Joshua Cheng

Website: chengjoshua.com
Email: j885chen@uwaterloo.ca
LinkedIn: joshua-cheng | **GitHub:** github.com/JoshuaC15

Technical Skills

Languages: **C++, Python, C, HTML5/CSS, JavaScript, C#**

Frameworks and Tools: **Flask, Matplotlib, Git, Unity3D, Unix, Processing, PyCharm, CLion**

Experience

Firmware Developer **Waterloo, ON**
Midnight Sun Solar Car Waterloo Engineering Design Team *September 2019 – Present*

- Developed an **API** in **C** to allow users to more efficiently configure the GPIO states on an **MCP2300** integrated circuit, which led to an improved rear power distribution for the solar car
- Programmed using the **I2C** library, a **GPIO expander**, as well as thoroughly documented the code written

Software Engineering Intern **Toronto, ON**
CTO Boost Inc. *July 2018 – August 2018*

- Created educational videos about the concepts of **Blockchain**, such as **ledgers** and **cryptographic hash functions**, for numerous stakeholders including the CEO
- Broke down the technical aspects of Blockchain through various graphics and video edits done using **iMovie**
- Communicated with executives to further develop knowledge of cryptocurrency, and showed initiative through writing code

Technical Projects

Heat Source Mapping Drone– Software Engineering Design Project *September 2019 – December 2019*

- Built and programmed a **self-piloting drone** with **C** that collected images and heat data in flight, which were coalesced into a heat map using **Python** and **OpenCV**
- Implemented data visualization techniques with **Matplotlib** and **Pandas** to highlight areas of heat with a **precision of 0.01 °C**
- Designed the infrared map creation algorithm to use **kernel density estimation** to accommodate for onboard hardware limitations
- Wrote Python scripts with **Seaborn** to map the drone's flight path, allowing for easier debugging

Slate – Hack the North *September 2019*

- Created a social media platform to allow users to dynamically create time schedules and generate invites between one another using **Flask** and **React**
- Developed the back-end consisting of user signup functionality through a **SQLite database** to store **encrypted** user information
- Designed the **API** with a front-end team to ensure seamless integration with the back-end endpoints

FPSGolf – Adrenalan Hackathon *August 2018*

- Used **C#** and **Unity3D** to create a first-person shooter golf game for **iOS**, where the goal is to shoot enemies into specific locations
- Implemented conditional based enemy **AI** to track and pursue the player once they enter a certain range

Extracurriculars

University of Waterloo: Athletic Representative for the Software Engineering 2024 Class, Engineering Ambassador Shadow Day Mentor, Competitive Intramural Basketball Player, Lifesaving Society Swim Instructor

Education

University of Waterloo **Waterloo, ON**
Bachelor of Software Engineering *September 2019 – April 2024*

Honors and Achievements: President's Scholarship of Distinction (95%+ Grade 12 cumulative average), Halton Proficiency Award (demonstrated through outstanding leadership and academic proficiency)