Ethan Ku

734-707-5667 | ethanhku@umich.edu | linkedin.com/in/ethanhku | ethanhku.github.io

Education

University of Michigan, Ann Arbor Graduation: May 2027

B.S.E. Electrical Engineering, Minor in Computer Science *GPA: 3.7/4.0*

Coursework: Analog Circuits, Signals & Systems, Logic Design, Computer Organization, Data Structs. & Algorithms

Extracurriculars: UM Solar Car Racing Team, Revolution Chinese Yoyo, Taiwanese-American Student Association

Experience

Microsystems Engineer August 2024 – Present

UM Solar Car Racing Team *Altium, Siemens NX*

- Led project for 4 Supermodule PCBs to unify 7 battery modules of 10 cells each in 4S2P hybrid configuration, eliminating bus bars from previous design for safety and allowing 100% functionality of high voltage battery
- Increased limited travel storage for race team by 50% by designing Brake Light PCB with solder jumper to manage multiple brake light systems with one board, complete with MCU, MOSFETs, CAN control, regulator, oscillator

Research Assistant January 2025 – Present

Atombots Research Group - Z Lab *Altium, ROS2, SLAM*

- Led design of BMS on mobile robot chassis targeting thermal, overvoltage, and overcurrent emergency shutoff
- Integrating 2 new optical sensors on robot chassis for localized autonomous navigation and obstacle avoidance

Phototech Electrical Engineer August 2024 – Present

Revolution Chinese Yoyo - Creative Chair *Solder, Heat shrink*

- Redesigned 5 glow suits by rerouting and soldering new, thicker electrical lighting wires to replace old, faulty wires for 50% increased consistency during intensive dance routines during Yotonix 2025 show for audience of 300+

Research Assistant June 2022 – August 2022

MMint (Manipulation and Machine Intelligence) Lab *Python*

- Innovated NumPy algorithm to mirror touch-sensor robotic arm location on Matplotlib for 80% accurate tracking

Chinese Yoyo Teacher August 2022 – Present

AACCOM Chinese School

- Teaches weekly Chinese Yoyo classes for up to 10 students and choreographs annual Lunar New Year performances

Projects

Rescue Robot | *C++, Controls Design, Arduino* August 2024 – December 2024

- Developed autonomous thermal-sensing robot with team of 4 which navigated obstacles and sensed simulated human thermal signature, achieving 100% autonomous movement corrections and 100% thermal sensing accuracy
- Consolidated 2 sonar sensors input to multiplexer for navigation guidance and thermopile sensor to detect target

Hovercraft | *C++, Arduino, CATIA* August 2024 – December 2024

- Developed two full-scale remote controlled hovercraft with team of 5, capable of delivering payloads up to 100g
- Led integration of MOSFET connections to battery, directional servo firmware, and LEDs per nautical regulations

Publications

D. T. Islam, E. Telli, N. Telli, H. Fatteh, I. Ma, **E. Ku**, S. Kotaru, W. Hanim, P. Hatzinger, B. Upham, M. Williams, G. Zylstra, D. Fennell, A. Cupples, S. Hashsham. (2023). "Targeted Sequencing Panel to Characterize the Respiration of Polychlorinated Dibenzo-p-dioxins and Dibenzofurans by Dehalococcoides mccartyi Strains". *Annual Superfund Research Project Meeting, Albuquerque, New Mexico, 2023*

Technical Skills

Languages: MATLAB, Verilog, C/C++, ROS2, Python, HTML/CSS
Developer Tools: Altium Designer, LTspice, Simulink, STM32, SLAM, Git, VS Code, Linux, CATIA, NX, Office 365
Libraries: HAL, RTAB-Map, OpenCV, NumPy, Matplotlib
Spoken Languages: English (Fluent), Mandarin (Fluent)