Jonathan Tao

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Education

University of Illinois Urbana-Champaign — Champaign, IL
B.S. in Computer Engineering, Minor in Semiconductor Engineering — ***Expected May 2028; GPA: 4.0/4.0***

Experience

Illini Electric Motorsports — Champaign, IL
Embedded Engineer — *Aug 2025 – Present*

- Architecting the transition of the Battery Management System (BMS) firmware from a bare-metal environment to FreeRTOS to enhance real-time performance and scalability.
- Implementing Duel Extended Kalman Filters in MATLAB Simulink to improve state-of-charge and State of Health estimation accuracy by 15%

AbbVie — Abbott Park, IL
Analytical R&D Software Intern — *Jun 2025 – Aug 2025*

- Engineered and deployed an internal RAG support agent using LangChain, OpenAI API, and Power Automate, reducing information retrieval time for SOPs and equipment guides by over 50%.
- Developed a Python-based integration for the Microsoft Teams API, enabling seamless user interaction with the LLM-powered support agent directly within chats.

AbbVie — Abbott Park, IL
Comparative Medicine Intern — *May 2024 – Aug 2024*

- Spearheaded the deployment of a wireless camera system in a primate enclosure to enable continuous, autonomous data collection for preclinical research allowing 24/7 collection of data instead of relying on employee observation.
- Developed a PyTorch-based video classification model to automate the analysis of animal behaviors and social hierarchies from collected video data, saving researchers more than 14 hours a week.
- Built and deployed Microsoft Power Apps to digitize laboratory procedures, enhancing data integrity and improving operational efficiency, reducing clicks to completion by more than 7.

Freelance Computer Builder — Lincolnshire, IL
Designer and Technician — *Feb 2020 – May 2025*

- Engineered, sourced, and assembled over $11,000 worth of custom PCs, specializing in small form factor (SFF) and high-performance builds.
- Provided comprehensive client services, including consultation, system assembly, and deployment of Windows and Linux operating systems.

Projects

Custom CoreXY 3D Printer | *Autodesk Inventor, C++, Klipper, Raspberry Pi*

- Designed and constructed a high-performance CoreXY 3D printer from the ground up, featuring a rigid frame modeled in Autodesk Inventor and custom 3D-printed components.
- Configured Klipper firmware on a Raspberry Pi 4 to drive salvaged Ender 3 electronics, achieving high-speed printing at over 1500 mm/s with 7000 mm/s^2 acceleration.

W.A.N.D.E.R. Autonomous Robot | *C++, ESP32, Autodesk Inventor*

- Engineered a maze-solving autonomous robot featuring a custom 3D-printed chassis, integrating a gyroscope, wheel encoders, and distance sensors for robust localization.
- Implemented a C++ pathfinding and SLAM algorithm on an ESP32 microcontroller to efficiently map and navigate unknown maze environments.

Skills

Languages: C++, C Python, MATLAB, Java, Verilog, R, JavaScript
Hardware & Design: Autodesk Inventor, Raspberry Pi, ESP32, AVR & ARM Cortex-M, Altium
Frameworks: PyTorch, LangChain, Pandas, NumPy, Matplotlib
Developer Tools: Git, Linux, Docker, Simulink, Bash, Power Automate