

TRISTAN SIMPSON

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Education

The University of Guelph – 90% GPA

Sep. 2023 – May 2028

Honours Bachelor of Computing in Computer Science – Minor in Mathematics

Guelph, Ontario

Skills

Expert: TypeScript, React, Python, Go, SQL, UI/UX Design, (Modern full-stack: Vite, tRPC, TanStack, Tailwind, etc.)
Intermediate: Next.js, Redis, DevOps, AWS, Azure, Docker, Rust, Java, C/C++
Beginner: Angular, Flutter, Assembly, Figma
Soft: Leadership, Creativity, Critical thinking

Professional Experience

YNCU

May 2025 – Present

Full Stack Developer I (Full-time)

Kitchener, Ontario

- Lead developer for our Commercial Loan Origination System (CLOS); Led interface design, caching, security and data models; Integrated Fiserv DNA for real-time data—**Saved \$500 000 at launch and \$80 000 annually.**
- Co-led Summer 2025 full-stack hiring process;** Developed entire full-stack developer hiring process & pitched to our CIO; Created the YNCU Quickstart repo and **mentored the intern cohort.**
- Led Mortgage Renewal, Mortgage Campaign, and workspace/application dashboard projects, streamlining workflows and boosting member engagement; **delivered approx. \$22 000 in cost savings annually.**

YNCU

September 2024 – May 2025

Full Stack Developer I (Part-time)

Kitchener, Ontario

- Advanced CLOS feature set; **refactored 100 000+ lines of code** and optimized our DNA API.
- Developed ID Verification and Automatic Onboarding systems with Salesforce—**Saved thousands of hours** and processed **20 000+ member verifications.**

YNCU

June 2024 – September 2024

Full Stack Developer Intern (Full-time)

Kitchener, Ontario

- Initiated the CLOS project; defined the end-to-end user journey, data model, test procedures, and security.
- Led the refactoring and redesign of the entire YNCU Tools platform (20,000+ LOC) — leveraging React Hook Form, Zod, TanStack, etc. **Achieving significant performance & accessibility improvements.**
- Led development of smaller applications with Go, reducing resource usage and improving performance.

Engineering Ambition

December 2023 – June 2024

Lead Software Developer (Founder)

Guelph, Ontario

- Led a team of 15 student software engineers and designers** in developing full-stack applications for companies, local organizations, and university clubs.
- Managed project timelines; DevOps with **Azure**; reviewed and refactored team code; maintained systems; coordinated team meetings, brainstorm sessions, etc.

Dominion Lending Ltd.

July 2023 – September 2023

Software Developer (Contract Full-time)

Waterloo, Ontario

- Led the development of our “Pulse” internal communication platform for event creation, secure document handling, user management, etc. —**saved \$8 000 annually.**
- Led the full-stack development of our corporate website and interactive analytics dashboard for real-time insights and team management.

Projects

Hermes – Full Text Search and Caching Framework | *Go, Python, SQL, API, WebSocket*

2023

- Engineered a caching solution that delivers full-text search query speeds ranging from **10 to 300 microseconds**, nearly **100x faster than competing services.**

Verlet – Physics Engine | *C, C++, WinGL, SFML, OpenGL, Graphics*

2023

- Developed a physics engine from scratch with **C** and **C++** and the **SFML graphics library**. Verlet inspired me to develop **CGL** and **WinGL**, my own graphics libraries in **C** and **C++**.

Versa & Reborn Anti-Cheat | *Python, PyQt5, Rust, Discord Integration*

2023

- Created a **modern PyQt5 UI** for Versa Anti-Cheat with real-time monitoring, screen capture, and program detection; automated reporting and key management with Discord (the platform chosen given my target audience for the project).
- Rewrote the core engine in **Rust** (“Versa Reborn”) adding HWID/IP spoofing and macro detection for enhanced security.

