

THOMAS KENT CALLEN

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SUMMARY

Computer Science engineer with experience in embedded systems, IoT hardware/software integration, and full-stack development. Skilled in building prototypes from concept to deployment, including Raspberry Pi/Pico-based sensor systems, cloud integration (Azure, AWS), and React frontends. Proven leadership in NASA-funded student design challenges and nonprofit engineering initiatives.

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:** 3.5/4.0

WORK EXPERIENCE

GLBL Foundation

Remote

Software Engineer

Nov. 2024 – Present

- Prototyped 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 Azure SQL Database
- Assisted in front-end development of a React-based website to communicate the foundation's mission and lay groundwork for future data visualization

Kinetix LLC

Sparta, MI

Intern

May 2024 – Aug. 2024

- Streamlined deployment operations by automating the rollout of software updates across distributed client systems
- Generated interactive business intelligence dashboards using Power BI to support data-driven 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

Data Sub Team Member

Sep. 2023 – May 2024

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

Smart Water Purifier – GLBL Foundation (Ongoing)

- Engineered a modular sensor suite (turbidity, TDS, temperature) with Raspberry Pi Pico microcontrollers for high-frequency data capture
- Programmed data acquisition pipelines with cloud connectivity via Azure IoT Hub and persistent storage in Azure SQL Database
- Contributed to a React-based front end designed to display telemetry data and highlight the foundation's mission

RacknStack – NASA X-Hab Academic Innovation Challenge (Completed)

- Implemented low-latency UART communication between Raspberry Pi Pico microcontrollers and a Raspberry Pi central controller
- Built a React frontend for live MJPEG video streaming, telemetry visualization, and rack component actuation via GPIO relays

SKILLS

Coding Languages: C, C++, C#, Python, SQL, MATLAB, JavaScript, TypeScript, HTML/CSS

Developer Tools and Platforms: Raspberry Pi, Azure IoT, AWS, Git, Docker, Power BI, Spark, Linux, Windows