

ANDY HUANG

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EDUCATION

Rensselaer Polytechnic Institute

B.S. Computer Systems Engineering

Expected May 2026

Troy, NY

RELEVANT COURSEWORK

- Intro. to Electronics
- Embedded Control
- Electric Circuits
- Signals and Systems
- Comp. Architecture & Op. Systems
- Introduction to Algorithms

EXPERIENCE

Rensselaer Polytechnic Institute - Mercer XLab

January 2024 – Present

Undergraduate Research

Troy, NY

- Headed development of a hybrid in-lab music playback and information hub software called Music X+.
- Developed a Python script that searches the Genius API to seamlessly compile and shuffle student-requested songs.
- Integrated a MySQL database with Music X+ to save student-selected songs and log lab attendance.
- Designed a Flask web application for Music X+ to improve consistency, ease of use, and simplify user navigation.

Rensselaer Polytechnic Institute - Mercer XLab

May 2024 – December 2024

Mercer XLab Staff

Troy, NY

- Organized and managed lab equipment inventory, including equipment loans and delinquency management.
- Taught an introductory workshop on microcontrollers for engineering undergraduates.
- Developed a Notion education module on microcontrollers for students with limited C/C++ and circuit experience.

Rensselaer Polytechnic Institute

September 2022 – August 2024

Rensselaer Computer Repair

Troy, NY

- Performed data-erasure and imaging on university laptops designated to be loaner devices.
- Handled front desk operations while inspecting student laptops and filing repair requests.
- Organized and archived old reports for storage, ensuring a systematic and accessible record-keeping system.

PROJECTS

SMART Fire Alarm System

August 2024

- Designed communications system for fast and secure data over wifi, between device and cloud service.
- Configured a Raspberry Pi as the main logic center to read sensor data, trigger alarms based on thresholds, and upload data to the cloud via AWS IoT when the device is internet-connected.
- Created a program to connect an ESP32 to a Raspberry Pi via MQTT, enabling a remote vibrational alarm system.

Racetrack Car Navigation

December 2023

- Created a program for the TI-RSLK Robotic Car, enabling autonomous navigation around an inner barrier.
- Implemented Pulse Width Modulation (PWM) to modulate and control motor speed throughout the driving process.
- Deployed an Encoder Timer mechanism to fine-tune motor speeds, allowing the car to drive in a straight line.

TECHNICAL SKILLS

Languages & Development Frameworks: Python, C, C++, MATLAB, Assembly, PlatformIO, AWS IoT, ESP-IDF

Embedded Systems Development: Arduino IDE, Raspberry Pi, ESP32, Linux Operating Systems, FreeRTOS

LEADERSHIP / EXTRACURRICULAR

Delta Phi Fraternity

November 2023 – December 2024

Head of Food and Kitchen Acquisitions

Rensselaer Polytechnic Institute

- Consolidated weekly food requests and optimized budget for cost-effective spending and weekly provision purchase.
- Maintained cleanliness and proper organization in food storage areas to ensure fair and safe distribution of space.
- Drafted a weekly fraternity dinner schedule, delegating cooking roles while overseeing the execution of every event.