

# MEHDI KHABOUZE

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## SUMMARY

Computer Science Engineering student at **TU Berlin** specializing in **AI and Machine Learning** with hands-on experience building semantic search systems and GPT applications. Developed production RAG systems processing 1,000+ technical documents using Sentence Transformers and fine-tuned embedding models (70% efficiency gain), implemented log analysis systems for real-time monitoring, and contributed to open-source ML research (Linux Foundation RTDIP). Strong foundation in Python, C, and Java with expertise in model development, semantic code understanding, and research-driven prototyping. Seeking to apply my engineering expertise in a **6-month internship**.

**Semantic Code Search & NLP | Machine Learning & Model Fine-tuning | RAG Systems Development |  
Log Analysis & Event Summarization | Python & Software Engineering | Research & Prototyping |  
Android Automotive (Learning)**

## TECHNICAL SKILLS

Programming Languages: Python | C | Java | JavaScript | PHP

ML/AI & NLP: PyTorch | TensorFlow | scikit-learn | Hugging Face | Sentence Transformers | LangChain | OpenAI APIs

Data Engineering: Spark | PySpark | Pandas | NumPy | PostgreSQL | Qdrant | Vector Databases

Development & Deployment: FastAPI | Docker | Git/GitHub | REST APIs | Linux | Jupyter

Security: Network Security | Access Control | Security Monitoring

## EXPERIENCE

PAPE-DAWSON ENGINEERS

San Antonio, Texas, U.S.A

Data / AI Engineering Intern .....

May 2025 - Oct 2025

- Designed and developed two production-grade RAG systems using Python, FastAPI, Docker, and Qdrant for semantic search across 1,000+ technical proposals and intelligent employee-project matching.
- Built automated data ingestion pipelines with PDF/JSON extraction, vectorization using Sentence Transformers, and multi-criteria filtering capabilities.
- Integrated SharePoint/OneDrive APIs and deployed containerized REST APIs, enabling seamless document retrieval and search functionality.
- Reduced proposal search time by 70% and improved project staffing efficiency.

MOROCCAN PENSION FUND

Rabat, Morocco

Network Security & Infrastructure Intern.....

May 2024 - Aug 2024

- Created and deployed a secure guest portal serving 200+ monthly visitors with automated provisioning on Aruba ClearPass.
- Developed a real-time network traffic monitoring interface to enhance security visibility and threat detection.
- Implemented access control policies and network segmentation strategies to strengthen infrastructure security.
- Collaborated with IT teams to document network architecture and security protocols.

AQUITAINE ÉLECTRONIQUE INFORMATIQUE (JUNIOR-ENTERPRISE)

Bordeaux, France

Technical Consultant .....

2024 - 2025

- Designed and executed technical studies and consulting projects for multiple enterprise clients.
- Provided expertise in software development, system architecture, and digital solutions.
- Delivered client-facing presentations and technical documentation to support project implementations.

## PROJECTS

- RTDIP Forecasting Components**(Python, Spark, PySpark): Contributed open-source time series forecasting modules with anomaly detection and ML modeling to Linux Foundation's Real-Time Data Ingestion Platform.

- **Distributed Shared Memory System** (*C, Network Sockets*): Engineered distributed memory system enabling shared memory access across networked machines with dynamic page transfer and access rights management.
- **Multi-User Chat Application** (*C, Network Sockets*): Built real-time messaging application with client-server architecture managing concurrent connections and message broadcasting.
- **Barcode Detection & Recognition** (*Python, Computer Vision*): Created automated barcode detection system with image processing, pattern recognition, and database integration for inventory tracking.
- **Signal Classification Application** (*MATLAB, Python, DSP*): Developed signal analysis tool using Detrended Fluctuation Analysis for ECG classification with feature extraction and visualization.
- **Pac-Man Game** (*C, SDL2*): Designed interactive game with AI algorithms for ghost movement, collision detection, and optimized performance on MacOS.
- **Schotten Totten Card Game** (*Java, AI*): Implemented strategic card game with rule enforcement, game state management, and AI opponent using heuristic algorithms.

## EDUCATION

TECHNICAL UNIVERSITY OF BERLIN (TU BERLIN)

BERLIN, GERMANY

**Master of Computer Science Engineering**

OCT 2025 - 2026

- Exchange semester at one of Germany's top technical universities.
- Specialization in Artificial Intelligence and Security: Deep Learning, System Security, and Advanced Software Engineering.

ENSEIRB-MATMECA BORDEAUX INP

BORDEAUX, FRANCE

**Master of Engineering in Telecommunications**

2023 - 2026

**Bachelor of Engineering Sciences**

2023 - 2024

- Accredited by the Commission des Titres d'Ingénieur (CTI) with EUR-ACE label.
- Specialization in Cybersecurity with focus on computer science, networks, digital communications, and signal/image processing.
- Minimum 17-week international mobility requirement.

## CERTIFICATIONS

TOEIC English Proficiency (975/990 - C1 Level)

CompTIA Network+

Stanford Machine Learning Specialization

Harvard Computer Science CS50p

## LANGUAGES

Fluent in English, French and Arabic. Conversant in German.

## HOBBIES

Fitness & Sports (Fitness, Football)

Finance & Investment

Automotive Enthusiast

International Travel (21 countries visited)