Monhel Maudoony Pierre

AI/ML Engineer

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SUMMARY

AI/ML Engineer with 4+ years of experience shipping production machine-learning systems, from computer-vision and LLM pipelines to the data platforms and APIs behind them. PhD candidate in Computer Science (deep learning for medical imaging) with peer-reviewed publications, currently a researcher in brain-MRI segmentation and tractography at Université de Sherbrooke. Comfortable owning a model end to end: data collection, training, evaluation, deployment and monitoring. Works in English, French, Portuguese and Spanish. Available for remote roles part-time now and full-time from April 2027.

SKILLS

- Machine Learning: PyTorch, TensorFlow, Keras, LLMs, AutoML (FLAML), MLflow, Weights & Biases, feature engineering, genetic algorithms (DEAP)
- Computer Vision and Medical Imaging: OpenCV, MediaPipe, object detection (YOLO, RT-DETR, SSD-MobileNet), 2D/3D image segmentation, MRI, diffusion MRI, tractography
- LLM and Edge Inference: Ollama, llama.cpp (GGUF quantization), OpenAI API, faster-whisper, ONNX, TFLite, Jetson, Raspberry Pi
- Data Engineering: PySpark, Microsoft Fabric (Lakehouse, Data Factory), Apache Airflow, ETL/ELT, data-quality monitoring, Power BI
- Backend and Web: Django, Django REST Framework, Celery, Redis, REST APIs, Next.js, React, TypeScript
- Cloud and DevOps: Azure, GCP (App Engine, Firebase), Docker, CI/CD, Git
- Languages and Databases: Python, SQL, JavaScript, Java, C#, PHP, C; PostgreSQL, MySQL, SQL Server

EXPERIENCE

Researcher, Medical Image Analysis Nov 2026 - Present
Université de Sherbrooke, Sherbrooke Connectivity Imaging Lab | Sherbrooke, QC, Canada

- Develop deep-learning models for 2D and 3D segmentation of brain MRI.
- Process and analyze diffusion MRI (dMRI) data to characterize white-matter structure.
- Apply tractography to reconstruct white-matter pathways and study structural brain connectivity.

Developer and AI Engineer Feb 2025 - Present
Cosmetrics AI | Remote

- Built LLM and computer-vision pipelines that classify hair type from photos and drive cosmetics recommendations, powered by a TFLite hair-segmentation model.
- Split the system into recommendation, image-analysis and sentiment-scoring services behind Django REST APIs consumed by a Next.js/TypeScript front end.
- Automated training-data collection and labeling with web scraping (BeautifulSoup, Playwright), with monitoring for failures, schema changes and data degradation.
- Moved PDF report generation to Celery background workers so users keep working while reports build.

Developer and Data Scientist Feb 2023 - Present
TrendPrix Inteligência em Investimentos | Uberlândia, Brazil

- Maintain an ML pipeline of about 11 repositories: LSTM, SVM, MLP and fuzzy prediction models tuned with Weights & Biases sweeps, a portfolio-construction and backtesting engine, and a news-sentiment signal, automated end to end into PostgreSQL.
- Built the product API with Django REST Framework on GCP App Engine (Firestore, Firebase Auth), serving a Next.js/Capacitor PWA shipped to Android, iOS and the web.
- Integrated market data (yfinance, Alpha Vantage) and Mercado Pago subscription billing; built executive dashboards in Power BI.

Data Scientist and AI Engineer Nov 2025 - Oct 2026
LLZ Garantidora | Belo Horizonte, Brazil

- Built a liquidation-forecasting pipeline with adaptive-convergence AutoML (FLAML), leakage-free lagged features, chronological cross-validation and MLflow experiment tracking.
- Designed the company's Microsoft Fabric lakehouse (bronze, silver, gold) with PySpark notebooks and Data Factory / Dataflows Gen2 ingestion pipelines.
- Added data-quality checks for missing records, schema drift and ingestion failures; orchestrated pipelines with Apache Airflow.

