Nicholas Fong

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EDUCATION

University of British Columbia   Vancouver, BC
Bachelors of Science, Combined Major in Business and Computer Science   *Expected Graduation December 2026*
- **Key Courses**: Software Construction, Introduction to Relational Databases, Basic Algorithms and Data Structures, Introduction to Computer Systems, Business Statistics, Introduction to Software Engineering

EXPERIENCE

Data Engineer Intern   September 2025 - Present
Royal Bank of Canada   *Toronto, ON*
- Designed and implemented a **Python-based ETL testing framework** (unit + integration + mock dependencies) improving **Airflow DAG** reliability and reducing **Spark** iteration cycles by **65%**
- Engineered **LangChain-based agent** querying **Trino Hive** metadata to auto-generate table documentation, reducing PM data discovery time by **70%** across **500+ tables**
- Built automated reporting pipelines (**Jira REST API + S3** logging) improving cross-team visibility and communication efficiency by **60%**
- Developed **LLM-assisted** test generation tooling, boosting test coverage and saving **15+ hrs/release** via automated data quality checks

Software Engineer in Test Intern   January 2025 - August 2025
Royal Bank of Canada   *Vancouver, BC*
- Architected distributed **Playwright** framework (**Docker + Allure**) enabling parallel test execution and **60%** faster regression suite creation
- Created keyword-driven automation framework with natural-language test authoring, reducing per-team QA staffing needs by **50%** and increasing test creation velocity by **250%**
- Established organization-wide **Copilot prompt library** for test automation, reducing legacy test migration from **6 → 2 months** and standardizing AI-assisted workflows across teams

Software Engineer Intern   June 2023 – January 2024
Binggrae   *Vancouver, BC*
- Deployed real-time analytics pipeline using **Node.js**, **WebSocket (Socket.io)**, and **React/Recharts**, processing regional sales data to surface product insights and reduce marketing spend by **20%**
- Built automated ETL workflow ingesting CSV data from **S3** and transforming with **Node.js scripts**, reducing manual reporting overhead by **15 hours/week**
- Optimized web application performance by implementing lazy loading, code-splitting with **React.lazy**, and **CloudFront CDN** for static assets, reducing page load time by **30%**

PROJECTS

Narrify | *Demo Link* | *Python, FastAPI, Coqui TTS, ffmpeg, Docker, APScheduler, SQLite*   September 2025 – October 2025
- Automated end-to-end video production pipeline using **FastAPI**, **Coqui TTS**, and **ffmpeg**, eliminating manual editing overhead and scaling to **50+ videos/day** with zero human intervention
- Fine-tuned **Coqui XTTS v2** voice cloning model with custom training pipeline, implementing automated audio preprocessing and chunked inference for high-fidelity speaker synthesis
- Designed **FastAPI** microservices with **APScheduler** task queuing and **SQLite** state management, containerized with **Docker** for horizontal scaling across multiple workers

FitFlow AI | *Github Link* | *React, Golang, PostgreSQL, Docker, OpenAI API, MediaPipe*   October 2023 – January 2024
- Built full-stack fitness platform with **React** frontend, **Go REST API**, and **PostgreSQL**, integrating **OpenAI API** for AI-driven meal planning and **MediaPipe** for real-time pose correction
- Implemented **MediaPipe Pose Estimation** model with real-time video inference at **30 FPS**, detecting joint angles and form deviations with **sub-100ms** latency for live workout feedback
- Engineered prompt-based recipe generation using **OpenAI GPT-4** with structured output parsing and content moderation filtering for dietary restrictions and allergen safety

TECHNICAL SKILLS

Languages: Python, Java, C++, Go, JavaScript, TypeScript, SQL, Scala, Rust, HTML5, CSS3, R
Frameworks & Tools: Next.js, FastAPI, Flask, Apache Spark, Apache Airflow, Docker, Kubernetes, TensorFlow
Cloud & Databases: **AWS** (EC2, S3, Lambda, RDS), GCP, PostgreSQL, MongoDB, Redis, Terraform, GitHub Actions, Jenkins