

Ray Bao, Software Developer

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Employment History

Software Developer, Ploomba

(Jul 2024 — Present)

- Contributed to development of an **AI-powered agricultural platform** supporting farmers through intelligent insights and robotic automation.
- Designed and implemented robust **logging and data management systems** interacting with over **10,000 database entries**, enabling efficient monitoring, debugging, and system scalability.
- Utilized **Node.js, Mantine, and Yarn** to build and maintain application components emphasizing performance.

Software Engineer Intern, Microchip Technologies

(Jan 2025 — May 2025)

- Developed a tool using **C, python, mako templates, and SWIG** to generate device configuration binaries for the **Microchip PIC64-HPSC** (High Performance Spaceflight Computing) MPUs for NASA JPL (Jet Propulsion Laboratory).
- Created and maintained **Jenkins Artifacts** for the device configurator, distributing to other teams, and coordinating development in an **Agile-DevOps** environment with **JIRA and Bitbucket**.
- Developed firmware code and tests verified on custom software and hardware emulation platforms through a **Bitbucket/Jenkins** pipeline.

Future Tech Intern, Nokia

(Jun 2021 — Aug 2021)

- Worked as a **PHP** developer alongside a network architect to automate testing for proof of concept network topologies on Nokia's **SR Linux Network Operating System**.
- Deployed virtual full and half mesh network topologies hosted on **DigitalOcean's** cloud infrastructure using IP networks and IP-routing in containerized SR Linux routers using **ContainerLab** and **Docker**.
- Integrated **ContainerLab** with **PHP** to allow proof of concept network topologies to be more efficiently constructed and deployed from a user-friendly web-app GUI to improve standard rate of deployment by 50%.

Full Stack Web Developer (co-op), Digiterra Interactive

(Jun 2020 — Jul 2020)

- Completed a front-end interface design using **HTML, JS, and CSS** to improve user experience.
- Worked with an **Apache** Web Server on a **XAMPP** stack to integrate a **MySQL** database along with **PHP** scripting with calls to the **Paypal REST API** deliver a functioning subscription service.

Projects

GAIA - McHacks 12 WINNER (Best Use of Generative AI)

(Jan 2025)

- Led development of GAIA, a 100% AI-driven emergent narrative game leveraging **OpenAI's** api to procedurally generate dynamic storylines and adaptive gameplay.
- Employed **DALL-E & Minimax's API** to conduct **multithreaded AI-video rendering**.

Sparky - CodeJam 14 WINNER (Best Use of Hardware)

(Nov 2024)

- Wrote the firmware and software in **arduino IDE** for a robot productivity companion that tracks your mobile phone usage through **Computer Vision with openCV**.
- Employed **virtualized serial communication** and a webcam feed to emulate camera feeds from an **arduino** ensuring compatibility with future upgrades to the robot's camera module.

WikiChess - HackThe6ix WINNER (Best Game Hack)

(Aug 2024)

- Led the development of WikiChess!, a web-based game (inspired by Wikiracer) utilizing **HTML, CSS, JavaScript** on a **Flask** framework that utilizes python's **BeautifulSoup4** library to web scrape data and **spaCy** to conduct **Natural Language Processing (NLP)** and linguistic semantic comparison

Education

Sep 2022 — Present

B.Sc. Computer Science - AI, McGill University Minor in Economics

Montreal, Quebec

Relevant Courses: Data Structures and Algorithms, Software Design, Computer Architecture

Sep 2018 — May 2022

International Baccalaureate Diploma, Colonel By Technical Skills

Ottawa, Ontario

- Languages:** Python, Java, JavaScript, PHP, HTML, CSS, SQL, C, Ruby, TypeScript, Golang
- Frameworks and Libraries:** Flask, React, Node.js, Vue.js, BeautifulSoup4, spaCy, scikit-learn, pandas, numpy, mako, swig
- Tools and Technologies:** Linux, Docker, ContainerLab, Git, XAMPP, Apache, MySQL, DigitalOcean, Atlassian, Responsive Design, Cross-browser Compatibility, Agile development, CI/CD pipelines, Version Control