

# Jared Tweed

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

778-979-0126 | [jaredtwe@gmail.com](mailto:jaredtwe@gmail.com)

## Education

### BSc Computer Science, Mathematics Minor

Simon Fraser University

Sep 2020 – Apr 2025

Burnaby, BC

## Work Experience

### Full Stack Developer

Peak HydroMet Solutions

Apr 2024 – Present

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.

## 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.

## 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](https://github.com/JaredTweed/R_withStatsCanada)

## Computer Vision Projects

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### 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>