Kousha Amouzesh

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Education

Simon Fraser University *Sep. 2021 – Apr 2026*
Bachelor of Science in Computer Science - (GPA 3.85) *Burnaby, BC*

Experience

Insurance Corporation of British Columbia (ICBC) *May 2025 – Aug 2025*
Software Developer Co-op (Cloud Automation / Data Engineering) *North Vancouver, BC*

- Led 3 AWS cloud migration projects related to ICBC Claim Center, leveraging **JavaScript**, **Python**, and **BluePrism**.
- Improved payload efficiency by optimizing **PostgreSQL** queries for **AWS Redshift**.
- Developed **Batch** and **Python** scripts for automated claim updates via **Redshift** connections.
- Partnered with ICBC stakeholders to create **Excel** QA reports for requirements analysis and acceptance testing.

SFU Blueprint - MOSAIC BC *Jun 2024 – Aug 2025*
Software Development Technical Lead (Full Stack / AI) *Burnaby, BC*

- Led 6 developers to build a **React + Flask** AI chatbot for MOSAIC's site, a non-profit helping newcomers in Canada.
- Co-designed a **Flask** API to handle **Neo4j** queries for information retrieval by a **LangChain** Agent.
- Built a **React + Flask** online dashboard to automate changes on the chatbot's knowledge graph via CSV uploads.

Forgeahead Solutions Inc. *Oct 2023 – Aug 2024*
Software Engineer Co-op (Machine Learning / Generative AI) *Surrey, BC*

- **GEN AI Story Board & Clip Creation Platform:** Proposed architecture for a generative AI platform to produce storyboards and animated clips with simple user prompts.
- Implemented **Python** few-shot training scripts for image diffusion pipelines on HuggingFace with **PyTorch**.
- Integrated a diffusion model with **AWS SageMaker** to utilize GPU-powered endpoints for deployment.
- **Early Breast Cancer Prediction Platform:** Designed a pipeline converting medical texts into AI avatar videos reading medical screening reports.
- Trained **ResNet** neural networks using **PyTorch** and transfer learning for key point detection on avatar images.
- Implemented a face-swap pipeline with **Python** and **OpenCV** for adding animated features to avatars.

Projects

AutoSec (Multi-Agent AI Security Pipeline) | *Python, Java, Docker, CodeQL, MCP* *Sept 2025 – Present*

- Developing an AI security pipeline that autonomously detects, exploits, and patches **CWE** vulnerabilities using **LLMs**.
- Designed and implemented **MongoDB** schemas to manage **Java** vulnerability data identified by **CodeQL**, integrated via an **MCP** server to coordinate automated penetration testing, triage, and patch generation by collaborating agents.
- Built **Python** pipelines that leverage various LLMs to generate proof-of-vulnerability tests and detailed security reports for large-scale industrial **Java** projects sourced from **CWE-Bench-Java**.
- Developed **Docker** build environments to compile and execute vulnerable **Java** projects for exploit verification.

Network Anomaly Detector | *C++, Docker, Python, PyTorch* *Jul 2025 – Aug 2025*

- Developed a real-time network packet sniffer in **C++** using **libpcap**, capable of parsing Ethernet, IP, TCP, and UDP headers and exporting structured packet logs, later used for classifier model's training.
- Containerized a traffic environment in **Docker** using **Scapy** to safely generate anomalous packets flow for training.
- Engineered a data pipeline converting PCAP to **Pandas** augmented feature set for anomaly detection.
- Applied unsupervised ML (**Autoencoders**, **Isolation Forests**) in **PyTorch** and **Scikit-Learn** to predict anomalies.

Where-to-Eat Mobile App | *JavaScript, C#, React Native, .NET, LangChain* *Dec 2024 – Jan 2025*

- Built a **React Native** iOS application integrating GPT and **GCP APIs** for AI-driven restaurant recommendations.
- Designed a map interface with **TypeScript** and **CSS** to show recommended places with access to AI-generated reviews.
- Developed a **LangChain** GPT agent on **.NET** to analyze Yelp reviews and recommend restaurants in real time.

Technical Skills

Languages: Python, JavaScript, Java, C++, C, C#, SQL, TypeScript, HTML, CSS, Bash
Frameworks: Node.js, React.js, LangChain, PyTorch, Tensorflow, Scikit-learn, Pandas, MongoDB, Flask, .NET
Tools: Git, AWS SageMaker, AWS DynamoDB, AWS Redshift, GraphQL, Docker, BluePrism, CodeQL, MCP, Neo4j