Johnnie Tse

+1-647-808-4878 | johnnie.tse@queensu.ca | linkedin.com/in/johnnie-tse-10a9b91b0/ | github.com/johnnietse

Education

Queen's University **Sep 2022 – May 2027**

Bachelor of Applied Science (BASc) in Computer Engineering, **Courses:** Probabilities (A+), Data Structures (A+), Networks (A)

Work Experience

Deel – Lab for Global Employment **Nov 2025 – Present**

Machine Learning Research Assistant *Remote*

- Built a **Python RAG** pipeline ingesting **10K+*CanLII* law cases** into **Pinecone vector database** with **BeautifulSoup** & **Selenium**, reducing curation by **15 hrs/week** & LLM hallucinations by **30%** via **structure-aware semantic chunking**.
- Trained a **Random Forest** classifier on **1260+ annotated cases** to predict worker classification, leveraging **GridSearchCV** for hyperparameter tuning and **Gini feature importance** to provide legal interpretability across **10** Sagaz test factors.
- Ensured **99.5% API uptime** and accelerated release cycles by **80%** by containerizing **FastAPI**-based RAG services with multi-stage **Docker** builds and deploying to **Azure Kubernetes Service (AKS)** via **GitHub Actions CI/CD**.

Freelancer.com | ***Demo*** **May 2024 – Aug 2024**

Android App Development Freelancer *Remote*

- Built an e-commerce Android application for ChillnCharm from concept to delivery in **Kotlin** using **MVVM Clean Architecture** and the **Repository pattern**, creating a modular codebase that reduced **20%** future development time.
- Integrated **Retrofit** for accessing the **FAKE STORE REST API** and **Room Database** for local caching, achieving an **85%** faster content load time for cached content compared to API calls and enabling offline functionality.
- **Reduced UI boilerplate by 30%** and accelerated 3+ core features delivery to production used by **200+** users (wishlists, multi-category browsing, and shopping carts) by translating **Figma** prototypes to a **Android Jetpack Compose** UI.

Arista Networks **May 2023 – Aug 2023**

Project Financial Management Intern *Hong Kong SAR*

- Automated a legacy financial reporting and data preprocessing workflow using **Power Automate** and **SharePoint Dataverse**, reducing manual effort by **15+ hrs/week** and improving reporting turnaround by **20%**.
- Built **Power BI** dashboards that surfaced **$75K** in proposal-vs-actual variances and improved resource allocation by **25%**.
- Unified **SAP**/**Excel**/**SharePoint** tracking into **Jira (Scrum)**, standardizing **15+** workflows into a single source of truth.

Leadership Experience

CAN Lead & Embedded Systems Engineer, *Queen's AutoDrive Team* **Aug 2025 – Present**

- Architected a multi-threaded **ROS2 C++** node on **Raspberry Pi 5** with (**PREEMPT_RT Linux**) using **ValueCAN 4** adapter for CAN communication and **DBC parsing** to control **100+** vehicle signals at **10–50 ms** across **4** CAN networks.
- Built an **ISO-TP** diagnostics stack with **XML-driven config**, reducing diagnostic request setup time by **85%** via automated encoding and protection-value calculation.
- Developed a lock-free **MPMC** routing pipeline for **200+** CAN signals with zero-copy ROS–CAN transfer, achieving < 2 **ms** end-to-end latency.

Sci '26 Vice-President, *Engineering Society of Queen's University* **March 2025 – Present**

- Led a **12-member** exec team to plan and execute **10+** events (social, academic, networking) for **800+** Sci '26 students.

Co-Founder, *Queen's High-Performance Computing Club* | *Demo and Source Code* **Dec 2023 – Present**

- Designed sprint-based HPC training preparing **40+** members for international Student Cluster Competitions (incl. *SC26*).
- Built a **Kotlin Android expense tracker**, reducing reconciliation time **25%** and streamlining a **$10K** travel budget.

Projects and Open Source Experience

High-Performance Computing Power Controller | *Source Code* **C++, Python, Bash, MPI, Linux, RAPL**

- Engineered an MPI phase-aware DVFS controller in **C++** & **Python** for a molecular dynamics simulation on a **32-core AMD EPYC 7551P** HPC cluster, achieving **10–15%** energy savings with **<1 ms** latency & **<5%** CPU overhead via RAPL.

AI-Powered Job Application Assistant | *Demo and Code* **LangGraph, Next.js, React.js, Supabase, Stripe, Docker**

- Built a full-stack **LLM-powered resume automation SaaS** using **LangGraph, Next.js, and Supabase**, implementing **PostgreSQL/Supabase backend with RLS**, **Stripe billing**, and **Redis rate limiting** for managing AI inference costs.

Technical Skills

Languages: Python, C/C++, Verilog/VHDL, Bash/Shell, Assembly, Java/Kotlin, JS/TypeScript, SQL, R, HTML5/CSS, Perl

Libraries/Frameworks: pandas, Matplotlib, sklearn, PyTorch, TensorFlow, React/NextJS, PostgreSQL, NodeJS, Spring Boot

Hardware: LTspice, KiCad, RF, SPI/I2C/UART, nRF52840, ESP32, Raspberry Pi, Arduino, CAN bus, ECU systems, MATLAB

Tools: Git, Jira, Confluence, Grafana, Postman, Prisma, Supabase, GCP, PowerBI, Docker, AWS, Office 365, Azure, Firebase, CMake Tools, Cargo Tools, VSCode, Bitbucket, JetBrains's Suite, Jenkins, OpenConfig, MongoDB, Hugging Face, Jupyter, Expo, React Native, VMware, JUnit, PyTest