

Bassem Ben Hamed

Full Professor of Artificial Intelligence | Entrepreneur | Consultant & Senior Trainer

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Profile

PhD in Mathematics (Toulouse, 2006) and Full Professor, I combine research, entrepreneurship and hands-on client work around artificial intelligence. **Co-founder of two companies** — DataCamp Training & Consulting and Digital Innovation Partner (Sfax & Basel) — I deliver **consulting engagements** (generative & agentic AI, MLOps, real-time data platforms, computer vision) and run **corporate training programmes** for large accounts: **more than 90 sessions delivered since 2018**.

Entrepreneurial track record

Co-founder & Team Manager | **Digital Innovation Partner (DIP)** Sfax, Tunisia & Basel, Switzerland *Since Feb. 2022*

- Founded and run an innovation consultancy operating between Tunisia and Switzerland: service offering, business development, hiring and management of the engineering team.
- Lead applied research, technology benchmarking and engineering (generative & agentic AI, MLOps, data platforms, SRE), technical direction of client engagements and tailored training (**DIP-Lab**: MLOps, SRE, ML for DevOps).

Co-founder & Data Scientist | **DataCamp Training & Consulting** Sfax, Tunisia *Since Jan. 2020*

- Founded a training and consulting practice dedicated to digital transformation, AI, Big Data and MLOps; built the course catalogue and the instructional design.
- Grew a portfolio of **large accounts**: banking (BIAT, STB, ATB, BTL, BNA Assurance, Tunis International Bank, ODDO BHF), telecoms (Tunisie Télécom, Orange Tunisie, Topnet), industry (Sagemcom, Médis) and public bodies (Ministries of ICT and Defence, La Poste Tunisienne).
- Designed certification tracks (Huawei HCIA-AI, CDOSS MLP) and coached client data teams to autonomy.

Selected consulting engagements

Agentic Advanced RAG system over a knowledge graph — Investment bank, finance *2026*

- **LangGraph** agentic architecture over a **Neo4j** knowledge graph (LLM-based entity extraction); hybrid **GraphRAG** retrieval (vector + BM25 + Cypher traversal) for multi-hop reasoning.
- Query decomposition, cross-encoder reranking, corrective loop and *groundedness check*; fully sourced answers, **RAGAS** evaluation, LLM behind an OpenAI-compatible API (cloud or on-premise).

End-to-end real-time data platform — Vectorys, logistics & transport *2026*

- Containerised streaming stack on **Kubernetes**: **Kafka** (KRaft) → **Spark Structured Streaming** → **Iceberg**/MinIO → **Trino** → **Streamlit** dashboard (10 s refresh).
- **Airflow** orchestration: pipeline supervision, Iceberg maintenance, data quality checks, replay and alerting.

DeepCath — AI analysis of coronary angiograms — Sfax University Hospital, cardiology *2024*

- Deep learning pipeline from raw angiographic video to a **generated medical report**: **U-Net** segmentation, keyframe extraction, CNN classification, stenosis detection and grading (**YOLOv8**, Vision Transformer), report generation with **Transformers**.
- Built and released the annotated **DataCath** dataset; scientific output (international publications, award-winning conference posters).

GPU inference optimisation & refactoring of a vision service — Anavid, computer vision / retail *2023*

- Diagnosed memory leaks (**tracemalloc**, GPU profiling) on a shoplifting-detection pipeline crashing every two hours; explicit TensorFlow session release and per-GPU workload sizing.
- Refactored into a **FastAPI/Uvicorn** service with **supervisord** resilience: **continuous inference** and a deployable code base.

End-to-end 100 % open source MLOps pipeline — Swiss Digital Network, digital consulting (Switzerland) *2022*

- From commit to served model: **DVC**/DagsHub, **MLflow**, **Deepchecks**, **Jenkins** CI/CD, containerised **FastAPI** + **Streamlit** serving, **Kubernetes** deployment, **Grafana** monitoring and **Arize** drift tracking; reproducible demonstrator handed over as an open source reference architecture.

Data science coaching — AI for customer intelligence — Tunisie Télécom, telecommunications *2022*

- **RFM** segmentation and **K-Prototypes** clustering, propensity scoring (cross/up/down-selling) and **LTV** modelling; internal team made autonomous across the full model lifecycle.

Senior corporate trainer — more than 90 sessions since 2018

Certified senior instructor (Huawei HCSI / HCAI, CDOSS), delivering in corporate, public-sector and academic settings.

