Software Engineer, AI and data science student

Mohamed Amine Fakhre-Eddine, 21

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Salé, Morocco

Software Engineer, and AI & data science student with a keen interest in Cybersecurity, and Robotics, as well as a detailed knowledge of AI concepts and architectures, and multiple collaborations in the software engineering world.

Technical skills

Programming languages	C, Python, Java, PHP, Typescript/Javascript
Machine learning / Deep learning	Keras, Numpy, Pandas, Scipy, Scikit-learn, Matplotlib
Databases	MySQL, PostgreSQL, Oracle Database + SQL Developer, SQLite
Web backend	AdonisJS, Flask
Web frontend	Svelte (Sveltekit), Astro, Tailwind, HTML/CSS
Version control	Git
Mobile	Native android development
BI / Data analysis	MS Excel + @Risk, Power BI, KNIME
Project management	Linear, MS project
Communication	Arabic (Native proficiency), English (Professional working proficiency), French (Professional working proficiency), German (Limited working proficiency)

Education

Masters in Artificial Intelligence and Data Science October 2023 - Present
Faculty of science and technology - Tanger

Relevant coursework: Machine learning, Mathematics for data analysis, Distributed systems infrastructure and architecture, Natural language processing, Metaheuristics & stochastic search algorithms

Bachelor in Information Systems and Digital Transformation September 2022 - July 2023
Faculty of science and technology - Settat

Relevant coursework: Oriented Object Programming, Advanced databases, Web development, Native android development, Information systems architecture, Digital marketing, Project management, Business intelligence

DEUST (University scientific and technical studies diploma) October 2020 - July 2022
Mathematics, Computer science, Physics
Faculty of science and technology - Settat

Relevant coursework: Procedural Programming, C programming language, Data Structures and Algorithms, Calculus, Statistics, Algebra

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Projects

Faculty chatbot — Academic project June 2024
Website: github.com/Samashi47/FSTT-LLM-Chat-Bot

A chatbot for the Faculty of Sciences and Techniques of Tangier (FSTT) using a combination of retrieval-augmented generation (RAG) and fine-tuning techniques. The chatbot is designed to provide accurate and contextually relevant responses to a wide range of queries related to the academic environment at FSTT. The RAG technique is used to extract information from PDF files and generate responses based on the context derived from these embeddings. The fine-tuning process involves adapting pre-trained language models (Llama 3 8B instruct) to understand and generate text specific to the academic context of FSTT. The chatbot is integrated into a user-friendly interface that allows users to choose between the RAG and fine-tuned models based on their preferences or needs. It was developed using a wide range of tools and technologies, including Hugging Face, PyTorch, Kaggle, Google Colab, Unsloth, Langchain/Langserve, SvelteKit, ChromaDB, MongoDB, and Docker. The architecture of the chatbot consists of three Docker containers: the User Interface (UI) container, the API container, and the Model container. The chatbot is deployed using a MongoDB database to store app-specific data, such as conversations and history.

Twitter sentiment analysis app — Academic project May 2024
Website: github.com/aL0NEW0LF/twitter-sentiment-analysis

Twitter Sentiment Analysis system that leverages a Kafka and Spark pipeline to ingest and analyze Twitter posts in real-time, providing instant sentiment predictions using a pre-trained logistic regression model with cross validation. The user-friendly web interface, developed with Svelte, allows users to initiate and view sentiment analysis jobs. A Flask-based RESTful API facilitates communication between the interface, the processing system, and a MongoDB database that stores prediction results. The entire system is containerized using Docker for seamless deployment and orchestration with Docker Compose, ensuring high portability and manageability.

Smart Poultry Farming with Edge AI for Real-Time Monitoring — Article April 2024 - May 2024
Website: Article

A theoretical framework integrating Edge AI and IoT technologies to monitor and manage poultry farming in real-time. The system uses sensors, edge computing devices, and cloud services to optimize environmental conditions and ensure poultry health. Key features include GRU and CNN models for predicting gas concentrations and assessing animal weight and health, aiming to enhance efficiency, reduce costs, and support sustainable poultry farming practices.

Vibration signal characterization and diagnostics, and development of a Machine Learning model to predict industrial machine faults. — End-of-studies project April 2023 - June 2023
Website: github.com/aL0NEW0LF/Visualization-Machine_Learning

Collaborated on a project with the Mechanical Engineering department to analyze vibration data from rotating machinery, aiming to detect faults without causing damage. Worked in a duo, visualized and statistically analyzed the data, and developed an RNN-based machine learning model for fault detection. Delivered source code, detailed report, and summary presentation. It was developed using Python and libraries like Matplotlib, Numpy, Pandas, Scipy, Keras, Scikit-learn.

Eghata — A volunteer connection platform Since September 2023
Website: eghata.com — github.com/Stormix/eghata

Eghata is a transformative project in Morocco, it addresses crises like the Moroccan earthquake and Libya floods, aiming to efficiently connect volunteers with those seeking help worldwide. I participated in initial brainstorming, contributed to UI development, and helped create API endpoints. It was developed using Typescript, React, AdonisJS, PostgreSQL, Redis, CapacitorJS, Tailwindcss.

Data playground - Desktop — Academic project December 2023 - January 2024
Website: github.com/aL0NEW0LF/data-playground-desktop

The data-playground-desktop project is a user-friendly desktop application designed for analyzing diverse datasets, such as the Titanic dataset. It allows users to upload their datasets, provides tools for data preprocessing and visualization, divides datasets into training and testing subsets, and allows training and testing of machine learning models. The project, developed using Python, integrates dependencies like Pandas, Scikit-learn, numpy, and Matplotlib for visualization. The workflow involves uploading data, preprocessing it, segmenting the dataset, selecting an algorithm, training and testing the model, and examining the results.