

Richard Xu

647-764-0174 | Richadam86@gmail.com | github.com/Richard-Xu-86

EDUCATION

University of Western

Software Engineering - Bachelor of Engineering Science (BESc) - GPA: 3.9

London, ON

Sept. 2024 – Apr 2028

EXPERIENCE

AI/ML Research Intern

May 2025 – Present

University of Western

London, ON

- **Designed and trained** a reinforcement learning agent using **Stable-Baselines3** and **OpenAI Gym** to optimize Wi-Fi access point selection and improve network performance
- **Built a custom simulation environment** for Wi-Fi signal metrics (**RSSI, latency, jitter, packet loss**) with **Gym-compatible interfaces**
- **Developed a full-stack application** using **Flask** and **React** to collect real-time network data, visualize metrics, and run AI-driven decisions
- **Engineered interactive dashboards** and dynamic graphing features with **Tailwind CSS** and **Recharts** to visualize before-and-after network conditions
- **Integrated** real-time performance monitoring and **automated reconnection strategies** on **macOS** devices

PROJECTS

AI/ML Wi-Fi Optimizer | *Python, Flask, React, OpenAI Gym, Stable-Baselines3*

May 2025 – Present

- **Developed a reinforcement learning agent** that dynamically selects optimal Wi-Fi access points based on real-time metrics (**RSSI, latency, jitter, packet loss**)
- **Built a custom OpenAI Gym environment** with reward shaping and **Gaussian noise** to train a **DQN agent** efficiently
- **Created a full-stack app** using **Flask** and **React** to display network metrics, agent decisions, and **interactive graphs** with **Recharts**
- **Integrated Tailwind CSS** for responsive UI and added support for **real-time monitoring** and agent-triggered network reconnections

eBay Deal Finder | *Python, Flask, React, eBay API, PostgreSQL, Render*

July 2025 – Aug 2025

- **Built a full-stack web app** that lets users search for products and find real-time deals using the **eBay API**
- **Integrated** eBay production and sandbox APIs, handling **authentication, queries, and dynamic responses**
- **Implemented** product sorting by **price/rating** and stored search history using **PostgreSQL**
- **Deployed** the app using **Render** with a **Flask backend** and **React + Tailwind frontend**

ExpenseTracker | *Python, Django, Bootstrap, SQLite, JavaScript*

Dec 2024 – Jan 2025

- Created a personal finance tracker with **income/expense logging, CSV export**, and time-based filters
- Used **Django templates and Bootstrap** to build a responsive and modular UI
- **Added interactive filters** (e.g., last 6 months, 1 year) and dynamic charts using **Matplotlib**
- **Designed a clean layout** with sidebar navigation and support for theming

TECHNICAL SKILLS

Languages: Python, JavaScript, Java, C, HTML/CSS, SQL (PostgreSQL), Bash

Frameworks: React, Django, Flask, FastAPI, Jinja2, Bootstrap, Tailwind CSS, Gymnasium, Stable-Baselines3

Developer Tools: Git, Docker, Postman, Render, GitHub Actions, Google Colab, VS Code, PyCharm

Libraries: pandas, NumPy, Matplotlib, tqdm, rich, Recharts, Chart.js

APIs & Technologies: REST APIs, eBay API (sandbox & production), CoreWLAN (macOS), OpenAI Gym

Concepts: Reinforcement Learning, Vectorized Environments, Callback Monitoring, Full-Stack Development, Web Scraping, Network Optimization, Data Visualization, Deployment