THOMAS TRAN

✉ ttrann@umich.edu   in Linkedin
🌐 US Citizen   ○ tommytt427.github.io   ▯ (248) 635-8473

EDUCATION

University of Michigan College of Engineering   Ann Arbor, MI
Bachelors of Science in Computer and Electrical Engineering   *Aug. 2023 - May. 2026*
- **Selected Coursework:** Advanced Embedded Systems, Embedded Control Systems, Control Systems Design
- **Campus Involvement:** Michigan Aeronautical Science Association(MASA) Avionics Project Lead, VSA

EXPERIENCE

Michigan Aeronautical Science Association(MASA)   Ann Arbor, MI
Avionics Subteam Radio Lead   *Sept. 2024 - Present*
- Driving development of 2.4GHz LoRa-based telemetry system for real-time rocket flight data transmission, using dual-antenna ground station to enhance signal reception at altitudes up to 75,000 feet
- Orchestrating integration of radio systems with microcontroller firmware to achieve 40Kbps telemetry data rate
- Developing validation firmware in C for Semtech SX1280 test boards to capture live RSSI and SNR, verifying the telemetry system's calculated 11.5 dB link margin

University of Michigan - CAEN   Ann Arbor, MI
Classroom Technology Maintenance Technician   *Aug. 2025 - Present*
- Serving as technical resource for maintaining integrated AV systems, diagnosing faults in signal and control hardware
- Identifying system-level connectivity issues, analyzing signal paths and verifying network layout for AV control hardware
- Performed routine maintenance and diagnostics on over 70+ multimedia classrooms to maintain system reliability

PROJECTS

Multi-Modal Robotic Gantry Control System
- Engineered a real-time STM32 control system for a 2-axis gantry, integrating a vision system (SPI) and a custom wireless Wii remote (I2C/UART) that processed raw 10-bit IR sensor data
- Authored interrupt-driven firmware to manage asynchronous data and hardware safety, achieving motor control step frequencies up to 3 kHz and failsafe operation via GPIO limit switch interrupts
- Implemented a GPIO handshake for the SPI link, using a logic analyzer to verify data integrity and enable reliable, high-throughput data transfer from the vision system

Model-Based Adaptive Cruise Control & Autonomous Steering
- Developed a multi-mode ACC system in Simulink for an NXP S32K144, deploying control logic via Stateflow to maintain set speeds and safe following distances
- Engineered C-based S-Functions to process CAN bus data from 6 vehicles, enabling robust lead-vehicle detection for the ACC state machine
- Tuned a PD controller for autonomous steering, achieving stable lane-keeping at 30 m/s and providing realistic force feedback through a haptic steering wheel

8-Bit Dual-Mode Ripple-Carry Adder
- Fabricated an 8-bit dual-mode ripple-carry adder using pass transistor logic in Cadence Virtuoso using Differential Cascode Voltage Switch Logic for high-speed operation, achieving 1GHz clock frequency at low power consumption
- Designed synchronous reset logic and dual operating modes, performing extensive timing verification and power analysis

CERTIFICATIONS

- Control Systems Analysis: Modeling of Dynamic Systems, *University of Colorado Boulder (Coursera)*, Issued July 2025
- Electric Power Systems, *University at Buffalo (Coursera)*, Issued June 2025
- C Programming for Embedded Applications, *LinkedIn Learning*, Issued June 2025

SKILLS

Languages: C, C++, Python, Verilog, ARM Assembly, FreeRTOS
Hardware & Platforms: Embedded Systems, PCB Design, Microcontrollers (STM32, NXP S32K144)
Software & Tools: MATLAB/Simulink, Altium Designer, Cadence Virtuoso, SPICE, NXP S32 Design Studio, VS Code, Git, STM32CubeIDE