

Richard Bai

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TECHNICAL SKILLS

Languages: JavaScript, HTML/CSS, Java, Python, C++, C, Bash, Racket, MySQL

Developer Tools/Frameworks: ReactJS, Node.js, Vite, Express.js, Git, Postman, Mongoose, TailwindCSS, Docker

Libraries: Pandas, NumPy, Matplotlib, PyGame, Scikit-learn, nodemon

EXPERIENCE

Freedo Technologies

May 2022 – January 2023

Software Development Intern

Beijing, China

- Designed and developed an algorithm using **k-means clustering** to get an image's color palette in **Python** using **Scikit-learn** and **NumPy**
- Implemented this algorithm to **simplify** and **reconstruct** images of buildings in 2D space using **matplotlib**
- Assisted with developing a **patented roof reconstruction** process that could identify and rebuild various roofs in 3D space with **C++** and **Houdini**

Bright Youth Journey

January 2021 – Present

Vice President of Technology

Calgary, Alberta

- Organized and hosted weekly lessons to teach over **150** students the fundamentals of **Java** and **Python**
- Lead **10** Math and Programming Summer camps over **3 years** that raised over **7,000** dollars for local food banks
- Deployed, designed and maintained the organization's website used by over **350** students monthly to register

PROJECTS

CodeWizard | *Vite, React, Express, MongoDB, AWS, Git*

January 2024 – Present

- A full-stack conversational chatbot that utilizes **OpenAI's chat completions** to provide personalized feedback to coding inquiries
- Deployed a back-end **ExpressJS** server to securely transfer data, greatly reduce client side complexity, and enhance overall performance
- Architected a **cloud-based** chat history feature using **MongoDB** for scalable data storage and **AWS** for high availability and global access

The Daily Scoop | *ReactJS, HTML, CSS, JavaScript, Git*

November 2023 – Present

- Designed a front-end interface that provides the user with multiple news browsing options and input fields for country, dates and queries
- Integrated customizable **RESTful API** calls providing the user with news relevant to their selected options
- Administered **state-management** and **life-cycle** methods to instantly update search queries and API responses

Personal Portfolio Website | *HTML, CSS, JavaScript, Git*

May 2023 – Present

- Designed and built a personal and dynamic website from **HTML**, **CSS** and **JavaScript**
- Formulated interactive features like dark mode, contact forms, mobile compatibility and dropdown menus
- Consolidated external libraries like **Formspree**, **Swiper CSS** and **AOS CSS** for animations, forms and pagination

Space Invaders | *Python, PyGame, Git*

May 2022 – June 2022

- Developed a Space Invaders inspired game with health bars, levels, enemy AI using **PyGame**
- Integrated Player, Ship and Laser classes to encapsulate objects and inherit common attributes for code readability and manageability
- Established collision detection using **Pygame** masks to identify collisions between ships and lasers

EDUCATION

University of Waterloo

Bachelor of Computer Science - GPA: 3.8 / 4.0

Waterloo, ON

Aug. 2023 – May 2028