Ian Foy

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EDUCATION

University of Michigan **Ann Arbor, MI**
Bachelor of Science in Engineering, Electrical Engineering Expected Graduation: *December 2025*
GPA: 3.5 / 4.0
Relevant Coursework: Advanced Embedded Systems, Digital Logic Design, Electrical Engineering Systems Design, Embedded Control Systems, & Programming & Data Structures

WORK EXPERIENCE

General Motors **Warren, MI**
Assistant Design Release Engineer *June 2025- Present*
- Resolved incorrect front hood latch service procedures by leading weekly meetings & verifying electrical diagrams to align instructions with actual part specs.
- Cleaned up GMW requirement documents to ensure traceability, preventing supplier confusion, & reducing risk of future recalls.

General Motors **Warren, MI**
Assistant Vehicle Systems Engineer *May 2024- August 2024*
- Developed Python code to map option statements to electronic control units, enabling vehicle systems engineers to efficiently access, & interpret data.
- Initiated improvements to the owner's manual review website, accounting for differences in vehicle electrical architectures.

General Motors **Warren, MI/Milford, MI**
Hardware Engineering Intern *May 2023- August 2023*
- Modified production line requirements in IBM Rational DOORs to address safety & power consumption issues, improving vehicle efficiency.
- Created a feature model to automate 4,000+ calibration values across 12 vehicle platforms, increasing configuration accuracy.

PROJECTS

Personal Project **Grosse Pointe, MI**
Computer Vision-Controlled Guitar Effects System *June 2025- Present*
- Developed a Raspberry Pi–based computer vision system using OpenCV to detect guitar tilt gestures in real time & trigger audio effects via UART communication with an STM32-controlled amplifier.
- Designed & built an STM32-controlled guitar effects system, implementing analog switching to toggle between clean, delay, & distortion signal paths with preamp, amplifier, & PT2399 delay modules.

University of Michigan **Ann Arbor, MI**
Embedded System Design- Music Visualizer *January 2025- April 2025*
- Led development of a music visualizer using DSP, autonomous robotics, an LED equalizer, & an LCD.
- Wrote embedded software for Zumo robot movement using QTR-8RC sensor, H-Bridge motor driver, & XBee communication, integrating hardware via GPIO, UART.

SKILLS

- **Programming Languages:** Python, C++, C, Verilog, ARM assembly, Matlab, Bash Scripting
- **Software & Tools:** IBM Rational DOORs, Vehicle Spy, DPS, Logic Analyzer, Oscilloscope, Git, Simulink
- **Technical Skills:** STM32 & NXP microcontrollers, I2C, UART, SPI, PCB design, CAN, RTOS, Linux, API design, FPGAs, PWM, Bare-metal Programming, rapid prototyping, electrical systems diagnostics
- **Other Skills:** Excellent project management, communication, problem-solving, & collaboration skills