

Mohamed Amine Ghorbali

Software Engineering Student

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Dedicated Software Engineering student specializing in Data Science with a proven ability to develop and deploy AI/ML systems. Experienced in deep learning, real-time inference.

EDUCATION

ESPRIT – Private Higher School of Engineering and Technology

Software Engineering Degree – Specialization in Data Science

Tunis, Tunisia

Sep 2023 – Expected Jun 2026

ISI Ariana – Higher Institute of Computer Science

Bachelor of Computer Science

Ariana, Tunisia

Sep 2020 – Jun 2023

WORK EXPERIENCE

Software Engineer Intern

[ESPRIT University](#)

Tunis, Tunisia

June 2024 – July 2024

- **Summary:** Built a real-time sign language to text translation system using deep learning. Designed a two-stage pipeline combining visual feature extraction and sequence modeling for end-to-end gesture recognition.
- **Achievements:**
 - * Engineered CNN architectures for precise spatial encoding of sign language video frames, achieving over 90% accuracy.
 - * Developed and optimized RNN-based models (LSTMs) for temporal sequence interpretation, accurately capturing dependencies in complex sign language gestures.
 - * Trained and fine-tuned a gloss-to-text decoder, leveraging Transformer-based sequence-to-sequence models, to generate fluent natural language from recognized signs.
- **Stack:** PyTorch, CNN, RNN (LSTM), Transformers, Python, Git, Linux, CRISP-DM.

Software Engineer Intern

[CognitionHex](#)

Tunis, Tunisia

June 2023 – September 2023

- **Summary:** Developed a comprehensive e-commerce platform for game developers and digital artists, focusing on scalable backend architecture and data management.
- **Achievements:**
 - * Architected and implemented a full-stack e-commerce solution using Laravel (backend) and React (frontend), delivering key features for user and product management.
 - * Designed and deployed a MySQL database schema optimized for efficient querying of user accounts, product catalogs, and transactional data.
 - * Developed responsive UI components using React, ensuring a smooth user experience and efficient data display.
 - * Implemented secure payment integration and robust user authentication systems.
- **Environment:** Laravel, MySQL, React, jQuery, RESTful APIs, Postman, Git, Agile (Scrum), AWS.

ACADEMIC PROJECTS

PneumaTect - AI-Powered Pulmonary Nodule Detection and Classification

[ESPRIT University \(GitHub\)](#)

Tunis, Tunisia

January 2025 – May 2025

- **Role:** Project Manager / Data Scientist
- **Summary:** Designed and deployed an AI-powered 3D image analysis platform using Laravel for backend logic and UI rendering, and FastAPI for serving deep learning models. Built a full pipeline for segmentation, classification, and inference.
- **Key Achievements and Features:**
 - * Leveraged 3D U-Net with Multi-Scale Attention (CBAM) for detecting pulmonary nodules in 3D CT scans.
 - * Employed 3D CNN models for classifying nodules (malignant/benign) and further sub-typing lung cancers.
 - * Developed models to predict cancer risk, stage, mortality, and lung function decline.
 - * Engineered an end-to-end system with API and UI integration for model deployment.
- **Environment:** Python, TensorFlow, Keras, 3D U-Net, CBAM, 3D CNNs, MobileNetV2, ResNet50, DICOM, FastAPI.

PERSONAL PROJECTS

Fine-tuning LLM for Financial Report Analysis & Summarization

Personal Project

[GitHub Repository](#)

April 2024

- **Summary:** Fine-tuned a domain-specific LLM (LLaMA 2) to analyze SEC financial filings (10-K, 10-Q), extract structured financial metrics, identify trends, and produce executive summaries.

- **Achievements:**

- * Curated a dataset of annotated financial filings using the SEC EDGAR API and regular expressions for entity extraction.
 - * Achieved 91% extraction accuracy for revenue, net income, EPS, and related financial metrics.
 - * Generated MD&A section summaries rated 85%+ in clarity and factual correctness by domain experts.
 - * Enabled automatic trend detection and risk flagging through in-context financial language modeling.

- **Stack:** Python, PyTorch, Hugging Face Transformers, LoRA, Pandas, NumPy, spaCy, SEC EDGAR API, Vector DBs.

End-to-End MLOps Pipeline for Real-Time Customer Churn Prediction

Personal Project

[GitHub Repository](#)

February 2024

- **Summary:** Designed, built, and deployed an end-to-end MLOps pipeline for real-time churn prediction using simulated telecom customer data streams. Integrated CI/CD automation, scalable model serving, and continuous monitoring with retraining based on data drift.

- **Achievements:**

- * Deployed reproducible pipelines using GitHub Actions, DVC, and MLflow for continuous integration and model tracking.
 - * Achieved real-time inference throughput exceeding 1000 customer records/second with sub-500ms latency using Kafka and FastAPI.
 - * Enabled automated retraining and redeployment triggered by drift metrics monitored through Prometheus.
 - * Reduced manual model maintenance by over 90% with containerized services orchestrated via Kubernetes.

- **Stack:** Python, PyTorch, Kafka, MLflow, DVC, FastAPI, Docker, Kubernetes, Prometheus, Grafana, AWS/GCP.

AI-Enhanced Fitness & Wellness Advisor

Personal Project

[GitHub Repository](#)

March 2023

- **Summary:** Developed a personalized workout/meal plan recommendation engines (ML), predictive progress models, and a Transformer-based chatbot for fitness/nutrition queries.

- **Achievements:**

- * Successfully developed and launched a feature-rich platform allowing users to comprehensively set and track fitness goals, manage diet plans, and monitor progress.
 - * Designed and trained predictive models forecasting user fitness progress with over 3-month intervals.
 - * Engineered collaborative filtering and content-based recommendation algorithms improving plan personalization accuracy.

- **Stack:** Laravel, MySQL, React, Python, Scikit-learn, Pandas, PyTorch, REST API, Git, Docker.

TECHNICAL SKILLS

Programming Languages: Python (Advanced), C++, PHP, JavaScript, R

AI/ML Libraries & Frameworks: PyTorch, TensorFlow, Scikit-learn, Hugging Face Transformers, Pandas, NumPy, spaCy, NLTK, OpenCV, MLflow, DVC

ML Architectures & Techniques: Deep Learning, CNN (3D U-Net, 3D CNNs), RNN (LSTM), Transformers (BERT, LLaMA 2), LoRA, CBAM, NLPs

Developer Tools & Platforms: Linux, AWS, GCP, Git, Docker, Kubernetes, Kafka, FastAPI, Prometheus, Grafana, Postman

Full-Stack & Databases: Laravel, React, Symfony, MySQL, MongoDB, jQuery, Bootstrap

Languages: Arabic (Native), French (Fluent), English (Proficient)