

Mohamed Deraz Nasr

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Education

Georgia Institute of Technology <i>MSc Computer Science (Machine Learning Track)</i> Coursework (ongoing): Computer Vision, Deep Learning, Graphical/Generative Modeling, Reinforcement Learning University of Ottawa 3.5 GPA <i>BSc Software Engineering</i>	Jan 2026 – May 2027 Atlanta, Georgia Sept 2020 – May 2025 Ottawa, Canada
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Experience

Georgia Institute of Technology <i>Machine Learning Researcher</i> <ul style="list-style-type: none">Researching neural decision trees for multimodal medical AI, producing concept-level reasoning on patient data (MIMIC-IV).	Remote Jan 2026 – Ongoing
Shopify <i>Machine Learning Engineer Intern</i> <ul style="list-style-type: none">Prototyped PyTorch LLM to convert natural language to SQL, reducing querying time by 80% across 1M+ merchant data.Built ML pipelines (Python, SARIMA, Airflow, SQL) to forecast business metrics, improving accuracy by 7% across 5+ teams.Reduced model response time by 35% (Redis, Docker) to optimize real-time XGBoost predictions for merchant dashboards.Presented product to 20+ senior/staff engineers and team leads at cross-team review, earning highest performance grade.	Ottawa, Canada Jan 2025 – Apr 2025
University of Ottawa <i>Research Engineer Intern (Supervised by Prof. Kalonji)</i> <ul style="list-style-type: none">Researched distributed & reinforcement learning to accelerate solar energy forecasting and enable adaptive model updates.Engineered data pipelines (Python/Go) to process 200K+ solar readings daily with 80% accuracy via Redis caching.Deployed Next.js/GraphQL real-time dashboard with XGBoost forecasts to monitor model accuracy at <200 ms latency.	Ottawa, Canada Sept 2024 – Dec 2024
University of Ottawa <i>Full Stack Developer Intern</i> <ul style="list-style-type: none">Delivered data validation pipelines (Node.js/React Native) for 20K+ students, cutting form submission errors by 30%.Redesigned 50K+ record PostgreSQL database pipeline, reducing query latency by 40% under high concurrency.	Ottawa, Canada Sept 2023 – Dec 2023
March Networks <i>Systems Engineer Intern</i> <ul style="list-style-type: none">Built C/C++ debugging tool (Python/Docker) for RTSP/WebSocket on Linux, boosting model resilience by 25%.Developed Node.js/PostgreSQL dashboard to track packet loss and performance across 200+ deployed camera networks.	Ottawa, Canada Jan 2023 – Apr 2023

Projects

Affinity Map – Python, PyTorch, Biopython, NumPy, scikit-learn, UMAP, Matplotlib <ul style="list-style-type: none">Trained a few-shot protein embedding model with UMAP visualization to explore functional similarities across protein families.	Sep 2025 – Nov 2025
Reinforcement Learning Race Simulator – Python, PyTorch, TypeScript <ul style="list-style-type: none">Designed multi-threaded race sim running 10K+ epochs, outperforming baseline strategies with 4x faster training throughput.	Aug 2025 – Oct 2025
Protein Diffusion – Python, PyTorch, C++, CUDA, Transformers, OpenFold API, RDKit <ul style="list-style-type: none">Built diffusion-driven protein generator enabling fast 3D structure generation, conditioning, and biological plausibility scoring.	October 2025 – Present

Extracurriculars

UOBionics – Allonstride <ul style="list-style-type: none">Engineered embedded C/C++ firmware (STM32/FreeRTOS) for exoskeleton motor & biosensor control (I2C/SPI/UART).Built (AWS/Python/WebSockets) pipelines with FastAPI/React dashboard for live anomaly detection on 100K+ signals.	Ottawa, Canada Jan 2024 – Dec 2024
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Technical Skills

Programming Languages: Python, Go, SQL, TypeScript, Java, JavaScript, C/C++ Web/Backend Frameworks: Next.js, Node.js, React, FastAPI, Flask, Django, Spring Boot Cloud/Databases: AWS (EC2, Lambda), Kubernetes, Docker, BigQuery, Vertex AI, PostgreSQL, Redis, MongoDB ML/Data Frameworks: PyTorch, XGBoost, scikit-learn, RAG, GenAI, SARIMA, dbt, Airflow, MLflow, Pandas	
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