Hady Ibrahim

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EDUCATION

McMaster University

B. Eng. Double Major: Software Engineering & Biomedical Engineering   *Sept. 2021 – May 2026*
- Awards: Provost's Honour Roll Medal (x4), The McMaster University Award of Excellence, iBiomed Showcase (x2).
- TA Positions Include: Introduction to Programming, Digital Systems and Interfacing, Genetic Engineering.

EXPERIENCE

Shopify   May 2025 – Aug. 2025
Applied Machine Learning Engineer   *Ottawa, ON*
- Delivered a brand-recognition model that raised feature F1 from 12% to 73% and improved the overall model score by 39%; gains were statistically validated by bootstrapping for 95% CI.
- Built a stratified synthetic-data pipeline with LLM annotators and arbitrators, distilled features from a GPT model into a Qwen2.5-VL-7B student model, published versioned synthetic train/test sets, and streamlined labeling with scripts and an interactive CLI.
- Deployed the model across real-time and streaming services, predicting brand of 2+ billion products.
- Modernized data products with historical and "latest" prediction tables in dbt, and introduced an LLM-based judge to generate diagnostics and seed GRPO training/evaluation datasets.

McMaster University   January 2025 – Present
Machine Learning Student Researcher   *Hamilton, ON*
- Topic: Steerable CNNs for Rotation-Robust Detection of Magnetic Microrobots in Ultrasound Imaging
- Engineered a rotation-aware equivariant CNN (C8 Steerable, PyTorch/escnn) for microrobot detection in ultrasound, keeping features consistent across angles to improve robustness.
- Built a modular training pipeline on a 40k+-frame ultrasound dataset (8 microrobot types) with a two-stage loss (MSE warm-up $\rightarrow$ CIoU fine-tune) to stabilize localization under low SNR and occlusion.
- Implementing YOLO and Mask R-CNN as baselines to benchmark precision and runtime against the Steerable CNN.

Apple   May 2024 – Aug. 2024
Software Engineering Intern   *Cupertino, CA*
- Built a reusable UI exploration engine for macOS and integrated it into daily CI, exercising deep navigation paths to surface edge-case failures early while cutting scripted-test maintenance.
- Added support to interleave scripted workflows into crawls, mimicking real user flows to surface higher-value defects.
- Stood up a daily build pipeline to run large-scale crawls and capture artifacts in cloud storage for reliable triage.

Shopify   May 2023 – Aug. 2023
Software Engineering Intern   *Ottawa, ON*
- Led a 3-engineer effort from design to company-wide rollout, implementing policy-as-code production-readiness checks in CI/CD gates to block risky launches and materially raise release reliability and accountability.
- Drove a 91% drop in overdue production-readiness tasks in the first month by launching an org-wide GitHub bot and workflows across hundreds of repos, with real-time owner feedback.
- Fine-tuned a merge-queue LLM assistant (embeddings + RAG) that auto-answers policy/blocker queries.

PROJECTS

The Hatchery: Hackathon Winner | *Python, LangChain, CrewAI, OpenAI/Cohere, React 3 Fiber*   Demo | GitHub
- Built a multi-agent "virtual incubator" where a CEO delegates to Marketing and Coding directors; orchestrated task graphs in Python (CrewAI + LangChain) to turn a single idea into campaigns and working web/app prototypes.
- Implemented a real-time, Sims-inspired 3D GUI (React Three Fiber) that streams agent state via Socket.IO so users can watch plans execute, inspect artifacts, and give feedback that feeds back into the workflow.
- Won a $3,000 prize at DeltaHacks (500+ participants) for best Cohere AI usage.

TECHNICAL SKILLS

Languages: Python, SQL, Java, Golang, Ruby, Swift, C/C++, JavaScript, TypeScript, HTML/CSS, R
Frameworks: dbt, Apache Airflow, Apache Flink, Ruby on Rails, React, React-Native, Node.js, GraphQL, Pytest, JUnit
Developer Tools: Git, Docker, Google Cloud Platform, VS Code, Xcode, PyCharm, IntelliJ, Linux, Vim, Raspberry Pi
Libraries: pandas, NumPy, PyTorch, TensorFlow, OpenCV, scikit-learn, HuggingFace, FastAPI, Flask, gRPC