

Tyler Johnson

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Summary

Computer Engineering graduate specializing in embedded firmware and hardware-integrated systems. Experience with STM32 and ESP32 platforms, real-time sensor interfaces, and low-level debugging using oscilloscopes and logic analyzers. Proven ability to deliver documented, reliable automation solutions in safety-critical environments.

Education

University of St. Thomas

Bachelor of Computer Engineering

Saint Paul, MN

Sep. 2021 – May 2025

Technical Skills

Languages: Java, Python, C, HTML/CSS, R, Verilog, Assembly

Software & Tools: Keil µVision, Visual Studio, Git/GitLab, Postman, Vivado

Protocols: UART, SPI, I2C, Wi-Fi, Bluetooth

Hardware & Debugging: Oscilloscopes, logic analyzers, DMMs, soldering, board-level troubleshooting

Projects

Robotic Arm FTIR Cleaning Automation | *Python, Embedded Sensors*

- Developed modular control software coordinating robotic motion, safety interlocks, and sensor feedback for a repeatable FTIR cleaning process.
- Implemented multi-threaded logic using event flags to handle door sensors and break-beam safety systems.
- Authored technical documentation covering system architecture, interfaces, and validation procedures.

Gas-Detecting Autonomous Robot | *STM32 Embedded Firmware*

- Programmed embedded firmware for real-time gas sensing, navigation decisions, and control logic.
- Debugged UART and I2C communication using oscilloscopes and logic analyzers.
- Performed iterative validation to verify sensor accuracy, timing stability, and system behavior.
- Structured firmware to support maintainability and repeatable testing.

IoT Temperature Monitoring System | *Distributed Embedded System*

- Designed a multi-node embedded system using STM32 and Raspberry Pi platforms.
- Implemented structured data communication and logging for real-time monitoring.
- Documented system architecture, interfaces, and validation results for team review.

Experience

Papa Tronnio's Pizza

Restaurant Manager

Prescott, WI

January 2022 – January 2025

- Led daily operations while supervising staff in a fast-paced environment.
- Maintained consistent processes, documentation, and quality standards.
- Communicated clearly with customers, employees, and ownership to resolve issues.
- Managed reporting, workflow organization, and accountability.