

Jared Tweed

[linkedin.com/in/jared-tweed](https://www.linkedin.com/in/jared-tweed) | github.com/JaredTweed | jaredtweed.com | [Wikipedia Contributions](#)

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Education/Certifications

BSc Computer Science, Mathematics Minor

Simon Fraser University

Sep 2020 – Apr 2025

Burnaby, BC

Machine Learning Certification

Stanford University

Apr 2024

Coursera

Work Experience

IoT & Full Stack Engineer

Peak HydroMet Solutions

Apr 2024 – Present

British Columbia, Canada

- **Data Processing:** Parsed JSON, XML, and CSV data using Python and utilized multithreading to optimize data curation speeds.
- **Back End:** Deployed multiple instances of Node-RED on a single AWS EC2 instance with HTTPS domain with a script to easily list/edit/add/remove users, researched optimal APIs through documentation reviews, implemented email subscriptions using SendGrid and AWS Lambda, integrated MongoDB with Node.js, and worked with MQTT and AMQP protocols.
- **Microcontrollers:** Developed RAKwireless Nordic nRF52840 firmware in C++/Arduino to bridge RS-485 Davis weather station data to LoRaWAN & Cellular, parsing binary protocol into readable JSON.
- **Front End:** Built custom widgets for ThingsBoard. Implemented features using HTML, CSS, and JavaScript. Optimized the ECharts charting library through multithreading and provided UX design recommendations. Integrated OpenStreet Maps via the leaflet API.
- **Soft Skills:** Engaged in face-to-face product improvement discussions with clients and worked as the sole developer for the business.
- **Artificial Intelligence:** Developed a neural network for anomaly detection using historical, temporal, nearby-station, and geospatial features, automatically selecting the optimal context window.

Technical Skills

Languages: Java, MATLAB, Python, C/C++, SQL (Postgres), HTML/CSS, Typescript, JavaScript, R, LaTeX, Dart

Frameworks: Angular, React, Node.js (Express.js), Java Swing, Flask, Flutter

Developer Tools: Git, Google Cloud Platform, Firebase, AWS (Lambda, API Gateway, S3, EventBridge, IAM, & EC2), Visual Studio, Unity3D, Apache Maven, Codex CLI

Libraries: NumPy, OpenCV, Detectron2, PyTorch, Regex, Tkinter, Websocket.io, MongoDB, Postman

Transferable Soft Skills

Displayed a strong work ethic on Yukon diamond drilling rigs (up to 95 hours per week).

Devoted years of volunteering and working with elementary school children.

Excelled in culturally diverse workplaces.

Open Source Contributions

Wikipedia: Made 800 contributions primarily to math articles (Wikipedia profile).

Newelle: Contributed to Newelle, an open source LLM manager, by creating a better way to organize connected APIs and downloaded models (PR #155).

whisper.cpp: Improved the Makefile for a c++ implementation of OpenAI's STT model (PR #3097).

Microsoft Edit: Created a single line Linux install (PR #628).

Feeder: Scraped all substack feeds from sidestack.io, and filtered the popular ones to be stored locally as suggested search results (PR #964, Scraping Algorithm). Improved UI (PR #1065). Enabled auto-translation of articles (PR #1072)

GNOME Clipboard Indicator: Fixed failed 'Paste on select' and improved UI customization options to the most popular GNOME clipboard manager (PR #534, PR #598).

Other: Actual Budget (PR #4872), Aradia (PR #7, PR #11), Libre Librivox Listener (PR #5)

Projects

Serverless Photo/Video Gallery | AWS S3/Cognito, Firebase

May 2025 – Present

Webpage: <https://sharedlens.ca>

Code: <https://github.com/JaredTweed/wedding-photos/>

- Built an Android and iOS friendly fully client-side media website with uploads, thumbnails, photo credits, deletion, and browsing all with no login required.
- Designed a priority-based lazy loader which regularly resets the loading priority (IntersectionObserver + distance heuristic, max 4 concurrent) to keep scrolling smooth on mobile.
- Cut storage and bandwidth with compressed thumbnails (images & videos) in webp format.
- Used Amazon Cognito Identity Pools for temporary creds; tracked ownership client-side via `localStorage` and conditionally exposed delete actions of media to their uploaders.
- For large uploads, implemented multipart S3 uploads with live progress bars and 5MB chunking.
- Built custom URL path creation on sharedlens.ca using Firebase hosting, authentication, and database.

Optimized Appointment Scheduling | AWS Lambda, Sign in with Google, MongoDB

Jan 2025

Webpage: <https://jaredtweed.github.io/tetrisbooking/>

- Integrated REST API for authentication, data persistence, and appointment management.
- Optimized schedules by solving Diophantine equations to prevent gaps and evaluate how efficiently appointments fit.

Java with Maven Game | Java, Maven, Swing Framework

Feb – Apr 2022

Code: <https://github.com/JaredTweed/MouseMirageGame>

- Led Mouse Mirage's Java development using Apache Maven.
- Designed mechanics, including level progression, sound management, and UI navigation.

Text To Question Bank Converter | Python, Regular expressions, XML generation

Dec 2023 – Mar 2024

Webpage: <https://jaredtweed.github.io/TextToQuestionBankOnline>

Code: <https://github.com/JaredTweed/TextToQuestionBankConverter>

- Designed a GUI tool to edit and convert text into XML question banks.
- Optimized for error detection using regular expressions.
- Used by several professors to generate quizzes for students.

Relational Database Schema Analyzer | Python

Mar 2023

Code: <https://github.com/JaredTweed/NormalForms-CanonicalCover>

- Developed a Python tool to analyze functional dependencies in relational databases, assessing closures, candidate keys, and canonical covers.
- Implemented normalization checks (2NF, 3NF, BCNF) and verified lossless, dependency-preserving decompositions.

Audio-to-Text Transcriber GUI | GTK4/Libadwaita, whisper.cpp, flatpak, mmap, GLib

2024 – Present

Code: <https://github.com/JaredTweed/AudioToTextTranscriber>

- Native Linux desktop app around `whisper.cpp`, providing drag-and-drop batching, live %/ETA, and cancel/resume control using multithreading for UI optimization.
- Packaged in YAML as a flatpak. Plan to share on flathub.
- Stream-scanned transcripts via `mmap` for instant, low-RAM search across thousands of files; avoided full reads and recursion for scalability.

Computer Vision Projects

Hand Detection App | Traffic Analytics, Hand Detection, Stripe Payments

Nov 2024

Webpage: <https://jaredtweed.github.io/hands>

- Developed a web app using real-time hand tracking.
- Achieved 777 active users in 45 different countries.

Panorama Maker | MATLAB, Homographies, Harris Corner Detection, RANSAC

Mar 2023

Code: <https://github.com/JaredTweed/PanoramaMaker>

Airplane Segmentation | PyTorch, Detectron2, Instance Segmentation, Google Colab GPU

Nov 2023

Code: <https://github.com/JaredTweed/ComputerVision-pytorch-detectron2>

- Managed machine learning workflow, with data preparation, model training, and evaluation.

Real-Time Digit Recognition | PyTorch

Dec 2023

Code: <https://github.com/JaredTweed/MNIST-pytorch>

Pure Numpy Digit Recognition | NumPy, ReLU, CNN, Max-pooling, Backpropagation

Sep 2023

Code: <https://github.com/JaredTweed/MNIST-artificial-intelligence-numpy>