Moeen Bagheri

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SUMMARY

AI Engineer with 8+ years of professional experience and 3+ years building production LLM agents and enterprise AI systems. Lead developer of BASF's Talk2Data, a module within FOX, with 7,000+ users. Winner of BASF's 2025 Digital Award and 2026 ICV Albrecht Deyhle Award for Controlling Excellence. Specializing in agentic workflows, evaluation frameworks, and LangGraph architectures that ship reliable AI products at scale.

EXPERIENCE

AI Engineer & Lead Developer Oct 2024 - Present
BASF – Toronto, ON, Canada
Lead developer of Talk2Data, the data assistant within BASF's FOX platform. Winner of BASF's 2025 Digital Award and ICV Albrecht Deyhle Award for Controlling Excellence 2026.

- **Natural Language to SQL**: Built a LangGraph agent with *MLflow* tracing that answers questions using Databricks SQL and RAG, returning tables, charts, and analysis. Supports new data sources through configuration.
- **Executive Briefing**: Built a monthly briefing for finance leadership that used deterministic analysis to find KPI changes and drivers, an LLM to explain results in natural language, with grounding to ensure all findings are backed by evidence.
- **Website Assistant**: Implemented an agent to work within a website with *Power BI* reports and answer based on what the user sees on their screen.
- **Evaluation**: Built a framework to evaluate SQL accuracy, latency, and tool calls to catch regressions before release.
- **Dashboard Automation**: Built a *GitHub Copilot* multi-agent system to automate the process of *Power BI* report creation from intake files, with validation to ensure data and layout reliability. Onboarded BI developers new to coding agents.
- **Agentic Coding**: Built workflows in *GitHub Copilot* and *Cursor* to implement features, run tests and evaluations, review changes, and open pull requests across multiple repositories, with access to Microsoft Teams messages and meetings, Outlook emails, and *Azure DevOps* to gather necessary context, and a self-enhancing loop to improve itself over time.
- **Developer Acceleration**: Defined how to improve developer productivity and enable coding agents within BASF's company-wide AI program to help development teams turn ideas into working prototypes faster.

Founder & AI Engineer Sep 2023 - Oct 2024
YT Copilot – Toronto, ON, Canada
Built an AI Chrome extension app called YT Copilot to work inside YouTube.

- **YouTube Assistant**: Developed an AI agent for YouTube that summarized videos, organized content into chapters, answered questions about videos, conducted semantic searches, and identified promotional segments and interruptions. Implemented chunking and aggregation to process long videos.
- **Fullstack Development**: Developed the *JavaScript* frontend integrated with YouTube's UI, the *Flask / PostgreSQL* backend deployed on *Azure Kubernetes Service (AKS)* with *Docker*, *Ory Kratos* authentication, and *Stripe* billing.
- **Fine-tuning & Optimization**: Improved the quality and reliability of the responses using fine-tuning, distillation, and prompt engineering techniques.

Machine Learning Engineer Jan 2022 - Jul 2023
Super GeoAI Technology Inc. – Toronto, ON, Canada
Led a team of 7+ engineers developing computer vision models for agriculture.

- **Computer Vision**: Built object detection models in *PyTorch* and *TensorFlow* that graded seeds and estimated crop yield from photos taken with phones and drones. Increased efficiency by over **80%** for the agricultural partners.
- **Model Enhancement**: Improved accuracy by **10%** for seed grading and **15%** for wheat head detection by fine-tuning models pre-trained on *COCO* and *Pascal VOC* and tuning hyperparameters with *Ray Tune*.
- **System Design**: Deployed the models with a *Flask* backend and a *JavaScript* frontend, integrated with a *NextCloud*-based storage platform and *Ory Kratos* for authentication.
- **Leadership**: Conducted technical interviews, team meetings, and code reviews.

Machine Learning Researcher (Doctoral Research) Jul 2021 - Jan 2022
IBM – Toronto, ON, Canada
NLP and transformer research to find conflicting or duplicated entries in SRS documents.

- **NLP**: Built *BERT*-based models in *PyTorch* and *HuggingFace* to detect conflicting and duplicate requirements in Software Requirements Specification (SRS) documents.
- **Model Optimization**: Improved F1-score by **20%** compared to the baseline by fine-tuning a Microsoft pre-trained model.

Teaching Assistant - Practical Deep Learning (CIND850) Sep 2021 - Dec 2021
Ryerson University – Toronto, ON, Canada
Taught Practical Deep Learning (CIND850) to graduate students.

