Sheldon Frith
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https://sheldonfrith.com

Sheldon Frith - CV

A software developer with a proven track record of delivering innovative end-to-end solutions. I combine strong technical capabilities with excellent communication skills, and I'm excited to bring my problem-solving abilities to a collaborative team environment. My experience managing complex projects independently has given me skills in self-direction and efficient delivery that I'm excited to apply in a team setting.

Software Project Highlights

Ground Properties Predictor | *app.umny.ca*

Objective: Improve geothermal performance, reduce project risk and feasibility costs by remotely predicting ground properties

Tech Stack:
- *ML Development*: Custom-built HPO and data-processing software
- *Backend and Feature Server*: GDAL, Flask, nest.js
- *ML Models*: Custom ensemble using PyTorch and scikit-learn
- *Frontend*: Typescript, next.js, Stripe, Auth0

Impact: Achieved world-wide average error of less than 1 °C, for predictions of below-ground temperatures. Created new soil thermal conductivity model 33% more accurate than the previous state-of-the-art model. Save clients weeks of time and an average of $50k per project.

Geothermal Monitoring and Control Software | *Sales Page*

Objective: Remote monitoring and control of experimental and cutting-edge Geothermal HVAC systems, including scheduling and safety fallback operations.

Tech Stack:
- *Backend:* C++ ASP.NET Core
- *Database*: MySQL RDS
- *Frontend*: Next.js, Typescript
- *HVAC Control*: Distech EC-gfxProgram

Impact: Enabled remote control, reducing the need for on-site visits by 100% and saving the client an estimated 20 hours per month. Improved functionality and adaptability of the system, meeting specific client needs that the previous monitoring software could not.

GeoPile Predictive Software | *Demo Video*

Objective: Automatic design and optimization software for Geothermal pile HVAC systems

Tech Stack:

Backend: C++ ASP.NET Core

Database: MySQL

Frontend: React.js

ML Models: custom scikit-learn ensembles

Impact: Cut design time from months to minutes, and cut costs by an order of magnitude, allowing rapid design iterations and quicker project turnaround

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Languages
Typescript + JS
C#
Python
C++
Rust
PHP

Back End
ASP.Net Core
MVC
Nest.js
Flask
Laravel
Bevy

Front End
React
Next.js
CSS/SASS
styled-components
tailwindcss

Machine Learning
PyTorch
SKLearn
Optuna
GDAL
OsGEO

Databases
MySQL, SQLite
Relational
Databases

Integrations
Stripe
Telegram
Shopify
Auth0
Cognito
Google Maps
ChatGPT

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Personal Projects

Selected projects from 17+ years of software development:

WASM Speed Tester

Free web app for testing the execution speed of various sorting algorithms comparing C++ Web Assembly to regular JavaScript (sheldonfrith.com/wasm-speed-tester).

C++ ML Framework

End-to-end ML model creation including custom HPO algorithms and meta-learning, designed to allow training on edge devices

Custom ML Dataset Splitting Algorithm

Creates more challenging data splits (train vs test, etc.), using a smarter algorithm than traditional methods, leading to more reliable model performance in the real world (improved generalization)

Work Experience

Lead Software Developer

Umny Inc.
May 2021 – Present

- Lead all software development and related tasks (architecture decisions, AWS, sysadmin, database design, etc.)
- Build all Machine Learning models used in software (mostly deep neural networks) from end to end, including data generation, data collection, data processing, feature selection, model/algorithm selection, HPO, validation, testing, serialization and deployment.

Lead Software Developer

Sharp AR
Sept 2020 – May 2021

- Built a custom Shopify plugin/app to allow easier, more customizable Augmented Reality (AR) integration into stores.
- Built an embeddable AR service (built on Google's "model-viewer") which could work in any existing website.

Education

Bachelor of Mathematics and Computer Science

Athabasca University
Expected Graduation: December 2026

Additional Skills and Experience

- Bilingual: Native English speaker and fluent in Spanish
- Self-management on long-term projects
- Team collaboration in diverse, cross-functional teams
- Advanced mindfulness training with demonstrated focus and stress management capabilities