Victor Huang

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Education

University of Waterloo — Expected Graduation 2029
Bachelor of Computer Science, Honours Co-op — *Waterloo, ON*

Skills

Languages: C, C++, Python, Java, HTML, CSS, JavaScript, TypeScript, SQL, Scheme, Kotlin
Frameworks/Libraries: React, Next.js, Express.js, Node.js, Prisma, Flask, Tailwind CSS, Pandas, NumPy, Selenium
Tools: Git, Bash, Linux, Vim, GraphQL, Docker, Kubernetes, MongoDB, PostgreSQL, MySQL, GCP, Arduino

Experience

Full-Stack Engineer | *Typescript, React, Redux, GraphQL, Jest, SQL, AWS* — Sep 2025 - Present
TOOLBX — *Santa Monica, CA*

- Developed end-to-end real-time notification system with GraphQL subscriptions, achieving <100ms delivery latency.

Backend Software Engineer | *Typescript, Node.js, GraphQL, PostgresSQL, K8s, Docker* — Mar 2024 - Present
Hack the North — *Waterloo, ON*

- Owned design and development of database schema and **30+ GraphQL endpoints** for an event gamification system, supporting tools and features for **1500+** users with real-time quest tracking, point transactions, and user analytics.
- Created data reports on event metrics with Metabase & **PostgreSQL**, aiding logistics in making data-driven decisions.
- Investigated in **CI/CD** incidents involving **Kubernetes and Docker**, creating brief post-mortem incident reports.

Software Engineer | *Python, OpenCV, SSH, Raspberry Pi* — Jan 2024 - May 2024
Waterloo Aerial Robotics Group, Autonomy — *Waterloo, ON*

- Optimized blob-detection with **OpenCV** using 2k+ infrared bright-spot images, **slashing false positives by 99%**, achieving 0 false positives across 5 consecutive flight tests after optimization.
- Implemented real-time object detection with **Ultralytics YOLOv8** for landing pads, achieving **95%** detection reliability.

AI Research Intern | *Python, OpenAI, AutoGen, Git* — Dec 2023 - Jun 2024
UCSB Human-AI Integration Lab — *Santa Barbara, CA*

- Developed a **multi-agent** conversation system with OpenAI API, scaling to **8+ agents** per discussion session and integrated with **RAG** memory pipeline, allowing conversation recall and context-aware reasoning across sessions.
- Utilized **prompt engineering** techniques (such as N-shot learning, Chain of Thought, Prompt Chaining, etc.) and virtually **eliminated all hallucinations** from the agents, significantly boosting research progress.

Physics Research Intern | *Python, Matplotlib, Numpy, Pandas* — Jul 2024 - Aug 2024
University of New Brunswick, Physics Department — *Fredericton, NB*

- Collected and analyzed **10,000+ data points** with **NumPy and Pandas** across various lazer intensity levels, creating **2D/3D visualizations** in Matplotlib to assist graduate-level research on the detection of Exoplanets.

Projects

Sentilysis | *React, Tailwind CSS, FastAPI, MongoDB, Gemini*

- Built a full-stack stock-sentiment dashboard with **React and Tailwind**, over an **FastAPI** backend that scrapes recent new feeds and generates Gemini-powered sentiment summaries for **20+ stocks**, built and shipped within **36-hours**.
- Architected **MongoDB** Atlas schema to ingest and persist data from asynchronously scheduled web-scraping jobs.

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

- Built **REST endpoints** for a RC vehicle rental platform using **Flask**, featuring **real-time video** streaming capabilities.
- Optimized endpoints to transmit user controls to the RC vehicle via **ESP32** wireless communication.

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.