

# Nicholas Fong

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## EDUCATION

### University of British Columbia

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 Co-op

September 2025 - Present

Royal Bank of Canada

- Empowered **8 engineering teams** to improve pipeline reliability and accelerate ETL iteration by **65%** through a Python-based testing framework for Airflow and Spark, featuring dependency mocking and local scenario testing
- Streamlined cross-team communication by **60%** by developing an automated reporting pipeline for the testing framework with Jira integration, enabling pre-deployment visibility and improving collaboration across data, QA, and product teams
- Achieved **50%** faster onboarding for new engineers by designing a reusable ETL testing framework and automated reporting flow, allowing them to quickly understand pipelines, execute tests independently, and contribute to cross-team projects
- Boosted test coverage and saved **15+ hours** per release by developing a prompt-driven test case generation tool, enabling data engineers to validate ETL pipelines across multiple scenarios

### QA Automation Engineer Co-op

January 2025 - August 2025

Royal Bank of Canada

- Drove **60%** faster regression suite creation by architecting a distributed Playwright-based testing framework with Docker orchestration and Allure reporting, enabling engineers to run parallelized, auto-generated test suites at scale
- Delivered a **250%** improvement in QA velocity by developing a keyword-driven automation POC integrating natural-language test creation, enabling non-technical members to author automated tests and achieving full adoption across the team.
- Reduced migration timeline by **67%** (6→2 months) by leading creation of an organization-wide agentic prompt repository that standardized modular prompt chains and workflows, enabling faster AI-assisted automation across teams
- Saved **10 engineers** over **100 hours** of investigation time per release by developing Python/Selenium automation suites with granular API and dependency-layer validation, strengthening end-to-end test reliability

### Software Engineer Intern

June 2023 – January 2024

Binggrae

- Achieved cost saving of **20%** by implementing an analytics dashboard to inform optimization strategies across departments using **Socket.io**, **Recharts**, and **Node.js**
- Addressed security concerns by encrypting and salting user information for a digital marketing campaign, ensuring robust data protection and compliance with privacy standards
- Improved initial page load times by **30%** by implementing lazy loading and code-splitting
- Integrated SEO best practices into the website's structure, contributing to improved search engine visibility and a **40%** increase in organic traffic

## PROJECTS

### Narrify | [Demo Link](#) | *Python, FastAPI, Coqui TTS, ffmpeg, Docker, APScheduler, SQLite* September 2025 – October 2025

- Automated generation of 15 daily YouTube videos with **80%** average retention, reducing manual production time from 10 minutes per video to fully automated pipelines for ingestion, narration, captions, and metadata creation
- Fine-tuned Coqui XTTS v2 voice-cloning model locally to replicate typical “reddit story” narration, incorporating automated reference-audio preprocessing, chunked generation, and post-processing for high-quality speaker matching
- Built FastAPI endpoints and APScheduler ingestion workflows; containerized generator processes for horizontal scaling and migration to distributed workers, enabling fully automated high-throughput video production

### FitFlow AI | [Github Link](#) | *React, Golang, PostgreSQL, Docker, OpenAI API, MediaPipe* October 2023 – January 2024

- Created a fitness app using React and Go featuring health tracking, pose-based coaching, and **OpenAI API** integration for personalized recipes, improving user experience and promoting holistic wellness
- Applied **MediaPipe Pose Estimation** computer vision framework to detect and correct improper exercise form, enhancing user safety and reducing the risk of injuries during workouts
- Integrated OpenAI API for personalized recipe recommendations, using prompt engineering to tailor suggestions and ensuring safety by implementing content moderation for dietary restrictions

## TECHNICAL SKILLS

**Languages:** Java, C, C++, JavaScript, TypeScript, HTML5, CSS, R, Python, SQL, PHP, Scala

**Frameworks:** React, Express.js, MongoDB, Tailwind, Go, MySQL, PostgreSQL, Redux, Node.js, AWS, Next.js, LangChain

**Developer Tools:** Git, Docker, Visual Studio Code, IntelliJ, WordPress, JIRA, Azure, Kanban, Waterfall