Thomson Tong

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SKILLS

- **Languages / Tools:** Python, PyTorch (basics), MATLAB, C#, Java, C++, Git, SQL, HTML, CSS, JS
- **Strengths:** Data collection & ETL pipelines, experiment reproducibility, model evaluation (accuracy and latency tradeoffs), real-time performance tuning, hardware troubleshooting, prototyping & technical reporting.

EDUCATION

University of Waterloo - Department of Systems Design - Biomedical Engineering
Waterloo, Ontario | Candidate: BASc | Second Year Student | 3.84/4.00 Overall GPA | September 2024 - Present

- **Relevant Coursework**: Digital Computation, Data Structures & Algorithms, Linear Algebra, Communications, Engineering Biology, Physics, Chemistry

Extra Curriculars

Body Language and Emotion Detection Researcher for AI Models
WAT.ai - Waterloo, Ontario | June 2025 - Present

- Conducted in-depth reviews of 5+ state-of-the-art research papers in the fields of pose estimation, gesture recognition and emotion detection, focusing on architecture, data preprocessing pipelines, training methodologies, and evaluation metrics.
- Presented detailed internal reports comparing model architectures (e.g., OpenPose, MediaPipe, DETR, VLLMs) and highlighting their trade-offs in terms of accuracy, real-time performance, and computational efficiency.
- Summarized complex technical concepts into clear, accessible overviews for interdisciplinary team members, directly influencing model selection for emotion detection during weekly strategy meetings.
- Identified and mapped trends in deep learning techniques (e.g., CNNs vs. Transformers) for multimodal body language interpretation and emotion recognition.

EXPERIENCE

Apprentice Mechanic
M-Zone Auto - Markham, Ontario | July 2025 - August 2025

- Gained hands-on experience in diagnosing and repairing complex vehicle systems, including mechanical, electrical, and software-integrated components.
- Repaired over 120 vehicles in 2 months, applying diagnostic tools (XENTRY Diagnosis) and systematic troubleshooting to efficiently resolve common and complex issues.
- Collaborated with senior mechanics to streamline workflows, increasing shop efficiency by 33% through improved task delegation and coordinated parts replacement.
- Maintained a resilient and solution-oriented approach when faced with difficult challenges or setbacks, reflecting a strong work ethic and commitment to continuous improvement, even in high pressure, fast-paced settings.

PROJECTS

Natural Selection Simulator
Personal Project Made in Unity | May 2025 - August 2025

- Designed and built a scalable simulation in Unity (C#) that models natural selection, enabling autonomous agents to evolve adaptive traits (e.g., agility, vision) in a resource-constrained environment.
- Supported 2,500+ agents simultaneously, optimizing performance through efficient object pooling and modular AI.
- Conducted hypothesis-driven experiments, leveraging automated logging and data visualization to analyze evolutionary outcomes across multiple generations.

Gun Smash Bros
Multiplayer Online Game Made in Java | December 2023 - February 2024

- Built a real-time, online multiplayer game achieving network latency under 15ms through predictive movement, interpolation, and lag compensation.
- Applied principles of real-time scheduling, concurrency, and distributed computation to maintain smooth synchronization between clients.
- Led team-wide Git version control workflows, improving debugging efficiency by 25%.