

TREY WILSON

Embedded Systems • Robotics • AI/ML

See More At: Trey-Wilson.com

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The Ohio State University

Expected May 2028

B.S., Computer Science and Engineering:
Specialization in Artificial Intelligence

Electrical Engineering Certificate: Signal Processing

- GPA: 3.96
- Member, Artificial Intelligence Club
- Member, Buckeye Autonomous Robots

ABOUT ME

I'm a Computer Science and Engineering student at The Ohio State University who genuinely loves to turn my ideas into real devices through engineering. I love to integrate diverse technologies, disciplines, and design considerations into cohesive systems that work elegantly as a whole. Due to my major and my electrical engineering certificate, I am highly versatile and comfortable with everything from software and AI to electronics, embedded systems, and robotics. Rather than specializing in one narrow area, I enjoy learning what a problem demands and I thrive on learning new disciplines and applying them wherever they can make an idea better.

PROJECTS

Automated Hydroponic pH Monitoring and Control System

Designed and built a closed-loop pH control system for hydroponic applications using continuous sensor feedback and automated dosing. I developed a custom PCB integrating an Arduino Nano microcontroller, pH sensor amplification circuitry, completely isolated power/signal path with an ATtiny85 for analog-to-digital conversion, and peristaltic pump control. Implemented sensor filtering and control logic to maintain pH within a configurable target range with zero user intervention. I conducted a test of the device using an indoor grow setup over the span of half a year. What once was a grow setup that needed pH adjustment every day, went the entire 6-month span without any intervention.

Buckeye Autonomous Robots Club — Robotics Engineer | NASA Space Robotics Team

Designed and integrated electrical wiring systems for a quadruped robot modeled after Boston Dynamics' Spot, including custom PCB design, power distribution, signal routing, and component interconnections.

Developed CAD models and assemblies for custom robotic components and mounting systems with emphasis on mechanical integration and serviceability.

Developing a white-paper proposal for a focused experiment using the Fly Foundational Robots robotic arm, defining the experimental objective, methodology, and expected results for robotic manipulation in a space environment.

Wi-Fi Based Indoor/Outdoor Navigational Cane for the Visually Impaired

Developed an embedded navigation and obstacle-awareness system using an ESP32 microcontroller and Wi-Fi RSSI measurements from existing networks. Processed signal-strength data to estimate proximity and direction relative to known wireless access points and provide haptic feedback to the user. Designed the system around low-cost, portable embedded hardware for indoor and outdoor navigation.

TECHNICAL SKILLS

Embedded Systems: PCB Design (EasyEDA, KiCad), ESP32, Arduino, Microcontrollers, Digital Communication, Sensors, Signal Conditioning, Motor Control, I²C, SPI, GPIO, Embedded C/C++

Electronics: Analog and Digital Electronics, Full Circuit Design, Power Management, Electrical Wiring, Signal Isolation

AI/ML: Machine Learning, Computer Vision, Deep Learning, PyTorch, NumPy, scikit-learn, Data Processing, Image Classification

Signal Processing & Controls: Digital Signal Processing, Sensor Data Processing, Filtering, Sensor Feedback, Closed-Loop Control, Automated Control Systems, Wi-Fi RSSI Analysis

Programming: Python, C++, C, Java, MATLAB, Object-Oriented Programming, Data Structures & Algorithms

Robotics: ROS 2, Robotic Systems Integration, Quadruped Robotics, Motor/Actuator Control, Electrical Integration, Experimental Design

CAD: Onshape, SolidWorks, Fusion, Mechanical Assemblies, Design for Manufacturing

Engineering Tools: Git, Linux, 3D Printing, Soldering, Technical Documentation

[See Work History and Reference on back](#)

WORK HISTORY

AI Research Fellow — Handshake AI - Dec 2025 – Present

Remote

- Created and curated high-quality training datasets to enhance model performance and reliability
- Trained and improved AI models by validating outputs and identifying inaccuracies across a range of tasks
 - Provided detailed feedback on model behavior to support iterative improvements

E-Commerce Lead — Kroger Co. - Nov 2022 – Dec 2025

Lancaster, Ohio

- Fulfilled online orders accurately and efficiently while providing excellent customer service
- Analyzed customer data to identify trends, inform product selection, and optimize inventory
- Streamlined order fulfillment processes, reducing delivery times and increasing customer satisfaction
 - Mentored junior team members in e-commerce best practices

Floor Lead — The Mill Event Center - Nov 2022 – Dec 2025

Lancaster, Ohio

- Oversaw event operations and maintained a positive guest experience
- Delegated tasks and coordinated staff to ensure smooth event execution
 - Managed inventory and monitored supplies for reordering
- Coordinated with third-party vendors and handled event logistics

REFERENCES

James Summerford

Associate Professor of Philosophy, Ohio University
summerfo@ohio.edu | December 20, 2023

“Trey stands out as being exceptional — intelligent, dedicated, and responsible. He was the top performer in my 35-student college ethics course while still in high school, all while working two jobs to help his family through financial hardship. He is one of the most impressive students I have taught in 25 years, and I recommend him strongly and without reservation.”

Amanda Mullen

General Manager, The Mill Event Center, Lancaster, Ohio
740-777-9200 | October 14, 2023

“Trey's work ethic and dedication are unmatched even among employees twice his age. He has taken charge of floor staff and earned the respect of peers regardless of the age gap. I am certain that anywhere Trey finds himself, he will find success.”