

Nathan D'Silva

University of Waterloo - Computational Mathematics

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Work Experience

Lead Developer, University of Waterloo - Games Institute

May 2024 - Dec 2024

- Lead teams of 4-7 developers and designers to overhaul a full-stack application written in Go and React.js. Gave direction on architecture, design, and implementation of new features.
- Dramatically reduced technical debt and onboarding time, improving development performance and pushing timelines forward by 6 months.
- Found and addressed over 10 critical security vulnerabilities in the existing site, and refactored or removed over 4,000 lines of unused code.

Machine Learning Engineer (Part-time), University of Waterloo

Sep 2024 - Dec 2024

- Developed a neural network to predict ECG diagnoses using PyTorch. Improved accuracy from 86.1% to 98.6%, while reducing model size by a factor of 250 times.

Project Lead, Scrawl Development Inc.

Jan 2023 - Aug 2023

- Lead developer on 20+ projects, including a reactivity and state-management library for Vue.js, a cross-platform browser extension plugin for Vite, and various API specification & mocking utilities.
- Mentored several junior developers by providing technical guidance, conducting code reviews, and completing performance evaluations.
- Collaborated across 4 different teams to develop tools, infrastructure + CI/CD, web components, and APIs.

Internal Tools Developer, Scrawl Development Inc.

May 2022 - Dec 2022

Junior Network Administrator, Questenterprise Inc.

Sep 2021 - Dec 2021

Personal Projects

Infinite Craft Wiki

Web Interface

Vue, Tailwind, Data handling

Compiled 6.6 million recipes from the game "Infinite Craft" into a searchable interface without requiring a database. Used by over 84k players, and achieved 1.1 million page views in the first 4 months of operation.

MineNewt

Machine Learning

Rust, Python, Neural Networks

Created a machine learning library from scratch in Rust, and researched novel encodings of neural networks with stochastic (probabilistic) bits. Developed a Python library for simulating performance of networks encoded this way, and embedded it into a custom chip architecture.

— 6 more available on GitHub —

Skills

This is not a comprehensive list, see more on my GitHub.

Frontend & Web Development - Javascript/Typescript · React · Vue · Tailwind · REST APIs

Programming Languages - Rust · Python · Node.js · Golang · C/C++ · Bash

Infrastructure & Tools - Linux · Docker · AWS · Git · MongoDB · PostgreSQL · MySQL · CircleCI

Soft Skills - Delegation Leadership · Technical Mentoring · Conflict Resolution · Automation

Education

University of Waterloo 2020 - 2025

Computational Mathematics + Combinatorics & Optimization (Co-op)

Quantum Cryptography School for Young Students 2019

Studied theoretical physics & cryptography at the Lazaridis Quantum Nano Center and Perimeter Institute.