

Firas Tlili

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SUMMARY

Highly skilled Machine Learning Engineer with over 5 years of experience in developing, deploying, and optimizing advanced AI and machine learning solutions. Proficient in Python, PyTorch, TensorFlow, and a variety of deep learning frameworks, with a strong focus on computer vision, natural language processing, and generative ai. Expertise in building end-to-end machine learning pipelines, from data collection and preprocessing to model deployment and optimization using MLOps tools like MLflow, DVC, and cloud platforms like Google Cloud.

Experience

Machine Learning Engineer, omdena.com – Remote, Tunisia Jan 2023 – Present

- **Led** an Omdena Local Chapter in Tunisia, **organizing** and **managing** a team of volunteers to collaborate on social impact projects and mentoring individuals to develop skills in **data science**, **AI** and **machine learning**.
- **Developed deep learning** predictive models for olive leaf disease using **Python** and **TensorFlow**, achieving a **95% accuracy rate**, **deployed** these models into **Google Cloud**, and **developed a mobile application** with **React Native** to enhance farms' profitability, subsequently **decreasing expenses by 20%**.
- **Developed computer vision** models for Red Blood Cell Classification to Diagnose Sickle Cell Disease that **increased predictive accuracy by 25%**, utilizing **Python**, **TensorFlow**, and **OpenCV**, and collaborating closely with data scientists and engineers from Benin.

Deep Learning Engineer, University Of Gabes – Gabes, Tunisia Jan 2022 – DEC 2022

- **Automated** the extraction of soccer highlights by implementing advanced **deep learning** and **computer vision** methods, resulting in a **90% reduction in processing time** and enhancing video match summarization efficiency.
- **Developed** an image extraction system by leveraging **Python**, resulting in a **40% increase** in dataset creation efficiency and accelerating model training for soccer videos.
- **Optimized object detection** performance by **fine-tuning** the YOLOv7 model with **Python** and **PyTorch**, resulting in a **90% improvement** in identification accuracy.
- **Condensed** 90-minute videos to 5 minutes by implementing an **automation script** using **Python**, **OpenCV**, and **FFMPEG**, resulting in an **80% reduction in processing time**.
- **Deployed** the model by creating a **web application** with **Django** for backend, **React**, **HTML5**, **CSS3**, and **JavaScript** for UI, resulting in a **90% reduction** in video processing time and positively impacting operational throughput.

Education

University of Gabes, National Engineering Diploma in Automatic Electrical Engineering (6 years degree)

- **Coursework:** Artificial Intelligence, Computer Vision, Deep learning, Data Processing, Research and Optimization, Probabilities and Statistics, Linear Algebra, Object-oriented programming, data structures and algorithms, Image processing, Signal Processing, Architecture and programming of embedded systems.

Projects

Tennis Video Analysis System With YOLO, PyTorch, and CNN Github Link

- Engineered a Tennis Video Analysis System by utilizing **YOLO** from Ultralytics, **Roboflow**, and **PyTorch CNN** for real-time player and tennis ball detection and court keypoint extraction, resulting in a **25% enhancement** in players' performance and providing coaches with actionable data during live matches.

Natural Language Interaction with Databases Using LLMs and SQLAlchemy [GitHub Link](#)

- Developed a **LangChain** chain that enables **natural language** interaction with the **database** and utilizes the LangChain wrapper of **SQLAlchemy** for database interaction.

End To End Document Q&A Chatbot using Llama3, Langchain, and Groq API [Github Link](#)

- Designed an **end-to-end pipeline** for a Document Q&A **Chatbot** using **Llama3**, **Langchain**, and the **Groq API**, enabling efficient document parsing and comprehension to provide accurate answers to user queries.

Kidney Disease Classification in CT Scans with MLOps and Cloud Deployment [Github Link](#)

- Designed and implemented an **end-to-end** kidney disease classification system using **MLflow** for **experiment tracking**, **DVC** for **data versioning**, and **AWS CI/CD** with **GitHub Actions** for scalable **cloud deployment**. Leveraged **VGG16** with **transfer learning**, trained and evaluated the model, and deployed it using **Docker**, **EC2**, and **ECR** for seamless integration and **scalability**.

Hand Gesture Volume Control Using Computer Vision [Github Link](#)

- Utilized Python to create a computer vision-based volume control system using the Mediapipe Hands solution to enable users to control Computer audio volume in real time by detecting and analyzing hand gestures from webcam input.

Honors & awards

Google Cloud Arcade 2024 Champions Milestone

Top 10 In The Cloud Track Of The Huawei Ict Competition 2021

Finalist In TheTunisian Olympiad in Programming 2016

Skills

Programming: Python (Pandas, PyTorch, TensorFlow, NumPy, Scikit-learn.), PHP, C/C++ , HTML/CSS, JavaScript, SQL,NOSQL.

Data Science: Data Collection, EDA , Data Visualisation, Data Augmentation,Supervised Learning Algos, Unsupervised Learning, Algorithms,ANN,CNN, RNN,Feature Engineering, MLOps,Algebra, Probability,Statistics, Time Series Forecasting,ARMA, ARIMA,LLMs,GANs.

Miscellaneous: Linux, Shell (Bash/Zsh), Google Cloud Platform , AWS , AZURE , Tableau , Power BI, Looker, Firebase , MySQL , MongoDB , Git,Unity.

Soft Skills: Leadership, Time Management, Teamwork, Problem-solving, Documentation, Engaging Presentation.

Certifications

Microsoft Certified: Azure Data Scientist Associate

Google Cloud Professional Machine Learning Engineer

Google Cloud Professional Data Engineer

Google Cloud Professional Cloud Architect

Google Cloud Associate Cloud Engineer

Machine Learning Specialization

Generative Adversarial Networks (GANs) Specialization

Huawei Certified ICT Associate : Artificial Intelligence

Microsoft Certified: Database Fundamentals

Microsoft Certified: Introduction to Programming using HTML and CSS

Microsoft Certified: Introduction to Programming Using Python