William Zhang

w223zhan@uwaterloo.ca linkedin.com/in/williamzhang20 github.com/williamzhang20 Personal Website

Education

University of Waterloo **2023 - 2028**

Candidate for Bachelor of Computer Engineering *Waterloo, ON*

- GPA: 91.4/100
- Relevant Courses: Programming (C++), Linear Algebra, Calculus, Discrete Mathematics & Logic, Linear Circuits, Digital Circuits & Systems (VHDL), Electricity & Magnetism

Technical Skills

Programming Languages: Python, Java, C/C++, HTML, CSS, JavaScript, Bash, SQL, YAML

Software Knowledge: Linux, Debian, Eclipse, Git, Jira, MySQL

Hardware Knowledge: Raspberry Pi, STM32 micro-controller, I2C (Inter-Integrated Circuit) Protocol

Technologies/Frameworks: Docker, Flask, Microservices, Web Scraping

Experience

GeekWeek 8 Participant **July 2023**

Canadian Centre for Cyber Security

- Implemented a **YAML** configuration file to containerize a Flask web app frontend and a ZAP (Zed Attack Proxy) website vulnerability scanner backend in **Docker**. It launches the web app and scanner containers simultaneously with Docker Compose and links the containers' folders through Docker Volumes
- Implemented an **HTML** file to build the **Flask** web app with user input for the URL and dynamic content
- Developed a **Python** script to receive the URL and send it to the scanner's container by writing it in a shared Docker Volume. It also receives and renders the scanner's report in a separate app route

Restaurant Team Member **July - August 2023**

Thai Express

- Served customers at the cash register while observing the camera and doorbell
- Assisted in kitchen operations by packing bowls of noodles within a required weight range

Projects

Temperature Aware Mug | *C, Firmware, I2C Protocol, Circuits*

- Programmed an STM32 Nucleo board in **C** to control five peripherals: an infrared temperature sensor, an LCD display, a potentiometer, a buzzer, and a push-button.
- Successfully tracked and displayed the temperature of a hot mug and sounded the buzzer when the drink cooled to a user-preset temperature with **100%** accuracy
- Prepared technical documents to streamline the design process and used Jira to keep track of project tasks

Flight Tracker | *Python, MySQL, Shell Scripting*

- Built a flight tracker on a **Raspberry Pi** with an RTL-SDR (RealTek Software-Defined Radio) flight antenna and a signal decoder
- Wrote shell scripts that collect data from the antenna and send it through a **TCP port** to a text file
- Developed a **Python** program to scan the text file, filter data, and push it to a **MySQL** database
- Implemented a flight data **analyzer** that reads from the database and outputs flight traffic statistics

Weather Web Scraper | *Web Scraping, MySQL, Python*

- Programmed a **Python** web scraper that collects weather data from Google for various cities by using the BeautifulSoup and Requests **libraries** and stores the data in a **MySQL** database
- Developed a weather **analyzer** that reads the database and outputs city weather statistics over a user-inputted period

Hobbies

Classical music, Reading, Running, Badminton