HOUSSEM EDDINE BAYOUDHA

8 Essadikeya Street, Fouchana, Tunisia | housembayoudha@gmail.com | +216 23483895

 Houssem-Bayoudha | houssem-eddine-bayoudha.me | houssemeddinebayoudha

Generative AI/ Machine Learning ENGINEER

Professional Summary

Generative AI Engineer and Machine Learning Specialist with proven experience building end-to-end solutions leveraging LLMs, VLMs, and advanced deep learning. Skilled in LangChain, LangGraph, custom LLM pipelines, reinforcement learning, and computer vision. Proficient in PyTorch, TensorFlow, and modern GenAI tools, with applications in energy optimization and sports analytics. Driven to solve complex challenges.

Experience

Generative AI Engineer : Inveniam – Paris, France · *Remote*   **Starting Feb 2025**

- Explored and proposed integration strategies for Generative AI across internal workflows, enhancing operational efficiency.
- Built and deployed an agentic solution using LangGraph to transform natural language input into NoSQL queries, generate plots, and produce descriptive insights.
- Developed and evaluated proof-of-concept applications using Vision Language Models (VLMs) for advanced OCR and automated image annotation.

Machine Learning Research Intern : University of Passau – Passau, Germany   **Mar 2024 – Sep 2024**

- **Project**: Optimization of Hybrid Energy Storage Systems (HESS) using reinforcement learning.
- Awarded DAAD KOSPIE Tunisia Scholarship for academic excellence.
- Developed a novel reinforcement learning algorithm optimizing HESS power distribution from renewable sources (solar, wind), enhancing energy efficiency by 5%.

Data Scientist : RealAnalytics – Liverpool, UK · *Remote*   **Jun 2023 – Oct 2023**

- Applied Soft Actor-Critic (SAC) algorithm in an online setting to enhance data collection processes.
- Developed and trained a Conservative Q-Learning SAC (CQL-SAC) policy model in offline settings, achieving performance parity with leading libraries (D3RLPy, CleanRL).

Machine Learning Engineer : Magaztee – Tunisia · *Remote*   **Jul 2022 – Nov 2022**

- Performed data cleaning and augmentation using Albumentations, increasing dataset quality and diversity.
- Designed and optimized a PyTorch-based CNN (ResNet) for image classification.
- Deployed model for a major French telecommunications provider, improving classification accuracy by 21.25%.

Education

The Private Higher School of Engineering and Technology – Ariana, Tunisia   **Graduation Aug 2024**

- Engineering Degree in Information Technology – Data Science Specialization
- **Honors**: Ranked among the top students in the program.
- **Notable Coursework**: Machine Learning, Deep Learning, Data Mining, Statistical Analysis, Big Data Technologies.

Skills

Generative AI: LangChain, LangGraph, RAG, Agentic Workflows, LLM Fine-tuning, Prompt Engineering, VLMs
ML/DL & CV: PyTorch, TensorFlow, Keras, Scikit-learn, NNs, Transformers, Matplotlib, Seaborn, Plotly, Gradient-Boosting
Data Engineering & DevOps: Docker, Git, Jenkins, Spark, Hadoop, Hive, SQL, MongoDB
Cloud & Web Dev: Google Cloud (GCP), Vertex AI, BigQuery ML, Django, Streamlit, Flask, HTML, CSS
Programming Languages: Python, C#

Certificates

- Machine Learning Specialization – Stanford University & DeepLearning.AI (Coursera)
- Deep Reinforcement Learning Course (Certificate of Excellence) – Hugging Face
- NVIDIA DLI Certificates: Transformer-Based NLP Applications; AI for Anomaly Detection
- Generative A.I., from GANs to CLIP, with Python and Pytorch – Udemy

Languages

English (C1 Advanced)   **French** (B2 Upper Intermediate)   **Arabic** (Native)   **German** (A1 Basic)