Andriamarolahy Rabetokotany

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SUMMARY

Machine Learning Engineer with experience architecting and owning end-to-end ML pipelines for high-impact applications. Proficient in Python, PyTorch, and fine-tuning transformer models on unique datasets. Passionate about developing creative solutions, from constructing agentic RAG workflows with LLMs to engineering deep learning models for complex data. Eager to collaborate with interdisciplinary teams to deliver real-time, actionable insights from model outputs.

SKILLS

Generative AI & LLMs: Agentic Workflows, RAG Systems, Vector Embeddings, Fine-Tuning, LLM Orchestration (langgraph/langchain), OpenAI API, NLP

AI/ML Frameworks: PyTorch, TensorFlow, Keras, Deep Learning, Model Tuning & Optimization

Programming & Data: Python, SQL, ETL Pipelines, Data Preprocessing & Cleaning

Tools & DevOps: Git, Docker, DVC, CI/CD (Conceptual), Cloud Deployment (AWS, GCP)

Languages: English (Conversational), French (Conversational), Malagasy (Native)

PROFESSIONAL EXPERIENCE

Exponen.ch (Remote)   April 2023 – April 2025
AI/ML Engineer

- ◆ Architected agentic workflows and RAG systems using LLMs and vector embeddings to deliver accurate, context-aware informational responses.
- ◆ Engineered and optimized deep learning models for medical imaging analysis, significantly improving the accuracy of detection tasks through rigorous experimentation and fine-tuning.
- ◆ Developed custom Python-based visualization and data processing tools to support retinal analysis and pre-processing of messy, real-world data.

Pulse Madagascar   Jan 2021 – April 2023
R&D Scientist

- ◆ Owned and deployed a production-level OCR pipeline that automated ID document classification and data extraction, reducing manual workload by 80%.
- ◆ Designed and iterated on novel ML prototypes, conducting experiments to enhance model accuracy and performance on challenging datasets.
- ◆ Proactively tracked advances in AI/ML, advising an interdisciplinary team on adopting new techniques to solve complex business problems.

Sonatel Group Senegal   May 2018 – Oct 2018
Data Science Intern

- ◆ Developed a full-stack AI prototype for classifying ECOWAS IDs, owning the project from data wrangling and ETL to model training and deployment.
- ◆ Improved model accuracy by optimizing data preparation and feature engineering techniques, leading to faster and more reliable identity verification.

PROJECTS

Agentic RAG Chatbot | *Link* ↗   2025

- ◆ Engineered an agentic workflow where a chatbot intelligently determines whether to query an embedding database for context or answer directly.
- ◆ Constructed a full document processing pipeline with semantic indexing for a RAG system, implementing conditional routing logic for optimized performance.

Podcast Summarizer │ *Link* ⧉   2023
  ◆ Built and deployed an application leveraging OpenAI's Whisper (transformer model) for automated transcription and summarization of audio content.

Tomato Ripeness Detection │ *Link* ⧉   2025
  ◆ Deployed a real-time object detection system using a fine-tuned YOLO model for automated crop monitoring, demonstrating skills in applying deep learning to real-world, unstructured data.

E D U C A T I O N

AMMI, Rwanda │ *Master's in Machine Intelligence*   2019 – 2020
  ◆ **Thesis**: "Evaluating Modern Unimodal Baselines for Visual Question Answering"

AIMS, Senegal │ *Master's in Mathematical Sciences*   2017 – 2019
  ◆ **Thesis**: "Evaluating Modern Unimodal Baselines for Visual Question Answering"

C E R T I F I C A T I O N S

Building AI Products with OpenAI │ *Uplimit*   August 2023
  ◆ Architected a service to process unstructured data (podcast audio) and deliver structured, actionable outputs (summarized newsletters).

Neural Networks and Deep Learning │ *DeepLearning.AI*   May 2022
  ◆ Gained foundational expertise in developing, training, and deploying deep learning models using Python and standard frameworks.

W O R K S H O P S   &   S E M I N A R S

SEAMS Workshop │ *AIMS South Africa*   Nov-Dec 2018
  ◆ Acquired advanced technical training in Python HPC workflows, software efficiency, and collaborative project planning for complex problem-solving.

Seminars │ *AIMS Senegal*   Jan-Apr 2018
  ◆ Explored entrepreneurial strategies for technology solutions and emerging innovation frameworks.