Haochen Ding

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Education

University of Illinois Urbana-Champaign *Aug 2023 - May 2027*
Engineering Undeclared *GPA: 3.99/4.00*

- **James Scholar** in Grainger College of Engineering.
- **Dean's List:** Fall 2023, Spring 2024.
- **Coursework:** Intro to Comp Sci, Discrete Structures, Intro to Computing & Electronics, Multi-variable Calculus, Linear Algebra, Diff Eq, Fundamental Mathematics, Quantum & Thermal physics.

Experience

Embedded Engineer *Champaign, IL*
Illini EV Concept *Sep 2024 - Present*

- Developed skills in STM32, communication protocols, hardware programming and PCB design.
- Programmed C-based translation logic between USB serials and CAN BUS. Implemented FreeRTOS on STM32 microcontroller for simultaneous two-way translation.
- Wrote Python scripts for PCB debugging.

Undergraduate Researcher *Champaign, IL*
Healthcare Engineering System Center *Sep 2024 - Present*

- Worked in Prof. James Rehg's lab on the Gaze Annotation Project.
- Self-studied machine learning, neural network, and TensorFlow.
- Annotated 10,000+ frames of children's developmental behavior data with the Computer Vision Annotation Tool (CVAT).

CS 124 Assistant Tutor *Champaign, IL*
Siebel Center of Computing and Data Science *Jan 2024 - May 2024*

- Tutored students in Java programming and web design skills 2 hours per week.
- Helped students with their machine project.

Projects

Rust-based Fast Fourier Transform Calculator *Mar 2024 - May 2024*
Final Project for CS 199-128 *FFT-Calculator*

- Studied Fast Fourier Transform (FFT) and Cooley-Tukey algorithm.
- Implemented Rust-based FFT calculator with SIMD and multi-thread optimizations.
- Developed front-end interactive interface with Actix framework.

Super Study Room *Mar 2024 - May 2024*
Wildhacks 2024, Northwestern University *Super_Study_Room*

- Full-stack developed a study room registration platform with Next.js front-end framework and Prisma back-end database tool. Self-studied Typescript.
- Achieved quick registration across multiple libraries based on time preference to improve students' productivity.

Hardware PID Automated Guided Vehicle *Sep 2024 - Present*
ECE 198 self-designed project

- Developed obstacle detection and distance-based speed control using components involving ultrasonic sensor, NE555 timer and LM359 op-amp.
- Developed full hardware signal processing circuit, including R2-R DAC and PID control, to achieve smooth speed change.
- CAD modeled and 3D printed the car chassis.

Skills

Languages: English (Full Professional Proficiency), Chinese (Native Proficiency).
Computer Languages: C++, C, Rust, Python, Java, JavaScript, HTML/CSS.
Tools: Docker, CubeIDE, KiCAD, CVAT.