- **Mentorship**: Delivered deep learning lectures and tutorials and mentored 20+ graduate students on model design and implementation.
- **Assessment**: Graded assignments and exams, and gave students feedback on their deep learning implementations.
- **Curriculum Development**: Designed the lab exercises and their solutions, with a focus on practical uses of deep learning.

Quantitative Data Scientist Jun 2014 - Aug 2018
Electronica AI – Toronto, ON, Canada
Built trading algorithms as a contractor throughout university.
- **Trading Algorithm Development**: Worked with 5+ engineers to design and develop high-frequency trading algorithms with a daily order flow of $10M+, and used machine learning to improve their predictive accuracy.

PROJECTS

Alzheimer's Disease Detection Jul 2021 - Oct 2021
Built a deep learning model that detects Alzheimer's disease from MRI scans.
- **Deep Learning Image Classification**: Developed a deep learning model in *TensorFlow* and *Keras* to detect Alzheimer's disease from MRI scans, and compared architectures like *DenseNet121*, *ResNet50*, and *VGG16*.
- **Model Optimization**: Improved accuracy by **10%** with transfer learning, data augmentation, and Bayesian hyperparameter optimization.

Coleridge Initiative - Data Citation Extraction Mar 2021 - Jun 2021
Kaggle competition; silver medal; top 5%.
- **Natural Language Processing**: Developed a *BERT*-based text-to-text transformer model in *PyTorch*, with a CRF layer, to extract data citations.

Riiid! Answer Correctness Prediction Oct 2020 - Jan 2021
Kaggle competition; silver medal; top 3%.
- **Time-Series**: Compared *Transformer* and *LightGBM* models for predicting whether a student will answer a question correctly based on their historical answers, with an AUC score of **0.80**.

Walmart Sales Forecasting May 2020 - Aug 2020
Master's thesis project forecasting sales for Walmart products.
- **Time-Series**: Developed *LSTM* and *LightGBM* models to forecast sales for 3,049 Walmart products over the next 28 days, using historical sales data and explanatory features.
- **Optimization**: Tuned model hyperparameters using *Bayesian* optimization.

Genetic Variation of miRNA Primary Transcripts Apr 2017 - Aug 2017
Undergraduate thesis project on genetic differences in miRNA primary transcripts between human populations.
- **Genetic Study**: Looked at genetic differences in miRNA primary transcripts across human populations, analyzing 1,127 SNPs from 1,881 miRNA transcripts.
- **Data Analysis**: Used variance and the *Fixation Index (FST)* to measure genetic differentiation, and compared the "average of ratios" and "ratio of averages" ways of calculating genome-wide FST.

SKILLS

Concepts: Agentic Coding, Multi-Agent Orchestration, AI Agent Design & Development, Agent Tool Design, Fullstack & API Development, Evaluation & Testing, CI/CD, RAG, Time-Series Forecasting, Fine-tuning, Transfer Learning, Computer Vision, NLP
Soft Skills: Technical Leadership & Mentorship, Stakeholder Communication
Languages: Python, SQL, JavaScript, C#, R
Tools & Frameworks: LangChain/LangGraph, Databricks, MLflow, DevOps, GitHub Copilot, Cursor, Claude Code, Docker, Git, PostgreSQL, Pandas, NumPy, PySpark, PyTorch, TensorFlow, LightGBM, Scikit-learn, HuggingFace, OpenAI API, Azure, Flask, FastAPI

AWARDS

ICV Albrecht Deyhle Award for Controlling Excellence – ICV Apr 2026
Awarded to BASF for FOX, recognizing excellence in AI-driven financial controlling, automation, and digital transformation.

BASF 2025 Digital Award – BASF Jan 2025
Awarded for FOX Talk2Data project - innovation, impact, and enterprise-wide adoption.

EDUCATION

Toronto Metropolitan University (formerly Ryerson) – *Master of Science* Sep 2018 - Aug 2020
Data Science and Analytics – Toronto, ON, Canada **GPA: 4.33/4.33**
- **Thesis**: Monthly Sales Forecasting for Walmart with Advanced Machine Learning Techniques

University of Toronto – *Honours Bachelor of Science* Sep 2013 - Jun 2017
Bioinformatics (Specialist), Computer Science (Major) – Toronto, ON, Canada
Graduated with high distinction; University of Toronto Scholar Award
- **Thesis**: Detection of Genetic Variations in miRNA Primary Transcripts Using Statistical Analysis