Jasmehar Kaur

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Education

University of Waterloo **Sep. 2024 – Present**
Honours Software Engineering *Waterloo, ON*
GPA: 3.90/4.00 (91% CAV)

Technical Skills

Languages: Python, Java, C++, C, JavaScript, TypeScript, HTML/CSS, SQL
Frameworks/Libraries: PyTorch, Scikit-learn, LangChain, Flask, FastAPI, Docker, Kubernetes, Helm, Node.js, React.js, React Native, TailwindCSS, Tesseract OCR
Tools/Technologies: Git, GitHub, Bash, Postman, AWS (Athena, Lambda, API Gateway), WebSocket, Raspberry Pi, Linux, REST APIs, Agile, RAG, OpenSearch, Selenium

Experience

Nokia **April 2025 – August 2025**
AI/ML and Full-Stack Developer *Ottawa, ON*

- Built a cloud-native **multi-agent LLM**-based system to automate 5G alarm resolution, with **vector-based RAG**-driven **chain-of-thought analysis** for high-relevance retrieval.
- Engineered a **RAG** pipeline by optimizing **hybrid search** (dense + sparse) in **OpenSearch** and implementing multi-pass retrieval. This led to a **65%** increase in precision and a **58%** increase in recall.
- Developed a **Crossplane-based cloud automation tool** and a **custom Kubernetes operator** in **Go** to manage life-cycle of autonomous applications and enable intent-based orchestration of networks.

Trexo Robotics (YC '19) **July 2022 – September 2022**
Software Developer Intern *Mississauga, Ontario*

- Developed a **serverless data management system** with React, Redux, and **AWS Athena** via **API Gateway**, enabling authenticated users to perform **CRUD operations** on large datasets, cutting data editing time by **92%**.
- Developed **custom API endpoints** and scripts to automate previously manual data entry and modification processes, establishing a **controlled, programmatic interface** for database interactions and **reducing data entry errors.**

Absolute Robotics **September 2022 – July 2024**
IT Lead *Mississauga, Ontario*

- Engineered a comprehensive **data collection and analytics** system, with a **React Native** mobile app for real-time match data capture and a **React** web app for offline data ingestion via QR codes, reducing data entry time by **95%**.

Projects

FOOT.print | *Gemini API, Python, OpenCV, YOLOv8, MiDaS, TwelveLabs, Blender*

- Architected and deployed a full-stack AI pipeline that converts raw video of a room into optimized 3D layouts.
- Built a **CV/NLP model** using **Gemini** and YOLOv8 to predict object sizes and generate accurate recommendations.
- Automated Blender mesh **creation and validation loops** using Gemini, producing geometrically accurate 3D models.

Breast Cancer Prediction Model | *Python, PyTorch, Scikit-learn*

- Developed and optimized a **feed-forward neural network** in **PyTorch** for binary breast cancer classification, achieving **97.37% accuracy** on the test set after 100 epochs.
- Engineered end-to-end ML pipeline, using data preprocessing (standardization, train-test split) using **Scikit-learn** and training with **Adam optimizer** and **Binary Cross-Entropy Loss** for robust model performance and generalization.

Braillinator | *Python, OCR, Raspberry Pi, React Native, Tesseract, WebSocket, JavaScript*

- Engineered a technology pipeline to convert printed text into Braille, using **Python**, **Tesseract OCR**, and WebSocket.
- Developed a **React Native** mobile app to capture text images and transmit data to a Raspberry Pi for on-device image processing and text extraction. Built a Braille tablet with piston-driven dots for real-time text-to-Braille conversion.

Road Traffic Simulator | *Java, Multi-threading, Object-Oriented Programming, Java AWT Graphics*

- Designed and implemented a **multi-threaded** traffic simulation system for 4-way intersections, optimizing traffic light timings to maximize vehicle throughput through **concurrent processing** and **thread-safe design**.
- Integrated real-world driver behavior data from the Next Generation Simulation Program, employing **object-oriented** principles to model realistic driving patterns and validate simulation accuracy.

Certifications

AWS Cloud Technical Essentials | *AWS on Coursera*

- Built foundational knowledge in cloud computing principles and core AWS services.