Sheldon Frith - CV

Work History

Umny Inc.
Cofounder, CTO, Software Lead

May 2021 – Present

- Sole software developer on the team, handle all software architecture and design
- Provision and manage all servers, databases and networks (primarily via AWS), competent Linux sysadmin
- 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

See next page for details on the software I have built for Umny Inc.

Sharp AR
Lead Software Developer

Sept 2020 – May 2021

- Built a custom Shopify Plugin/App to allow easier, more customizable Augmented Reality integration into stores
- Built an embeddable Augmented Reality service (built on Google's ModelViewer) which could work in any website

Personal Software Projects:
I have only recently decided to pursue software development as my career, but I have been creating small software projects since the age of 14 (including whole applications built with excel VB macros, several react-based web apps, many websites, java console applications, etc). My most recent side project is a web app for testing the execution speed of various sorting algorithms comparing C++ Web Assembly to regular JavaScript ([click here to try it out](#)).

Software built for Umny Inc:

Public Software	Internal Software
GeoPilePredictiveSoftware A geothermal system design and performance prediction suite, built for Innovia GEO - **Technologies:** React, Typescript, ASP.Net Core, C#, MVC, Entity Framework, MySQL, Asynchronous Task Runner, ONNX Runtime, SKLearn **GroundTemperaturePredictor** A public API and web app that uses ML to predict the temperature below ground anywhere on earth, by date and depth, with less than 1 °C error margin in most locations - Data management and processing of over 1TB of raster files, including heavy use of osgeo/gdal for geographic data fetching - **Technologies**: Nextjs, React, Typescript, Flask+Python, Celery, Reddis, SKLearn **SOK (Beta)** A public API and web app that uses ML to estimate the Thermal Conductivity of any soil based on its physical properties, which is more accurate than any existing method. - Additional API feature added which queries SoilGrids global high resolution raster database to retrieve most of the feature inputs needed - **Technologies:** Nextjs, React, Typescript, Flask + Python, SKLearn, gdal **UmnySoil (Beta)** A web app for Geotechnical Engineers and soil scientists to simplify some common mathematical tasks - **Technologies**: Nextjs, React, etc.	**C++ end-to-end ML model creation and HPO framework** Comprehensive end-to-end ML model creation software, including custom improved HPO algorithms and meta-learning - Graphml, csv and xml visual graph to program data parsing - Custom HPO Algorithms and Meta Learning - Extensions on top of the PyTorch C++ API - Cross-platform, performant, designed to allow ML training (as opposed to just inference) to happen on low-power edge devices, without user input (Auto ML) - **Technologies:** C++, CMake, dlib, PyTorch, SQLite, Python, Jupyter Notebook, React, Typescript, Graphml **Custom ML Dataset Splitting Command Line Utility (Beta)** Creates more challenging data splits, using a smarter algorithm, than traditional methods, leading to more reliable model performance in the real world - **Technologies:** Microsoft .NET Core, C# **Python ML creation and HPO framework** Built on top of the Optuna HPO library to allow easier end-to-end ML model creation and testing, with less human supervision required - **Technologies:** Optuna, Python, SQL Server, PyTorch, SKLearn, Pandas

Work History (continued)

Front Desk
Construction and General Contracting

Caledon, ON

May 2019 – Aug 2020

- Framing, carpentry, roofing, drywall, insulation, plumbing, electrical, finishing, and more

Fazenda Meats
Caledon, Ontario

Cofounder and Owner-Operator

April 2020 – Oct 2020

- Produced grass fed goat meat
- Regenerative rotational grazing, using Holistic Management
- Designed and built unique hands-free bottle-feeding system which is highly portable for a rotational on-pasture grazing situation

Wandering Farm
Caledon, Ontario

Cofounder and Owner-Operator

May 2019 – Oct 2019

- Produced organic vegetables
- Implemented many time-studies comparing various common, but conflicting, paradigms of vegetable production (different weeding techniques, planting techniques, harvesting techniques, etc)
- Converted a washing machine into a commercial scale salad spinner
- Designed and built low-cost irrigation system

Buffalo Express
Hay River, NWT

Equipment Operator, Driver, and Airplane Loader

September 2018 – May 2019

- Trained new employees
- Worked outdoors in temperatures down to -60 degrees Celsius
- Ensured high-value and high-risk cargo (including dangerous goods, human remains, medical samples and emergency medical equipment) was delivered and transported on time without damage

Work History (continued)

Northern Farm Training Institute
Holistic Management Supervisor

Hay River, NT

May 2016 – Dec 2017

- Supervising and managing employees and volunteers, from various countries
- Managing regenerative livestock and vegetable production operation
- Developing course curriculum and teaching courses on food security, and regenerative agriculture in the far-north
- Writing grant applications and assisting with business planning

Author
Dec 2015 – May 2016

- Self published "Letter to a Vegetarian Nation"
- Contributing author to "Green Meat? Sustaining Eaters, Animals, and the Planet" published by McGill-Queen's University Press

B-C Ranch
Holistic Management apprentice

Meadow Lake, SK

June 2015 – Dec 2015

Driftwood Landscaping
Landscaper

October 2014 – June 2015

Makaria Farm
Greenhouse Manager

Duncan, BC

May 2014 – October 2014

Education:

Camosun College, Social Work Program
- Decided to quit early to pursue agriculture full-time

Gaia College
- Organic Master Gardener and Ecological Landscape Design Certificates

OCAD University, Fine Arts, Sculpture and Installation
- Decided the program was not for me after a few months

Wellington Heights Secondary School
- Grade 12 Diploma, with Honors

Other Skills:

Besides skills related to my work history and education; I am also experienced in **mindfulness meditation** (thousands of hours of practice, including several months in silent retreat) and **wilderness survival** (thousands of hours of experience, including a one-month survival test in the BC wilderness).

Where I've Lived

Canada
ON, BC,
NWT, SK, NS

Mexico
Colombia
Panama
Brazil
Paraguay
Nepal
Thailand

I speak English (native) and Spanish