

Alan Bui

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Skills & Technologies

Languages: Python, JavaScript, TypeScript, Java, SQL, C++, HTML, CSS, R, Dart, Racket

Frameworks & Tools: React.js, Node.js, Git, Firebase, PostgreSQL, Docker, Angular, Flutter, NumPy

Education

University of Waterloo (Bachelor of Computer Science)

Sept. 2024 – 2028 (expected)

René Descartes National Scholarship Recipient (~10 recipients in Canada)

Waterloo, Canada

Experience

Research Assistant

July 2023 – Aug. 2023

University of Windsor

Windsor, ON

- Co-authored a **research paper** on the performance of LLM embeddings for molecular property prediction
- Developed tools to transform molecular structure text encoding into vector embeddings using **7 AI models**
- Applied **30+ statistical tests** in Python (with sklearn, NumPy, pandas) to find **LLaMA outperformed GPT**

Software Engineer

Sept. 2022 – June 2024

Windsor Chess Enrichment Program

Windsor, ON

- Enhanced students' pattern recognition by **developing a chess puzzle app** with React, Node, and Firebase
- **Doubled club membership** after designing and deploying the company website using GitHub Pages
- Published a chess book with **20,000+ downloads** using Python to format text, annotations, and diagrams

Co-Director

Sept. 2022 – June 2024

MasseyHacks

Windsor, ON

- Coordinated the Finance team to receive \$12000 in sponsorships for **Canada's oldest high school hackathon**
- Developed a **15-puzzle hacker hunt** in React and Node to test front-end and back-end knowledge
- Led the Tech team to develop the event website using HTML/CSS/JS, increasing hackers by **30%** from 2023

Senior Stream Teacher

Sept. 2022 – June 2024

Vincent Massey Computer Science Club

Windsor, ON

- Curated **20+ lesson plans** in Python and C++ to teach data structures & algorithms for programming contests
- Tracked **50+ members'** homework progress by creating a full-stack leaderboard using React, Node, Firebase
- Taught web development fundamentals through project-based learning using **HTML/CSS and JavaScript**

Projects

LooLooLoo | *React, Node, Docker, YAML, HTML/CSS*

Hack the North 2024 Winner

- Developed an **interactive 3d indoor map** app using **TypeScript** and **React** on the front-end
- Implemented **shortest path navigation** using **TypeScript** and containerized the back-end using **Docker**
- Programmed ESP32 microcontrollers with YAML to detect phones' Bluetooth signal and text nearby users

The Mind | *TypeScript, Angular, PostgreSQL, Node, Python, Material UI, HTML/CSS*

- Developed a **multiplayer online card game** in TypeScript using WebSockets for real-time communication
- Designed and implemented an AI assistant in Python that suggests optimal moves with a **90+% win rate**
- Used PostgreSQL to manage persistent game states and implemented a responsive UI with Angular