

Timothy Macphail

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EDUCATION

University of Calgary

Bachelor of Science in Computer Science

Calgary, AB

September 2020 – December 2025

TECHNICAL SKILLS

Languages: TypeScript/JavaScript, HTML/CSS, Python, Go, Java, C++, SQL, BASH

Tools & Frameworks: React, Jest, Cypress, Node.js, Redux, Recoil, Linux, Git, Docker

EXPERIENCE

Splunk

Software Engineer Intern

Vancouver, BC

January 2024 – April 2024

- Developed a GUI-based code generation wizard using **TypeScript React** for Splunk Cloud, enabling non-technical users to create powerful data pipelines without coding, driving adoption among high-profile customers.
- Reduced test mock generation time by 90% by developing an npm-installable developer tool with **TypeScript** to generate abstract syntax trees, while simultaneously eliminating opportunities for errors.

MDA (MacDonald, Dettwiler and Associates)

Software Engineer Intern

Vancouver, BC

May 2023 – December 2023

- Spearheaded the development of two mission-critical **RESTful** microservices with **Go**, **PostgreSQL**, and **Kafka**, accommodating 20,000+ concurrent imagery orders, removing constraints on profitability tied to order volume.
- Thoroughly tested back-end services using **BASH** and **pytest** in ephemeral **Kubernetes** environments to ensure robust software, preventing four critical issues from potentially causing production failures.

Tech Start UCalgary

Project Manager, Full-Stack Developer

Calgary, AB

September 2022 – April 2023

- Applied user-centered and mobile-first design throughout the development of a **React** application, ensuring intuitiveness and accessibility and earning the Best Design award at the year-end final showcase.
- Migrated the application build tool from **Webpack** to Vite, reducing development environment startup times from 35 seconds to 1.4 seconds.

University of Calgary

Undergraduate Research Assistant

Calgary, AB

May 2022 – August 2022

- Created, mathematically analyzed, and simulated (in **C++**) probabilistic task-scheduling algorithms that improved response times by up to 16% compared to a first-come-first-served algorithm.
- Coded user-friendly Matplotlib **Python** scripts to visualize simulation results, allowing fellow researchers to understand **100-million-line** outputs in seconds.

PROJECTS

Lifeline 📄 | *Python, FastAPI, TypeScript, React, Docker, AWS, GitHub Actions*

September 2022 – April 2023

- Extracts deadlines from course documents and transforms them into virtual calendar events and TODO lists using OpenAI's GPT-3.5-turbo API.

River-Surf Conditions 📄 | *JavaScript, React, Express, TensorFlow.js*

June 2022 – August 2022

- Predicts the quality of river waves in Alberta using a TensorFlow.js **machine learning** model with 95% accuracy.

Password Manager 📄 | *JavaScript, React, MUI, Express, MongoDB*

February 2022 – April 2022

- A fully functional and secure web-based password manager, incorporating **JWT authentication**, AES encryption, and hashing and salting of passwords.