Banking & insurance	BIAT, STB, ATB, BTL, BNA Assurance, Tunis International Bank, ODDO BHF, La Poste Tunisienne — *ML & DL for Finance, fraud detection, AI agents & Power Automate, generative AI.*
Telecommunications	Tunisie Télécom (multi-year programme since 2021), Orange Tunisie, Topnet — *ML for telecoms, advanced data mining, prompt engineering & generative AI.*
Industry & public sector	Sagemcom, Médis, EY Tunisia (Innovatech CUP), Ministry of ICT (national Huawei HCIA-AI programme), Ministry of Defence, Naval Academy — *ML, statistics, Python for Data Science, from LLMs to agents, deep learning & generative AI.*
Training providers	Elitech Paris, Elite Conseil, Beta Training, Clevory Training, Vertilearn, Softway, CSF Formation, Successway, BiGeek, TTAD, Bem Qualitas, Simop, DIP-Lab.
Higher education	ENET'Com, ENIS, ENIT, ESPRIT, ISI Ariana, IPSAS, ESC & ISGI Sfax, ESST Hammam Sousse, ISSAT Mahdia, ISET Tataouine, Universities of Jendouba, Tunis and Sfax, CIMPA School, LETI and SETIT labs.

Topics — ML • Deep Learning • reinforcement learning • generative AI, LLMs & agentic systems • prompt & agentic engineering (Claude Code) • NLP • data analytics • Big Data • MLOps.

Academic & professional background

Full Professor | **ENET'Com** Sfax, Tunisia *Since Sep. 2012*

- **Head** of the Mathematics and Decision Computing department (2016–2020) and **programme director** of the Data Engineering and Decision Systems engineering degree (2017–2020).
- Teaching: AI, machine learning, deep learning, reinforcement learning, Big Data, MLOps, Python, R, mathematics for data science and optimisation.
- **Doctoral supervision**: 10 PhD theses completed, 3 ongoing (AI in interventional cardiology, IIoT intrusion detection, ethical bias in models, medical imaging, continual learning). **Research output**: 23 international journal articles (8 ranked Q1) and 15 peer-reviewed conference papers (ICIP, ISCC, ICCCI, ICPRAM, AICCSA).

Trainer & Consultant | **Elitech Group** Paris, France *June 2018 — June 2021*

Head of professional training in Big Data and Data Science; reskilled the group's consultants towards Data Analyst, Data Scientist and Big Data Architect roles.

Artificial Intelligence Expert | **Enoving Strategy & Innovation** Paris, France *Since Jan. 2019*

Artificial intelligence expert assignments in the healthcare sector.

Education

Habilitation (HDR) in Mathematics — Faculty of Sciences of Sfax, Tunisia *June 2013*

PhD in Mathematics — Université Paul Sabatier, Toulouse, France *Dec. 2006*

M.Sc. (DEA) in Mathematics — Université Paul Sabatier, Toulouse, France *June 2003*

International certifications

Huawei ICT Academy	**HCSI** — Certified Systems Instructor, AI *(2021)* • **HCAI** — Certified Academy Instructor, AI *(2019)* • **HCIA** — Certified ICT Associate, AI *(2019)*
CDOSS	**MLOps** — Machine Learning in Production *(2023)* • **PDS** — Python for Data Science *(2022)* • **DL** — Deep Learning *(2021)* • **BDMLAS** — Big Data ML with Apache Spark *(2021)* • **MLP** — Machine Learning with Python *(2021)*

Technical skills

Languages	Python, C, Scala, SQL, Cypher, R
AI & Deep Learning	TensorFlow, Keras, PyTorch, scikit-learn, Hugging Face Transformers, YOLO, U-Net, Vision Transformers
Generative AI & agents	LangGraph, LangChain, RAG & GraphRAG, Neo4j, vector stores, cross-encoder reranking, RAGAS, prompt engineering, Claude Code
Data & Big Data	Kafka, Spark (Structured Streaming), Apache Iceberg, Trino, Hadoop/HDFS, Hive, MinIO/S3, SQL Server
MLOps & DevOps	MLflow, DVC, DagsHub, Deepchecks, Airflow, Jenkins, GitHub Actions, CI/CD/CT, Docker, Kubernetes, Kubeflow, Grafana, Arize
Development	FastAPI, Uvicorn, Streamlit, Git/GitHub, VS Code, supervisord, Jupyter, Neo4j
Soft skills	Team leadership, client scoping, instructional design, knowledge transfer, problem solving
Languages spoken	Arabic (native) • French (bilingual) • English (professional)