Leadership / Extracurricular

Harvard, Stanford, MIT

Student

Fall 2022 – Present

Harvard, MIT, Stanford

- Harvard CS50x, CS50P, CS50W, CS50AI; Stanford Online Compilers, Databases, CS101; MITx ML, CS
- Expanding my experience in developing applications with **C**, **Python**, **JavaScript**, **HTML**, and **CSS**.
- Actively engaging with a community of passionate students, facilitating collaborative learning of **mathematics**, **data structures**, **databases**, **machine learning**, and **low-level programming**.

Simpson Research

Founder and Lead Developer

Fall 2021 – Present

Waterloo, Ontario, Canada

- Established a platform dedicated to mutual learning and application of technologies, programming languages, and best practices in software design and development.
- Currently teaching: **Python**, **PyTorch**, **Typescript**, **React**, **Angular**, **Databases**, **Security**, and more.

Eclipse Expositions

Software Developer (Permanent Part-time)

December 2023 – June 2024

Waterloo, Ontario

- Coordinated projects with **Jira**; DevOps with **AWS**; designed and developed full-stack web applications with **tRPC**, **Next.js**, **React**, **Tailwind CSS**, **PostgreSQL**, **TypeScript**, **Git**, **AWS**, **Docker**, etc.
- Spearheaded the migration from REST to **tRPC**, and the development and deployment of the Eclipse Expositions React component library.

Google Developer Student Club

Events Director and Developer (Volunteer)

Fall 2023 – May 2024

The University of Guelph

- Oversaw the events team, secured sponsorships, and organized workshops, events, and the GDSC 2024 hackathon.
- Leveraged **tRPC**, **Next.js**, **React**, **Tailwind CSS**, **PostgreSQL**, **TypeScript**, **Git**, **Google Cloud**, **Docker**, **Prisma**, **Vercel**, etc. to collaboratively develop and deploy an event registration system.

STEM Fellowship

Software Developer and Indiciium Researcher

Fall 2023 – May 2024

The University of Guelph

- Computer science TSP research – combinatorial optimization and operations research, optimization, heuristic and approximation algorithms.
- Developed software for educators and researchers to manage, refine, and illustrate data.

Society of Computer Information Sciences

Vice President of Tech, Project Manager, System Admin, and Lead Website Developer

Fall 2023 – May 2024

The University of Guelph

- Led, organized, and managed tech initiatives, projects, and sponsorships.
- Coordinated project schedules, objectives, and timelines; collaborated with other SOCIS teams to ideate projects.

Enactus

Web Developer

Fall 2023 – May 2024

The University of Guelph

- Spearheaded the design and development of Enactus full-stack web applications.
- Worked with a team of students to ideate and deploy social, economic, and environmental concentrated solutions.

Guelph Cyber Security Society

Web Developer and Project Lead

Fall 2023 – May 2024

The University of Guelph

- Led the design and development of the club website, leveraging **tRPC**, **Next.js**, **Tailwind CSS**, **NextAuth**, **NextUI**, **PostgreSQL**, and **AWS**.
- **Coordinated the Machine Learning Turret development team**, guiding project timelines and tasks.

Artificial Intelligence Club

Executive Team Member

Fall 2023 – May 2024

The University of Guelph

- Led the design and development of the club website, leveraging **Next.js**, **Tailwind CSS**, **PostgreSQL**, and **Vercel**.
- Organized workshops and seminars to promote AI tools, concepts, and applications to club members.
- Worked with other executive members to teach **Pandas**, **Numpy**, **Scikit-learn**, **TensorFlow**, **PyTorch**, etc.

Ski and Snowboard Club

Software Developer

Fall 2023 – May 2024

The University of Guelph

- Led the design and development of the club website, leveraging **tRPC**, **Next.js**, **NextUI**, **Tailwind CSS**, **NextAuth**, **Supabase**, and **Vercel**.
- Developed an event registration system and an administrative dashboard for managing permissions, events, announcements, etc.