

Ishpreet Nagi

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EDUCATION

McMaster University

Bachelor of Applied Science, Computer Science

• Summa Cum Laude | Dean's Honor List

Hamilton, ON

Sept 2021 — May 2026

WORK EXPERIENCE

Software Engineer and Research Coordinator

June 2024 — July 2025

Healthcare Systems Research & Analysis Inc.

Waterloo, ON

- Engineered an end-to-end ML pipeline for large-scale geospatial classification using **TensorFlow** and **PyTorch**, benchmarking model variants and shipping the winning architecture at **98% accuracy**
- Built distributed data pipelines in **Python** with **Pandas**, **NumPy**, **scikit-learn**, **CUDA**, and **XGBoost** to ingest and validate multi-million-row datasets, powering training workflows and **automating 90% of model deployment**
- Instrumented training and inference with reproducible experiment tracking and evaluation metrics that surfaced failure modes before they reached production
- Led 4 engineers across 8 stakeholders, turning ambiguous research requirements into technical designs, running code reviews, and delivering every milestone on time

Machine Learning Analyst and Research Assistant

May 2023 — May 2025

McMaster University - Department of Computing and Software

Hamilton, ON

- Fine-tuned and evaluated deep neural networks under Dr. Douglas Down, building evaluation and model-serving frameworks to achieve **40% accuracy gains** with **50% smaller models**
- Designed a novel **LSTM** architecture with an automated eval loop and **Optuna**-based hyperparameter search, iterating rapidly to **improve F1 by 90%** over the hand-tuned baseline
- Analyzed model behavior with statistical evaluation, ablations, and error analysis to characterize failure modes and guide architecture and training decisions
- Maintained the research codebase over 2+ years with versioned datasets, reproducible pipelines, and **CI checks, cutting experiment iteration time by 60%**

PROJECTS

Kollec App (kollec.app)

Sept 2025 — Apr 2026

- Developed a scalable open-source card collection platform serving **100+** real users, designing distributed APIs and data workflows with **Next.js**, **Node.js**, **Prisma ORM**, and **PostgreSQL** — from schema design to production
- Built and deployed a production **computer-vision** service using a custom **YOLO** segmentation model with **embedding-based context** awareness, achieving **99% accuracy** across card types and lighting conditions
- Designed a **RAG-style** identification workflow — image embeddings and vector similarity search over a curated corpus, with a lightweight **LLM** reasoning step for disambiguation
- Owned the full ML and **NLP** lifecycle — dataset curation, training, evaluation, serving behind a REST API, and production monitoring — within a team of 7 maintaining full **Git/version control** and **CI/CD** pipelines

Technical Executive, DeltaHacks 10 (github.com/deltahacks/landing-10)

Aug 2023 — May 2024

- Shipped the official DeltaHacks 10 platform under a hard deadline to **1000+ applicants** using Astro and TypeScript
- Instrumented telemetry and behavioral logging to characterize user engagement, using the data to iterate on content and **increase user attention by 25%**

SKILLS

- Languages:** Python, C/C++, TypeScript, Java, SQL (PostgreSQL, MySQL)
- ML & DL:** PyTorch, TensorFlow, Scikit-learn, NumPy, Pandas, Optuna, Hugging Face Transformers
- ML Systems:** LSTM/RNN, CNN/YOLO, Embeddings, Vector Search, RAG, Prompt Chaining, Agents, Model Evaluation & Ablation, Hyperparameter Search, GPU-Aware Training
- Data, Infra & AI Tooling:** PostgreSQL, Distributed Data Pipelines, Jupyter, Git, Docker, GitHub Actions (CI/CD), OpenAI API, Claude API, MCP, Cursor, Claude Code