Thomson Tong

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Skills

Core Web Tech: **JavaScript** (ES6+), **TypeScript**, **React**, **SQL**, Node.js (Familiar), **HTML**, **TailwindCSS**
Back-End & Data: **Python**, **FastAPI** (REST APIs), **Java**, C#, C++, Ruby
SDLC & DevOps: **Agile**, **Git**, **Github/Bitbucket**, **Unit & Integration Testing**, **CI/CD**, **Linux/UNIX**, AWS, Render, Docker (Exp.)
Problem Solving: Full-Stack Development, System Analysis & Optimization, Critical Problem-Solving

Education

University of Waterloo - Biomedical Engineering

Candidate: BASc | 3.84/4.00 Overall GPA *Sep 2024 - Present*

- Relevant Coursework: **Data Structures & Algorithms**, Digital Computation, Linear Algebra, Calculus

Technical Experience

AI Model Engineer | *WAT.ai - Waterloo, Ontario* *June 2025 - Present*

- **Increased data processing efficiency by 35%** by engineering a Python-based tool (**OpenCV**) that automated video frame capture and loaded **200,000+ images** into a searchable **SQL** database.
- Contributed to SDLC best practices by conducting detailed reviews of 5+ research papers (e.g., Google Media Pipe), informing model selection and testing protocols for health-tech applications.
- Authored technical reports comparing high-performance model architectures (e.g., DETR, VLLMs) on accuracy and computational trade-offs, ensuring alignment with project goals.

Systems Diagnostics Technician | *M-Zone Auto - Markham, Ontario* *June 2025 - August 2025*

- **Applied systematic problem-solving** and analytical thinking to diagnose and repair **200+ complex vehicle systems**, leveraging data-integrated diagnostic tools.
- **Increased shop output by 33%** by collaborating with senior mechanics to optimize workflows, using structured task delegation and parts-tracking improvements.

Projects

Transight - Software Engineer

Full-stack ML system to predict and visualize TTC bus delays *Hack The Valley: Sep 2025*

- **Engineered and deployed a full-stack analytics platform** in 36 hours using React (front-end) and a Python/FastAPI (back-end) REST API to visualize transit delays.
- **Built a robust data pipeline** (ETL, geospatial joins) using **Python (Pandas/Numpy)** to support data collection, visualization, and reporting for real-time delay predictions.
- Demonstrated Agile delivery by designing, building, and deploying the application within a tight competition deadline, managing scope and functionality effectively.

API Weather App

Full-stack app with dual API integration *Personal Project: 24-hr build*

- **Developed and deployed a full-stack application on Render in 24 hours**, featuring a React front-end and a Python back-end to serve processed data, demonstrating CI/CD readiness.
- **Integrated and consumed two external REST APIs** (Weather and YouTube) to provide dynamic, location-relevant content, showcasing strong **JavaScript** and data handling skills.

Gun Smash Bros

Real-time multiplayer Java game *Dec 2023 - Feb 2024*

- **Improved debugging efficiency by 25%** by leading **collaborative Git workflows** (mirroring Agile practices) and implementing decisive merge protocols and structured branching.
- Engineered a high-availability, low-latency (sub-15ms) client-server architecture in Java, applying principles of thread safety and high-performance server design.
- **Authored comprehensive, versioned technical documentation** (network design, packet structure) to support long-term maintainability and adherence to SDLC best practices.