Jared Tweed

linkedin.com/in/jared-tweed | github.com/JaredTweed | jaredtweed.com | Wikipedia Contributions

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Education

BSc Computer Science, Mathematics Minor   Sep 2020 – Apr 2025
Simon Fraser University   *Burnaby, BC*

Work Experience

Full Stack Developer   Apr 2024 – Present
Peak HydroMet Solutions   *British Columbia, Canada*

- **Soft Skills:** Engaged in face-to-face product improvement discussions with clients and worked as the sole developer for the business.
- **Data Processing:** Parsed JSON, XML, and CSV data using Python and utilized multithreading to optimize data curation speeds.
- **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.
- **Back End:** Developed backend solutions using Node-RED, researched optimal APIs through documentation reviews, implemented email subscriptions using SendGrid and AWS Lambda/EC2, integrated MongoDB with Node.js, and worked with MQTT protocols.
- **Artificial Intelligence:** Built a neural network using Tensorflow to detect anomolies within our data collection.

Technical Skills

Languages: Java, MATLAB, Python, C/C++, SQL (Postgres), HTML/CSS, Typescript, JavaScript, R, LaTeX
Frameworks: Angular, React, Node.js (Express.js), Java Swing, Flask
Developer Tools: Git, Google Cloud Platform, AWS Lambda & EC2, Visual Studio, Unity3D, Apache Maven
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 (GitHub commit).
GNOME Clipboard Indicator: Fixed a bug and provided more customization options to the most popular GNOME clipboard manager (PR #529).
SuperTux Advance: Made the debian and rpm files for Linux (Release v0.2.48).

Projects

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.

SQL Database Query Creation | *SQL*   Feb – Apr 2023
Code: https://github.com/JaredTweed/SQL

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.

Angular Report Submitter | *Angular, Leaflet API*   Dec 2023
Webpage: https://jaredtweed.github.io/TroublemakerReporter
Code: https://github.com/JaredTweed/AngularWebsite
- Built a dynamic Angular 17 web app featuring Leaflet for map visualization, form handling, event emitters, and efficient routing.
- Utilized Angular's HttpClient for backend integration, and used RxJS for asynchronous observables.

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.

R Studio: Traits and Life Satisfaction Correlation | *R*   Dec 2023
Code: https://github.com/JaredTweed/R_withStatsCanada

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, Backpropogation*   Sep 2023
Code: https://github.com/JaredTweed/MNIST-artificial-intelligence-numpy