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 Developer   *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 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

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