Nishan Dhaliwal

+1 (647) 613-3159 | ndhaliwal0659@gmail.com | nishan-d | ndhaliwal59 | nishandhaliwal.xyz

Education

Carleton University Expected April 2029

Bachelor of Computer Science (Honours) *Ottowa, ON*

Coursework: Abstract Data Types/Algorithms, Systems Programing, Operating Systems, Database Management, Discrete Structures II, Linear Algebra II.

Projects

Physio AI — React Native (Expo), Django, Qwen2.5-7B-Instruct, FAISS, BM25, spaCy July 2025 - Current

- Developed a cross-platform physiotherapy mobile app supporting **200+** musculoskeletal conditions with diagnostic and recovery features
- Built a hybrid **RAG pipeline** using **FAISS** vector search and **BM25** ranking with BAAI/bge-small-en-v1.5 embeddings for context retrieval
- Implemented a diagnostic chatbot with **Qwen2.5-7B-Instruct** and **spaCy NLP** for symptom extraction, dynamic questioning, and iterative diagnosis refinement
- Created personalized 5-stage recovery plans with real-time progress tracking and prevention modules for **15+** common conditions

UFC Predictor Website — React (Vite), FastAPI, XGBoost, PostgreSQL, Docker, Render April 2025 - Current

- Developed a full-stack web app achieving **68%** real-world prediction accuracy across **63** tested UFC fights
- Scraped and processed **8,000+** historical fights, engineered predictive features, and trained an **XGBoost** model with **67.54%** cross-validated accuracy
- Built an admin dashboard with authentication for managing fight entries and a manual data update pipeline
- Deployed via **Docker**, **FastAPI** backend, and **PostgreSQL** on Render, with automated model retraining capabilities

ATM Cash Demand Forecasting — Python, XGBoost, Random Forest, Linear Regression Sep 2025

- Developed a machine learning system predicting next-day ATM cash demand, achieving **R^2 = 0.884**, **MAE 4,596** (Linear Regression)
- Engineered financial features including moving averages and cash utilization rates, with missing value handling and categorical encoding
- Designed functions to determine optimal refill timing and amounts, enabling more efficient ATM cash logistics

BloodIQ — React (Vite, TS), FastAPI, Mistral-7B, PostgreSQL, Tesseract OCR, EasyOCR, docTR June 2025 - July 2025

- Built a platform to analyze blood test reports and deliver personalized health insights, scores, and recommendations
- Developed a multi-format document ingestion system (PDF, JPG, PNG, HEIC) using **Tesseract**, **EasyOCR**, and **docTR** for OCR parsing
- Integrated **Mistral-7B LLM** with user intake forms to generate context-aware health scores (0–100) and personalized recommendations
- Implemented a tracking dashboard for BMI, risk levels, and report history with secure **JWT** authentication

Procedural Terrain Generation — Three.js, Cannon.js, Simplex Noise, Vite Jan 2025

- Developed a real-time 3D terrain generator with infinite world creation and dynamic chunk loading at **60 FPS**
- Implemented multi-octave **Simplex noise** for realistic heightmaps and a chunk-based **LOD system** for spatial partitioning

Certification

Google Data Analytics Professional Certificate *Coursera - Issued June 2024*

Comprehensive 6-course program covering data analysis fundamentals, data cleaning and processing, data visualization, R programming, SQL databases, and Tableau dashboard creation

Technical Skills

Languages: Python, Java, JavaScript, TypeScript, C, HTML, CSS
Frameworks: React, FastAPI, Flask, Django, Expo, Three.js, Vite, NumPy, Pandas, Scikit-learn, Torch, Transformers, spaCy
Database: PostgreSQL, MongoDB, SQLite, Supabase
Tools and Technologies: Git, Docker, Jupyter Notebook, VS Code, Postman, Hugging Face, OCR