Thomas Vu

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EDUCATION

University of Western Ontario London, Ontario

Honor Specialization in Computer Science, Minor in Software Engineering (GPA 3.7+)

EXPERIENCE

Software Engineer | *Verta Labs - Hybrid* ***April 1, 2025 - Present***

- Developed an **AI agent** for generating **SEO-optimized blog posts** for Verta Marketing and Verta Grants, improving scalability of content creation.
- Built a **self-learning feedback loop** system where AI integrates input from SEO and writing experts, allowing continuous content refinement.
- Designed and developed **McCarthy'sGame**, an AI tools and hackathon platform, **entirely from scratch**, with full ownership over the system's technical direction.
- Conducted **platform research** - analyzed similar websites to identify effective **UX**, **structure**, and **workflows**, then tailored findings to fit our unique use case.
- Built a scalable **backend architecture** using **Django** and **PostgreSQL**, exposing a **RESTful API** consumed by a **Next.js** frontend team for full-stack integration.

PROJECTS

DocTalk | *React.js, Node.js, MongoDB, Tailwind CSS* ***Ignition Hacks, Aug 16 – 18, 2024***

- Developed a web application to assist doctors in **recording**, **transcribing**, and **summarizing** conversations with patients, aiding in critical decision-making
- Built the frontend using **React** and **Tailwind**, with **Node.js** and **Express.js** backend connected to **MongoDB** database
- Implemented secure authentication and authorization using **JWT tokens**, ensuring only authorized users can access the app, with **session persistence** and **automatic logout** for enhanced security
- Integrated **AI** to accurately **transcribe** conversations, identify speakers, **summarize** key points for better analysis, and generate patient summary PDFs for easy access by doctors

PROJECTS

Programming Language Development: Interpreter and VM | *Java, C* ***Sep 2024 - Now***

- Developed a programming language named Lox, following the approach from the book *Crafting Interpreters* by Robert Nystrom, to gain a deep understanding of language design and implementation
- Created an **interpreter** in **Java** to handle key concepts such as grammar definition, syntax scanning, parsing, control flow, functions, and classes, enabling comprehensive exploration of high-level language features
- Designed and built a **bytecode virtual machine** in **C**, focusing on low-level constructs like compiling expressions, memory management, garbage collection, and optimization techniques
- Implemented **advanced programming concepts** including inheritance, binding methods, variable scoping, and efficient string handling in **Java** and **C**, emphasizing hands-on experience with both high-level and low-level programming paradigms

Go Fund Us | *React.js, Rust, Cairo* ***Hack Western 11, Nov 29 – Dec 1, 2024***

- Designed and developed **Go Fund Us**, a decentralized application that simplifies fund management using **blockchain**
- Leveraged blockchain technology for scalability to create a DAO-like **fund manager** focused on transparency, accessibility, and security
- Built a user-friendly interface in **React.js**, enabling seamless contributions for stakeholders.
- Implemented Rust-based smart contracts to ensure secure and transparent transactions, suitable for charity campaigns, organizational fund management, or group events

SKILLS AND INTERESTS

Programming Language: C, C++, Java, Python, JavaScript, Lua, Bash

Web Development: HTML, CSS, JavaScript, React.js, Express.js, Node.js, Django

Databases: MySQL, SQLite, MongoDB, NoSQL

Technologies: Git, JUnit, JavaFX, Qt, Microsoft Office Suite, Figma

Additional Skills: Active Learning, Team Collaboration, Project and Time Management, Strategic Thinking, Problem-Solving

Interests: Linux Distribution Customization, Non-Fiction Reading, Human Psychology, Badminton, Mathematics