Ryan Chan

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EDUCATION

Cornell University
B.S. in Electrical and Computer Engineering, Minor in Computer Science, **3.79 GPA** **Expected May 2023**
M.Eng. in Electrical and Computer Engineering **Expected Dec 2023**

EXPERIENCES

National Aeronautics and Space Administration (NASA) – Hampton, VA **June 2022-Aug. 2022**
Electronic Systems Intern

- Designed radio frequency harvesting circuits that could collect RF energy in the 2.45 and 5.5 GHz bands
- Used network analyzers to measure and adjust impedance matching. Used signal generators and horn antennas to test circuits

Fast Robots (ECE 4160/5160) TA – Ithaca, NY **Jan 2022 - Present**
Teaching Assistant

- Hold lab hours and grade assignments for a 47-person senior/master level course on building robots with microcontrollers

Cornell Engineering World Health (EWH) Project Team – Ithaca, NY **Sept. 2020-Present**
Electrical Team Lead

- Managed and mentored a team of 10 members to develop medical devices for low-resource communities
- Led onboarding of new members by teaching them circuit design, microcontrollers, soldering, and PCB design
- Worked on an infant NICU incubator with B.C. Children's Hospital. Led work on the motor control and audio circuitry, PCB design, and code in C++. Produced a functional prototype
- Working on a low-cost prosthethic hand with Alt Bionics Inc., supervised firmware and PCB design

Cornell Space Systems Design Studio – Ithaca, NY **Mar 2022-Dec 2022**
Undergraduate Research Assistant

- Worked on Alpha CubeSat, a solar sail technology demo with a planned launch to space from the ISS in 2023
- Was main PCB designer of ChipSat during Summer. Designed board in Altium to handle communication and data collection

Organic Robotics Laboratory – Ithaca, NY **Jan. 2021-Present**
Undergraduate Research Assistant

- Worked on a high-speed fiber-optic system to be used for flexible strain sensors that can give robots the sense of touch
- Built amplifier circuits, programmed Teensy microcontrollers in C++, communicated with ADCs via SPI, and designed custom PCBs integrating these components in Autodesk Eagle. Achieved a sample rate of ~1 million samples per second

Invictus BCI Inc. – Remote **June 2021-Feb. 2022**
Hardware Intern

- Developed EMG Armband Board to read muscle signals - programmed ESP32 microcontrollers in C++, communicated with medical grade AFEs via SPI, implemented Bluetooth, and designed PCBs in Autodesk Eagle
- Finished a 2-channel prototype that could read arm muscle signals at ~500 samples/second and transmit the data wirelessly

PROJECTS (More info & projects on website)

Personal Projects **Jul. 2021-Present**

- Built a WiFi-connected smartwatch. Used an ESP32 microcontroller to display time and weather data from an online API to a TFT screen via SPI. Designed PCB using Eagle and 3D-printed case using Fusion 360
- Built a compact PCB business card that can play Tic-Tac-Toe. Designed PCB in Eagle and used an ATmega microcontroller
- Built a device that can accurately map physical bodily movements from real life into Minecraft to control the game

Academic Projects **Aug. 2020-Present**

- Built a robot that could navigate a complex environment using Time of Flight sensors, an IMU, and an Artemis microcontroller
- Built a device to send emergency calls when it detects a fall or abnormal heart rate with NXP microcontrollers & MCUXpresso
- Designed a single cycle MIPS-based processor and multicore pipelined RISC-V processor in Verilog

SKILLS

Software: Python, Java, C/C++, MATLAB, Verilog, HTML/CSS, JavaScript, Embedded Programming, Git
Hardware: PCB Design (Autodesk Eagle, Altium Designer), 3D Design (Autodesk Fusion 360), THT & SMT soldering, FPGA