Joseph Yu

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Education

University of Toronto Sept. 2022 – May 2026
Honours Bachelor of Science — Computer Science, Bioinformatics, & Mathematics *Toronto, ON*

- **cGPA**: 3.96/4.0
- **Relevant Coursework**: Java & Software Design (A+), C & Systems Programming (A+), Data Structures (A-), SQL & Databases (A+), Algorithms (A-), OS & Concurrency (A+), Machine Learning (A+), Multivariable Calculus (A+), Statistics (A)

Experience

Software Engineer May 2025 – Present
Verily (formerly Google Life Sciences) *Toronto, ON*

- Designed and implemented an LLM-powered tool using **Go** to accurately translate natural language into formal FHIRPath expressions, enabling healthcare developers and informaticians to efficiently express clinical logic and decision flows in a computable format

Machine Learning Developer Jan. 2025 – May 2025
University of Toronto Machine Intelligence Student Team *Toronto, ON*

- Fine-tuned various **PyTorch CNN vision models** on cough audio spectrogram data for COVID-19 classification, attaining a **test accuracy of 79% and F1 score of 0.76**
- Employed a broad range of ML techniques including data augmentation, hyperparameter optimization, weight decay, and random weighted sampling

Machine Learning Researcher Mar. 2024 – May 2025
SickKids (PGCRL) — Yuen Lab *Toronto, ON*

- Improved understanding of genetic disease predictors by designing, training, and fine-tuning **three** different **PyTorch CNNs** with CUDA integration, achieving robust performance on over eight distinct biological datasets
- Streamlined bioinformatics workflows by building a genome data pre-processing pipeline using Bash and command-line utilities
- Processed, analyzed, and visualized CNN training and evaluation data using pandas and matplotlib Python libraries for research presentations

Skills

Languages: Python, Go, C/C++, Java SQL (PostgreSQL), Bash, HTML/CSS, JavaScript
Tools/Frameworks: PyTorch, Linux, Flask, MongoDB, Google Cloud Platform, Git, Unity, sklearn, pandas/polars, numpy, matplotlib, pytest, JUnit 5, Conda/Mamba

Projects

Atlas Adventures | *Java, MongoDB, Git*

- Created an educational geography quiz app using **Java**, BingMaps API, and **MongoDB**, helping users learn geography through interactive gameplay
- Wrote unit, integration, and end-to-end tests for the application using JUnit5, covering **6000+** lines of code to ensure code quality and reliability
- Collaborated effectively in a team development environment using **Git** for version control, code reviews, and merge conflict resolutions

Colony Counter | *PyTorch, Pandas*

- Improved biological research efficiency by designing, training, and tuning a **deep convolutional neural network** in **PyTorch** to automate the counting of yeast colonies on agar plates
- Collected, processed, and labeled yeast colony image data during research position in the Alex N. Nguyen Ba Lab