Walid BENMAAROUF

Location: Saint-Étienne, France
Role: AI/GenAI Engineer
in LinkedIn Profile
✉ walid7benmaarouf@gmail.com
📞 +33 (0)7 58 47 97 96

SUMMARY: GenAI Engineer currently building production-grade RAG architectures and multi-agent systems at Amadeus. I combine Large Language Models with deterministic mathematical engines to solve complex financial automation challenges on AWS.

PROFESSIONAL EXPERIENCE

AI/GenAI Engineer, *Apprenticeship*

Amadeus, Bel Air — *September. 2025 – Present.*

- **Production GenAI Architecture:** Designed and deployed scalable GenAI systems on **AWS** (Bedrock, SageMaker, Lambda, Glue, S3) for airline financial reporting.
- **Advanced RAG Pipelines:** Built multimodal ingestion pipelines extracting structured text from large PDF batches using screenshot-based prompts.
- **Deterministic Logic Integration:** Built a hybrid system combining LLM JSON generation with rule-based mathematical engines for 100% arithmetic accuracy.
- **Multi-Agent Systems:** Developed a correction engine querying large **Spark** tables to detect inconsistencies using historical cross-checks.
- **Optimization & DevOps:** Built cost-optimized ingestion-to-inference pipelines with YoY/QoQ reconciliation, reducing cloud spend significantly.

Software Developer, *Internship*

DEF-SYSTEMES, Saint-Étienne — *May. 2024 – August. 2024*

- Maintained and optimized a legacy genealogy software in **C++**, focusing on memory management and code efficiency.
- Implemented unit and integration testing pipelines to ensure software reliability prior to release.

EDUCATION

INSTITUT MINES-TÉLÉCOM Saint-Etienne,

Master of Engineering - Major in Computer Vision & CS — *2023 - Present*

- **Focus:** Advanced Image Processing (2D/3D), Computer Vision, Supervised Learning, Statistical Modeling, and Optimization.
- **Engineering:** Development of robust AI algorithms for intelligent web applications and large-scale visual database management.

CPGE Ibn Ghazi, Fès, Morocco,

Classes Préparatoires aux Grandes Écoles (Intensive Undergraduate) — *2021 - 2023*

- Major: Mathematics & Physics (MPSI/MP). Intensive preparation in abstract mathematics and logic.

PROJECTS

MIMESTIS: AI Mentor for Experiential Learning `GitHub Repo`,

Institut Mines-Télécom Saint-Étienne — *Feb. 2025 – June. 2025*

- Developed a **RAG** system for an intelligent mentor, processing codebases and technical documentation via **LangChain** and embeddings.
- Deployed a full pipeline (ingestion, Qdrant vectorization, dynamic querying) in a containerized **Docker** environment.

Facial Age Estimation Pipeline `GitHub Repo`,

Institut Mines-Télécom Saint Etienne — *Feb. 2025 – May. 2025*

- Built a deep learning pipeline for facial age prediction using CNNs and image processing techniques.
- Implemented feature extraction (discriminant descriptors) via facial segmentation and gradient analysis; benchmarked using stratified cross-validation.

TECHNICAL SKILLS

Cloud & DevOps: AWS (Bedrock, SageMaker, Lambda, Glue, S3, IAM, Step Functions), Docker, Kubernetes, CI/CD
AI & GenAI: LLMs, RAG (LangChain, Qdrant, FAISS), Multi-Agent Systems, Prompt Engineering, Embeddings
Data Engineering: Apache Spark, Python modular micro-services, JSON structured generation, Airflow
Programming: Python (TensorFlow, PyTorch, Scikit-Learn), C/C++, SQL, Java
Computer Vision: CNNs, OpenCV, Object Detection, Image Segmentation
Languages: English (Advanced/Professional), French (Bilingual), Arabic (Native)

INTERESTS

Development of utility AI tools (Self-hosted RAGs), Game Dev (C++/OpenCV), 3D Modeling, Logic Puzzles.