Ibrahim Osman

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EDUCATION

University of Alberta — Edmonton, AB
Honours Bachelor of Science in Computing Science — Majors in Artificial Intelligence — *Sep. 2024 – Dec. 2026*

Lakehead University — Thunder Bay, ON
Honours Bachelor of Science (Computer Science Major) — *Sep. 2022 – Apr. 2024*
Selected coursework: Machine Learning, Reinforcement Learning, Algorithms, Operating Systems, Distributed Systems, Databases

EXPERIENCE

Founder & CTO — Jan 2024 – Present
HOMI (Fintech + AI Real Estate) — homiestate.com — *Edmonton, AB / Dubai, UAE*
- Owned product and platform (roadmap, ETL/data pipelines, PostgreSQL schema, security); led and scaled a 30+ person product/engineering org.
- Built underwriting/ROI models (rental yield, IRR, fees, risk scoring) that cut analysis time by 78% and increased close rate by 22%.
- Integrated developer APIs (Emaar, Damac, Binghatti, Ellington, Danube, Sobha); shipped investor dashboards (Next.js, Node, Three.js, PostgreSQL, Vercel/AWS).
- Launched memo export and sensitivity analysis; reduced manual underwriting by 60%.

AI/ML Intern (Mentored by Senior DS/ML Engineer) — 2021 – 2022
NGCC Software Technologies — *Hyderabad, India*
- Prototyped robotics and ML projects (OpenCV object tracking, TinyML sensor classification, Raspberry Pi edge deployment).
- Built training and evaluation pipelines (Python, scikit-learn); improved F1 by 18% over baseline via feature engineering and cross-validation.

Lead Developer (Freelance) — Apr 2018 – Sep 2021
Self-Employed — Remote — *Jeddah, Saudi Arabia*
- Built and scaled a freelancing collective generating $70,000+ in revenue.
- Delivered custom websites/apps for convention halls, clinics, retail, and SMBs; on-time launch rate +25%, post-launch defects -35%.
- Led a 4–8 person team; standardized SOWs, QA, and maintenance SLAs; implemented CI/CD, analytics, SEO/CRM.
- Stack: TypeScript/JavaScript, Next.js/React, Node.js, SQL; GitHub Actions, Docker.

PROJECTS

StudySpark AI | *Python (FastAPI), Next.js, PyTorch, LangChain, PGVector/Faiss* — 2024 – 2025
- Built a study platform that ingests syllabi/lectures/PDFs and generates notes, flashcards, and quizzes using RAG.
- Implemented spaced repetition (SM-2) and retrieval-practice quizzes; pilot improved delayed recall **18–30%** and cut time-to-mastery **22%**.
- Achieved **p95 ¡ 120 ms** and **99.9%** uptime with OpenTelemetry dashboards; defined SLOs and runbooks, reducing support load during pilot.

QuantumNeuron | *PyTorch, CUDA/Triton, Ray Distributed, Faiss/PGVector* — 2024 – 2025
- Built a multi-agent system with RAG and tool use on a Ray cluster (A100).
- Wrote CUDA/Triton kernels for hot paths; throughput **+1.7x** vs. baseline at **p95 ¡ 80 ms** under load.
- Added online evaluation with canaries and SLO-aware routing; **unit cost -42%** and **task success +19%** vs. prior pipeline.

TECHNICAL SKILLS

Languages: Python, TypeScript/JavaScript, Go, Rust, Java, C/C++, CUDA C++, SQL (PostgreSQL), Bash/Zsh, Solidity, x86-64/ARM64 Assembly

Frameworks: PyTorch; CUDA/Triton *(custom kernels, shared-memory tiling, occupancy tuning)*; Ray *(distributed actors)*; FastAPI; React/Next.js; gRPC/Protobuf

Developer Tools: AWS *(EC2, Lambda, S3, API Gateway, RDS, DynamoDB, CloudWatch, EKS)*; Kubernetes/Docker; GitHub Actions; OpenTelemetry; Prometheus/Grafana; Redis

Libraries: Pandas, NumPy, scikit-learn; Faiss/PGVector *(vector search/RAG)*; OpenCV *(CV pipelines)*