Nick Shum

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EDUCATION

University of Waterloo — Waterloo, ON
Bachelor's of Computer Engineering, Co-op — *Apr. 2027*

- **Relevant Coursework**: Data Structures & Algorithms (C++), Systems Programming & Concurrency (C++), Databases, Operating Systems (C), Networking, Compilers (Java)

TECHNICAL SKILLS

Languages: TypeScript, JavaScript, Java, Python, C/C++, SQL, HTML/CSS
Frameworks/Libraries: React, Next.js, Node.js, Express.js, Flask, Django, Spring Boot, Tailwind CSS
Cloud/DevOps: Docker, SQL Server, PostgreSQL, MongoDB, AWS, Azure, Firebase, Vercel

EXPERIENCE

Software Engineer (Contract) — May 2025 - Aug. 2025
CharacterQuilt — *Waterloo, ON*

- Eliminated API timeouts and slashed server response time by **99.3%** (30 to 0.2s) by offloading heavy processing to an asynchronous job queue using **Python**, **AWS Lambda**, and **SQS**
- Architected a persona-based content editing pipeline, cutting human review time by **72.2%** (18 to 5 min) using **Supabase**, **Pinecone**, and GPT-4o prompt chaining
- Shipped an **AI agent** with context retrieval and validation to generate accurate table columns/filters, saving ∼**14 hours** of manual query work weekly using Python and **OpenAI API**

Software Engineer Intern — Jan. 2025 - Apr. 2025
CharacterQuilt — *Denver, CO*

- Reduced initial page render by **86.6%** (22 to 3s) by lazy-loading large **React** components and batch executing asynchronous fetch requests
- Developed a serverless event notification platform using **AWS EventBridge**, **DynamoDB**, and **Perplexity API** to deliver weekly alerts on target company news and job posting indicators
- Overhauled the core product UI using **React** and **TypeScript** in a **fast-paced start-up**, giving early users a polished experience ahead of public launch

Software Engineer Intern — May 2024 - Aug. 2024
IBM — *Toronto, ON*

- Enabled natural language CSV querying by implementing Retrieval-Augmented Generation (**RAG**) using LangChain, FAISS vector database, pandas, and **Llama-3-70B LLM**
- Engineered a rules-based anomaly detection engine to verify **$10B+** in insurance claims using Python and SQL
- Delivered a data-processing package using Apache Spark to replace legacy processes, slashing runtime from **2 hours** to **20 minutes**

Software Engineer Intern — Sep. 2023 - Dec. 2023
Versaterm — *Vancouver, BC*

- Built and launched an employee organizational chart using **Spring Boot** and **Vue.js**, streamlining internal communication across **1000+** police agencies
- Led cross-team initiative to revamp and scale a geospatial incident tracking system with geofencing functionality using Vue.js and Leaflet

PROJECTS

ResuMatch - Job Application Manager | *Firebase, AWS S3, React, Django, SQLite*

- Developed a job search web application, enabling users to create accounts, track job applications, and link uploaded resumes to specific positions for optimized job search management
- Enabled encryption and access controls by leveraging **AWS S3** with **SQLite** for enhanced data security and retrieval in a relational database