

Alan Bui

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Skills & Technologies

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

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

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**

Senior Stream Teacher | Contest Organizer

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**

Co-Director | Operations Organizer

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 hackenger 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

Co-Founder | Full-stack Developer

Sept. 2021 – Present

Windsor Chess Enrichment Program

Windsor, ON

- Co-founded the largest local chess club for **70+ children** from underserved communities
- Increased students' pattern recognition by developing a chess puzzle app with **React, Node, and Firebase**
- Published a chess book with **20,000+ downloads** using Python to format text, annotations, and diagrams

Projects

LooLooLoo | *React, TypeScript, 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

Fast-Slow Debugger | *JavaScript, Python, HTML/CSS*

Hack the North 2022

- Created a **debugging tool** to detect regressions between old and new code with a UI made with HTML/CSS
- Compared the outputs of two programs run in parallel on randomly generated inputs using **JS** and **Python**