

Victor Huang

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Education

University of Waterloo

Bachelor of Computer Science, Honours Co-op, **3.8/4.0 GPA**

Expected Graduation 2029

Waterloo, ON

Skills

Languages: Python, C++, C, TypeScript, Java, Shell, SQL, Scheme, HTML, CSS

Frameworks/Libraries: GraphQL, Prisma, React, Flask, Selenium, Matplotlib, Chakra, AutoGen

Tools: Git, Vim, Linux, SSH, Kubernetes, Docker, VS Code, Raspberry Pi, Arduino, Google Cloud Platform.

Experience

Backend Software Engineer | Typescript, Prisma, GraphQL, SQL

Hack the North

Mar 2024 - Present

Waterloo, ON

- Developed database schemas and **GraphQL** endpoints to build tools and features for **5000+** total users per year.
- Automated internal ideation workflow with Slack and Notion API, reducing manual documentation time by **30%**.
- Created **data reports** on event metrics with **Metabase and SQL**, aiding logistics in making data-driven decisions.

Software Engineer | Python, OpenCV, SSH, Raspberry Pi

Waterloo Aerial Robotics Group, Autonomy

Jan 2024 - Present

Waterloo, ON

- Captured **2k+ brightspot images** to fine-tune drone's computer vision system, **reducing false detections by 99%**.
- Investigated new Raspberry Pi and OpenCV camera modules, **authoring comprehensive setup and troubleshooting documentation**, significantly reducing debugging time for future hardware and software integration.

Research Programmer | Python, OpenAI, AutoGen, Git

UCSB Human-AI Integration Lab

Dec 2023 - Jun 2024

Santa Barbara, CA

- Built a framework for LLM agents to simulate human interactions through persona-based interaction.
- Developed a multi-agent conversation system using **MS AutoGen**, allowing **8+ agents** per discussion session.
- Utilized **prompt engineering** techniques (such as **N-shot learning**, **Chain of Thought**, **Prompt Chaining**, etc.) and **RAG** memory pipeline to enhance agent performance by **25%** and virtually **eliminated all hallucinations**.

Research Intern | Python, Matplotlib, Numpy

University of New Brunswick, Physics Department

Jul 2024 - Aug 2024

Fredericton, NB

- Analyzed **10,000+ laser intensity** data points across varied exposure levels, enabling precise profile characterization.
- Applied **Gaussian fitting** and built 2D/3D visualizations in **Matplotlib**, gaining deeper insight into beam distribution.
- Collaborated on the design, testing, and programming solutions of new lab exercises for an upper-year laser course.

Lead Technician

Tom Morrison Theatre

Sep 2023 - Jun 2024

Fredericton, NB

- Led **20 theatre technicians** for the venue's annual musical, showcasing performances for **1200+** audience members.
- Routinely selected and managed teams of **5-6** techs in high-pressure environments while meeting client expectations.
- Organized large-scale events with community groups (e.g. Remembrance Day ceremonies) for **1000+** attendees.

Projects

Theater Movers ↗ | C++, Arduino, Git, KiCad

- Prototyped a **3D-printed** intelligent lighting fixture with **dual-axis rotation** for community stage productions.
- Developed custom algorithm to support **synchronized stepper motor acceleration** on both axes.

Apocalift ↗ | JavaScript, Flask, Python, Arduino, C++, HTML/CSS

- Built web-based RC vehicle rental platform using **Flask**, featuring **real-time video** streaming capabilities.
- Developed API endpoint to transmit user controls to the RC vehicle via **ESP32** wireless communication.

UNB Weather Station ↗ | 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.