express.
- Achieved sub-1.5s inference latency and 98% transcription accuracy on complex GPU terminology by engineering a real-time speech pipeline using int8-quantized WhisperX and SileroVAD.
- Reduced average reporting time by 50% by automating technical bug reporting, integrating LLM agents with custom prompt chains to transform unstructured voice audio into schema-validated tickets.

Ford Motor Company

May 2022 – Aug 2022

Software Developer Intern

- Ensured 99.9% update reliability across 5 vehicle models by validating Over-The-Air (OTA) firmware update pipelines over Wi-Fi/Cellular networks for the Telematics Control Unit (TCU).
- Saved developers an estimated 10+ hours weekly in debugging by engineering a heuristic test-scheduling engine in Python that dynamically ranked test cases by historical failure rates to mitigate flaky tests.
- Isolated and resolved network handoff latency issues by developing an automated regression testing suite in Python for the vehicle's Wi-Fi hotspot and Emergency-call features.
- Improved wireless module stability by 15% by optimizing data parsing scripts to analyze multi-gigabyte packet captures from vehicle modems and identify dropped Wi-Fi connections.

PROJECTS

PokerOnline | *Python, Django, JavaScript, NodeJS, MongoDB, HTML, CSS*

- Architected a real-time multiplayer poker backend using Django, Node.js, and WebSockets, load-testing the architecture to handle 50+ concurrent connections with sub-100ms latency.
- Implemented stateless authentication via a REST API using bcrypt password hashing and JWT access/refresh token rotation to secure active user sessions.
- Designed a MongoDB database schema to efficiently store user profiles and aggregate real-time game statistics, optimizing query read times for leaderboards.
- Built a responsive frontend interface using vanilla JavaScript, HTML, and CSS to dynamically render complex game states and WebSocket broadcasts.

ETFtracker | *PostgreSQL, TimescaleDB, Python, Alpaca API*

- Engineered a Python ETL pipeline integrating the Alpaca API to automate the ingestion and processing of daily holdings data for 5+ ARK ETFs.
- Architected a highly optimized time-series database schema using PostgreSQL and TimescaleDB to aggregate and analyze high-frequency daily financial datasets.
- Authored complex SQL aggregations and window functions to track historical changes in fund allocations and identify long-term investment trends.

SKILLS

Languages: Python, JavaScript, TypeScript, C, C++, Java, SQL, HTML/CSS, Bash

Frameworks & Libraries: React, Redux, Node.js, Express.js, Django, FastAPI, LangChain, Whisper, pandas, NumPy

Tools & Infrastructure: AWS, Docker, Kubernetes, Jenkins, PostgreSQL, MongoDB, Ollama, Git, Linux