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, Express.js, Git, NumPy, Flutter, Docker

Education

University of Waterloo (Bachelor of Computer Science)   *Sept. 2024 – 2028 (expected)*
René Descartes National Scholarship Recipient ($20000)   Waterloo, Canada

Experience

University of Windsor   *July 2023 – Aug. 2023*
Research Assistant   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**

Vincent Massey Computer Science Club   *Sept. 2022 – June 2024*
Senior Stream Teacher | Contest Organizer   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/JS/Node/React**

MasseyHacks   *Sept. 2022 – June 2024*
Co-Director (2023) | Operations Organizer (2022)   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 Technology team to develop the event website and Discord bot by breaking projects into smaller tasks

Windsor Chess Enrichment Program   *Sep. 2021 – Present*
Co-Founder | Full-stack Developer   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   *Sept. 2024*
Hack the North | Sponsor API Prize Winner   Waterloo, ON

— Attached ESP32 sensors to water fountains to detect nearby phones and text nearby users
— Linked users to an **interactive indoor map** app built using **TypeScript** and **React** (with Vite) on the front-end
— Implemented **shortest path navigation** using **TypeScript** and containerized the back-end using **Docker**

Fast-Slow Debugger   *Sept. 2022*
Hack the North   Waterloo, ON

— 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**