Ruiquan (Richard) Su

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Education

University of Waterloo — Waterloo, ON
Computer Engineering, Honours, Coop — *Sept. 2024 -*

Experience

Software Engineering Intern — June 2023 - September 2023
Capital Air Ltd., Beijing Capital Group Co. — *Beijing, China*

- Developed a **Python-based data analysis system**, visualizing **country-wide air** quality using the **Gaussian regression method** based on the data collected from **over 1,000 sites.**
- Developed a **PostgreSQL port** of the data analysis system using **Flask**, used online by over **2,000 clients**.

Projects

Cat Feeder | *Python, AutoCAD, Raspberry Pi, DC Motors, 3D Printer* — May 2023 - August 2023

- Designed components of the cat feeder using **AutoCAD**, which was printed using a 3D printer.
- Trained a **Python and Raspberry Pi-based Tensorflow AI** that distinguishes cats captured by the camera, passing a signal to the motor which releases cat food from the feeder.
- Authored clear design documents and constructed diagrams so the user can assemble the product independently.

Admissions Database | *Python, PostgreSQL, PHP, Raspberry Pi, Docker, Caddy* — January 2022 - February 2023

- Developed a **Raspberry Pi-based data storage & editing system** with **Python and Caddy**.
- **Customized a login system** based on the needs of the Rothesay Netherwood School Admission office.
- Collaborated with the admission team to improve relevant features, serving **325 students** each year.

Speech Recognition Glasses | *Python, Google Speech Module, Arduino* — January 2023 - May 2024

- Developed a **GSM-based Python program** to recognize English speech and output the result, thus helping dysgraphia patients.
- Successfully recognized speech using the microphone and the **Arduino board**, outputting it onto the **LCD module**, which projects the output onto an anti-glare visor, achieving an **AR-like effect**.

The Red Sun | *Python, PyGame* — January 2021 - January 2022

- Independently developed a **PyGame-based video game**, featuring **unique game mechanics**, including character movement, time-based background light rendering, time-constrained battles, etc
- A sample of the game can be found in my GitHub repository and in my project portfolio.

Volunteer Work

Elected Academic Representative of the ECE Class of '29 — 2024 - Present
Advocate — *Waterloo, ON*

Wat.AI Student Design Team — 2024 - Present
Core Member — *Waterloo, ON*

- Responsible for developing web-scraping software with an AI module summarizing scholarly articles.
- **Designed a UI** for the internal user of the software using **React and JavaScript**.
- Used **React and Node.js** to build a **responsive interface** for effective site navigation for users.

Technical Skills

Languages: Python, C/C++, C#, SQL (Postgres, MySQL), JavaScript, HTML/CSS, LaTeX
Communication: English, Mandarin, French
Developer Tools: Git, Docker, VS Code, Visual Studio, Jupyter, Anaconda, Node.js, React
Libraries: pandas, NumPy, Matplotlib, Cartopy, Codecs, PyKrige, FryKit, Flask, Tensorflow

Relevant Awards

University of Waterloo, President's Scholarship — 2024
Canadian Computing Competition, Honour Roll — 2023
Canadian Computing Competition, Distinction — 2021, 2022, 2024