THOMAS KENT CALLEN

tcallen1001@gmail.com | +1 (616) 558-8366 | LinkedIn | Portfolio

SUMMARY

Software engineer with experience developing APIs, data pipelines, and full-stack applications. Skilled in Python, C#, SQL, and C++, with projects spanning REST APIs with FastAPI, Express, and Flask backed by PostgreSQL/SQL Server and deployed to Azure and AWS, with front ends in Next.js and .NET (C#). Hands-on work includes IoT data pipelines to Azure SQL, distributed telemetry/control systems for embedded devices, and application development.

SKILLS

Coding Languages: C++, C#, Python, SQL, JavaScript/TypeScript, HTML/CSS
Web & Data: Next.js/React/React Native; Node.js/Express/Flask; REST APIs; pandas, NumPy, scikit-learn
Cloud & Embedded: Postgres; AWS/Azure; Docker; GitHub Actions; Linux; RPi/Pico, MicroPython

WORK EXPERIENCE

GLBL Foundation **Remote**
Volunteer Software Engineer *Nov. 2024 – Present*

- Assembled embedded electronics for an open-source smart water purifier/analyzer, integrating turbidity, TDS, and temperature sensors with Raspberry Pi Pico microcontrollers
- Co-developed pipelines for transmitting data to Azure IoT Hub and storing datasets in Microsoft SQL Database
- Contributed to the development of a Next.js front-end that communicates the foundation's mission and establishes a platform for future data visualization

Kinetix LLC **Sparta, MI**
Intern *May 2024 – Aug. 2024*

- Streamlined deployments by automating software-update rollouts across distributed clients
- Designed interactive reports and visualizations in Power BI to surface key business trends and insights
- Built a C#.NET application leveraging Microsoft APIs to continuously query company data and provide an up-to-date dashboard used by leadership for decision-making
- Assisted senior engineers with testing and troubleshooting of network hardware in customer environments

EXTRACURRICULARS

UofM's Bioastronautics & Life Support Systems Team **Ann Arbor, MI**
Electrical Sub Team Lead *Aug. 2024 – May 2025*

- Directed the development of a full-stack telemetry and control platform to support ISS EXPRESS rack redesign for lunar surface habitats
- Coordinated with NASA stakeholders, led trade studies, and mentored sub-team members
- Applied systems engineering workflows for requirements tracking and subsystem validation

PROJECTS

ML-Driven Paper Trading System
Python, HTML/CSS, TypeScript, SQL, pandas, FastAPI

- Applied unsupervised machine learning with z-score standardization to end-of-day features to select, order, and sell candidate assets; validated hypotheses via walk-forward backtests
- Built a Next.js dashboard with a server-side backend that proxied broker data to display equity, equity history, and past trades

RacknStack – UofM's Bioastronautics & Life Support Systems Team
JavaScript, HTML/CSS, Python, Express.js, Flask, CircuitPython

- Architected a distributed control/telemetry system and wrote the embedded firmware for Raspberry Pi Pico workers (sensor sampling, actuator drivers) and a Raspberry Pi manager (message broker, command arbitration)
- Built a React UI with an Express.js backend that connected to a Flask server on the Raspberry Pi, enabling live MJPEG video streaming, real-time telemetry, and GPIO relay control of rack components
- Implemented a low-latency UART network linking workers to the manager; the manager aggregated telemetry and propagated actuation commands between devices and the UI

EDUCATION

The University of Michigan, College of Engineering **Ann Arbor, MI**
Bachelor of Science in Engineering in Computer Science, Minor in Entrepreneurship *May 2025*

- **Cumulative GPA:** 3.47/4.00