Kacem Mathlouthi

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Professional Summary

Software Engineering student at INSAT with practical experience in AI and machine learning. Developed diverse solutions, using AI Agents, Convolutional Neural Networks, and RAG chatbot systems. Achieved recognition in multiple hackathons and competitions, showcasing a strong ability to create innovative tools and apply AI across industries like cybersecurity, insurance, agriculture, and developer tools. Passionate about building and deploying software and AI solutions that deliver meaningful results.

Education

National Institute of Applied Science and Technology *Sept 2022 – May 2027*
BS in Software Engineering

- **Coursework:** Data Structures and Algorithms, Relational Databases, NoSQL, Object-Oriented Programming, UML and System Design, Data Analysis and Visualization, Probability and Statistics, Linear Algebra, Advanced Mathematical Analysis, Operations Research, Optimization Algorithms.

Experience

Machine Learning Engineer Intern *Tunis, Tunisia*
Orange *Aug 2024 – Oct 2024*

- Made a plant disease classification lightweight CNN model, optimized for edge devices using knowledge distillation techniques.
- Developed an AI Agentic workflow for report generation, automating data collection, analysis and research extraction.
- Developed a chatbot offering real-time guidance and farming insights.

Achievements and Recognitions

1st place at **Orange x Hexabot Conversational AI Hackathon** *devpost/x2x-Submission*

- Developed plugins and extensions for the Hexabot visual editor, enabling multimodal capabilities such as text-to-speech, speech-to-text, and vision integration.

2nd place at **IEEE TSYP 12 CS Technical Challenge** *Smartshield-INSAT*

- Earned 2nd place at the Tunisian Students and Young Professionals Computer Science Challenge by creating an AI-powered platform for automated cybersecurity threat detection and response, Smartshield.

2nd place at **Artificial Intelligence National Summit (AINS 2.0)** *AINS-ML.Guide*

- created a developer tool for machine learning professionals, a Multi-LLM Agent System, for problem definition, data analysis, model recommendations, research, and code generation.

4th place at **Orange Summer Challenge (OSC 2024)**

- Developed innovative AI solutions for agriculture, gaining teamwork and problem-solving skills.

3rd place at **Code Quest**

- ACM INSAT Competitive Programming competition, honed problem-solving and teamwork skills.

Projects

MachineLearning.Guide *ML.Guide*

- Collaborated with a multidisciplinary team to design and implement a Multi-LLM Agent System designed to help professionals define, evaluate, and solve machine learning problems
- Tools Used: crewAi, Streamlit, GroqAI, JinaAI, Sweetviz, Arxiv

Machine Learning Algorithms From Scratch *ML-From-Scratch*

- Implementation of popular machine learning algorithms, like PCA, Random Forest, Decision Trees, KNN, K-means...
- Tools Used: Python, Numpy, matplotlib, scikit-learn

Technologies

Languages: Python, C/C++, Java, SQL, JavaScript

Tools and Technologies: Git, Linux, NumPy, Pandas, PyTorch, Langchain, CrewAI, FastAPI, MongoDB, Streamlit, Docker