Nathan DSilva

University of Waterloo - Computational Mathematics

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Work Experience

Lead Developer, University of Waterloo - Games Institute   May 2024 - Dec 2024
- Primary technical lead for the entire project, responsible for architecture, design, and implementation of new features.
- Independently led teams of 4-7 developers to overhaul the full-stack application written in Go and React.js.
- Pushed project timelines forward by 6 months by significantly improving development speed and code quality.
- Conducted code reviews, mentored developers, and worked with clients to determine project requirements and scope.

Machine Learning Engineer (Part-time), University of Waterloo   Sep 2024 - Dec 2024
- Improved ECG diagnosis accuracy from 86.1% to 98.6% while simultaneously reducing model size by a factor of 250 times by architecting a neural network from scratch with PyTorch.

Project Lead, Scrawlr Development Inc.   Jan 2023 - Aug 2023
- Lead developer on over 20 projects, including a reactivity library for Vue.js, a 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, Scrawlr 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
Used by over 84k players, compiled 6.6 million recipes from the game "Infinite Craft" into a searchable interface without requiring a database, 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 the performance of networks encoded this way, and embedded it into a custom chip architecture.

— See GitHub for more projects —

Skills

Frontend & Web Development - Javascript/Typescript · React · Vue · Tailwind · REST APIs · PHP · HTML · CSS
Programming Languages - Python · Rust · Node.js · Go · C · C++ · Bash · SQL · Java · C#
Infrastructure & Tools - Docker · AWS · PostgreSQL · MongoDB · MySQL · Git · Linux · CircleCI
Soft Skills - Delegative 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.