Victor (Qibin) Huang

vichua2006@gmail.com | github.com/vichua2006

Education

University of Waterloo Sep 2024 - Jun 2029
Computer Science

Skills

Languages: Python, C/C++, Java, TypeScript, HTML/CSS
Frameworks/Libraries: React, Chakra, Flask, Selenium, Matplotlib, NumPy, OpenAI, AutoGen
Tools: Git, GitHub, Linux, VS Code, Raspberry Pi, Arduino, SSH, Vim

Experience

Physics Intern, University of New Brunswick Jul 2024 - Aug 2024

Fredericton, NB | *Python, Matplotlib, Numpy, Lmfit*

- Trialed exercises for a new **upper-year laser course** at the University of New Brunswick.
- Analyzed the intensity profile of a Class-3B laser using a CMOS Camera, capturing **20+** measurements at different exposure levels.
- Applied Gaussian curve fitting to analyze **10,000+** data points using matplotlib, producing detailed 2D and 3D graphs for in-depth analysis.

Research Programmer, UCSB Human-AI Integration Lab Dec 2023 - Jun 2024

Remote | *Python, OpenAI, MS AutoGen, Git*

- Developed and enhanced research programs exploring the formation of complex social relationships by Large-Language-Model (LLM) based agents, leading to a increase in the depth of agent interactions.
- Served as a key member of the backend team, developing crucial features using **OpenAI API** and **Microsoft AutoGen**, contributing to reduced experiment costs and a **40%** increase in result accuracy.

Projects

UNB Weather Station Jul 2024 - Aug 2024
Raspberry Pi, Python, Shell, Linux, SSH, I2C

- Created **3** custom weather stations using **Raspberry Pi** and environmental sensor (BME280), synchronized using a high-precision RTC module (Real Time Clock) to measure the local adiabatic lapse rate.
- Remotely connected to RPi via **SSH** and configured **Linux** operating system to run custom **Python** and **Shell** scripts, allowing device to record measurements on startup.

Theater Movers May 2023 - Jun 2024
C++, Arduino, Git, KiCad

- Prototyped a **3D-printed** intelligent lighting fixture with **dual-axis rotation** for community stage productions.
- Developed a custom algorithm to support synchronized stepper motor acceleration on both axes, allowing smooth and accurate lighting controls.
- Interfaced with industry standard **DMX512** communication protocol, making the fixture compatible with professional lighting console.

APOCALIFT May 2024
JavaScript, Flask, Python, Arduino, C++, HTML/CSS

- Built a web-based RC vehicle rental platform for a 48-hour hackathon (Apocalypse) using **Flask**, featuring **real-time video** streaming capabilities.
- Developed a communication protocol connecting the frontend, backend, and hardware; created an **API endpoint** to process user commands and transmit them to the RC vehicle via **ESP32** wireless communication.
- Enhanced system performance by **50%** through clock rate optimization across the three integrated systems.