- Tuned production PostgreSQL and connected Power BI through an Azure VM data gateway.

Freelance Full-Stack Developer Jan 2018 - Feb 2023
Self-employed | Haiti and Brazil

- Delivered full-stack systems for clients in Haiti and Brazil with ASP.NET, C#, React, SQL Server and Django, with CI/CD on Azure DevOps.
- Shipped an e-commerce storefront with live payments and a food-ordering app with Haitian mobile-money payments (MonCash, NatCash).

Earlier roles Mar 2020 - Oct 2021
Haiti

- IT Support and Mobile Developer, UEH Rectorate (Apr 2021 - Oct 2021): supported staff and systems, and improved the rectorate website for mobile (PHP, JavaScript).
- IT Specialist, Everest Apparel (Haiti) S.A. (Mar 2020 - Apr 2021): maintained servers, databases and plant-floor IoT systems.

PROJECTS

- Imob AI (2023 - 2025): Built a WhatsApp/Telegram assistant that answers real-estate leads, classifies intent, scores leads and hands off to staff. Runs a local-first LLM (Ollama) with OpenAI/Google fallback to cut inference cost, and transcribes voice notes with faster-whisper. Django, Celery, Redis, PostgreSQL, Docker; LGPD consent flow and 47 automated tests.
- Edge and on-device inference (2024 - 2025): Ran small LLMs (Qwen3-1.7B, Gemma 3 1B) on CPU-only machines with llama.cpp and Q4_K_M GGUF quantization, and deployed quantized ONNX vision models to Jetson and Raspberry Pi.
- jobfill (2025): Built an LLM-powered job-application filler: a Django API classifies each form field and answers from a stored resume, and a browser extension fills real forms in any language.
- ThamArt Bijoux (2025): Built a trilingual (PT/FR/EN) jewelry store with Next.js and Firebase, Mercado Pago Pix checkout, HMAC-validated webhooks and server-side price checks.

RESEARCH AND PUBLICATIONS

Research

- PhD research, Federal University of Uberlândia (2023 - Present): deep learning for brain-tumor detection in MRI, combining a cellular-automata preprocessing step with a genetic-algorithm-optimized (DEAP) multi-task CNN that classifies and localizes tumors.
- MSc thesis, Federal University of Uberlândia (2021 - 2023): real-time recognition of Brazilian traffic signs with SSD-MobileNet.
- Examination committee member, bachelor's thesis defense, UFU, 2026.

Publications

- Recognition of Brazilian traffic signs using SSD-MobileNet. Journal of the Brazilian Computer Society, 2024. doi.org/10.5753/jbcs.2024.3678
- AI in Education. Peer-reviewed journal article, 2026. doi.org/10.47236/2594-7036.2026.v10.1969

EDUCATION

PhD in Computer Science (Data Science and Computer Vision) 2023 - Present
Federal University of Uberlândia (UFU), Brazil

MSc in Computer Science (Computer Vision) 2021 - 2023
Federal University of Uberlândia (UFU), Brazil

BSc in Computer Science (Software Engineering) 2014 - 2019
State University of Haiti (UEH) | Valedictorian, ranked 1st in class

AWARDS AND GRANTS

- ELAP Scholarship (Emerging Leaders in the Americas Program, Global Affairs Canada), 2026 - 2027
- Honorable Mention, traffic-sign recognition poster, XVIII WTDCC graduate workshop, UFU, 2024
- OAS-GCUB Master's Scholarship (Organization of American States), 2021 - 2023
- FOKAL Scholarship, study support for Haitian students abroad, 2022 - 2024

CERTIFICATIONS AND LANGUAGES

Certifications: Microsoft Certified: Azure AI Fundamentals (2024); TOEFL ITP (2024)
Languages: French (native), English (fluent), Portuguese (fluent), Spanish (intermediate)