

# Vincent Chung

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## EDUCATION

### University of Waterloo

Bachelor of Software Engineering

Relevant Courses: Programming Principles (C), ADTs and Object-Oriented Programming (C++)

Sept 2023 - Present

**GPA: 4.0**

## SKILLS

**Languages:** C++, C, Python, JavaScript, TypeScript, SQL, HTML, CSS, BASIC

**Technologies & Tools:** Flask, React, OpenCV, MySQL, Bootstrap, Git, Linux, Feedback Control

## EXPERIENCE

### Robotics Club

Sep 2019 - May 2023

#### Team Programmer Lead

C++, Feedback Control

- Programmed a robot using **C++** to perform a one-minute autonomous routine, such as throwing discs at 15-feet range and balancing on see-saw platforms, at a **70-80%** consistency and accuracy
- Optimized **PID** and **path finding algorithms** using calculus, trigonometry, inertial sensors, **feedback control** and mentored younger teams by continuous testing to improve robot autonomous algorithm speed by **30%**
- Maximized efficiency of robot actions by implementing **multithreading** of subsystems to decrease runtime by **20%**
- Competed provincially and internationally in biweekly tournaments to achieve **top 60** skills scores worldwide

### Robotics Scouting

Oct 2021 - Jan 2023

#### Web developer

HTML, CSS, SQL, JavaScript

- Produced a scouting website for my high school's robotics program for better preparation of in-person tournaments
- Designed iteratively the UI of the scouting website using **CSS** for feedback to improve readability of website
- Organized scouting data using **MySQL** databases for observations of trends of teams in tournament season
- Implemented additional features, such as real-time scoreboard and scoring tool, for better functionality of website

## PROJECTS

### BASIC Web

Jan 2024

#### A compiler of BASIC for web development

TypeScript, HTML, BASIC

- Built a compiler for a version of BASIC language using **TypeScript** which won second place overall at UofTHacks 2024
- Created syntactical features of our version of BASIC language to support basic frontend development features
- Programmed a parser using **recursive descent parsing** to read and transform BASIC code to an **abstract syntax tree**
- Established a **CI/CD pipeline** using GitHub pages to streamline process of web development of BASIC Web language

### ShowerScribe

Oct 2023 - Dec 2023

#### Companion to manage shower thoughts

Python, Bootstrap, HTML

- Created a device using **Raspberry Pi** and a microphone to record down shower thoughts of users at convenience
- Managed recordings using AI models to transcribe into text and stored in **MySQL** databases for organization
- Sorted session data semantically using **Cohere** and **large language models** for users to search recordings easily

### ShoeBill

Oct 2023

#### Personalized gamer tracking web application

Python, SQL, Flask

- Built a web application that can be used to track the emotions, heart rate and blood pressure of the users while gaming
- Predicted emotions from the users' facial expressions and voices using AI models and **OpenCV** with a **90% accuracy**
- Established backend databases of user session data using **Python, SQL** for analysis of gaming pressure and displayed features, such as emotion, heart rate graphs and a breathing tool, to reduce mental stress of gamers

## ACHIEVEMENTS

### VEX Robotics Competition

- 2023: Provincial Finalist in a **100-team** province, **Worlds qualification**
- 2022: Tournament Finalist in a tournament of **70 teams**, **Worlds qualification**