

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)