Nicholas Tam

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Education

Simon Fraser University Burnaby, BC

*Bachelor of Science in **Computer Science**, Minor in **Statistics*** *Expected January 2027*

Relevant Coursework: Data Structure and Algorithms, Object-Oriented Programming, Design Patterns, Computer Vision, Data Science, Android Development

Experience

Head Software Developer February 2025 – Present

SFU Robot Soccer Club *Burnaby, BC*

- Engineered game-state reactivity with **Qt** signals and slots integrated into a Behavior Tree framework, enabling robots to autonomously process referee commands and maintain **100% compliance** with SSL rule enforcement in both simulation and live matches
- Spearheaded development of an autonomous agent in **C++** using **Behavior Trees**, enabling real-time decision-making and active game state reflex for **6 robots**
- Developed and implemented **10+ unit tests** with **BoostUT** to validate robot behaviour and movement, increasing reliability of strategic play and tactic management by **30%**

Data Engineer Intern July 2024 – August 2024

PricewaterhouseCoopers (PwC) *Central, Hong Kong*

- Deployed and tested an **Azure Synapse** pipeline to query, validate, and process **11M+** database records, automating Excel report generation and reducing manual preparation time for consultants and client-facing services by **70**%
- Automated manual data handling and error-prone tasks by developing and deploying **10+** scripts using **Python**, **PowerShell**, and **SQL**, improving team operational efficiency
- Built a pipeline to convert, migrate, and reconcile data from legacy cloud platforms into a custom-designed database, ensuring **100%** data accuracy throughout migration

Projects

MovieFinder – Android App | *Kotlin, Jetpack-Compose* | cmpt-362-website.vercel.app November 2025

- Implemented an **NLP-driven** search pipeline that translated user-described movie features into structured queries, enhancing search expressiveness beyond keyword matching
- Developed a **Jetpack-Compose**–based, infinite vertical scrolling trailer feed using the YouTube Player API, caching media assets and differentiating from traditional grid-based movie UIs with a short-form content approach
- Architected a **Room**-backed local cache integrated with the **MVVM** data layer to persist recently viewed and searched movies, reducing TMDb API request volume and ensuring fast, resilient UI state restoration
- Implemented Firebase Authentication and cloud-backed data sync to provide real-time, cross-device consistency, ensuring seamless user sessions and state restoration across Android devices

RateTheWashroom – Web App | *React, FastAPI, SQLAlchemy*, Pandas, Docker, PostgreSQL October 2025

- Engineered a RESTful API using **FastAPI** and **SQLAlchemy**, enabling seamless and reliable data flow between frontend and backend
- Containerized the frontend, backend, and **PostgreSQL** database with **Docker**, ensuring consistent deployment and development across all team environments
- Designed ETL pipeline to automatating transformation process for over **1,000** SFU campus washroom listings and 100+ public washrooms, providing a comprehensive dataset that enhances user accessibility and utility

YOLO Traffic Light Detection | *Python, NumPy, Spark, Pandas, Matplotlib, scikit-learn* May 2025

- Engineered and deployed ETL pipelines with **Pandas**, **NumPy**, and **OpenCV** to preprocess **20,000+ annotated images**, enabling simultaneous training of **3 YOLO model variants**
- Produced analytical scripts with teammates to benchmark model performance using IoU, chi-square tests, and Euclidean residuals, improving detection accuracy insights and streamlining comparison across model variants.
- Co-authored a 13-page research report on statistical confidence, edge-case failures, and model limitations, delivering actionable recommendations that enhanced tuning strategies and informed real-world deployment.

Technical Skills

Programming Languages: C, C++, Java, JavaScript, Python, Kotlin, R, SQL (PostgreSQL, SQLite3), Bash
Frameworks: React, React Native, FastAPI, Django, Qt, Boost, Selenium, JUnit, PyTorch, TensorFlow, Hadoop
Libraries: Pandas, NumPy, Matplotlib, PySpark, scikit-learn
Developer Tools: Git (GitHub, GitLab), Docker, Azure, AWS, Node.js