



Amin Bouhamed

Software Engineering Student

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PROFESSIONAL EXPERIENCE

Data Science Intern

07/2023 – 09/2023

R&D Group Esprit, Tunisia

- Engineered a **fashion recommendation system**: Image-to-Text Method
- Employed state-of-the-art models **BLIP and YOLO-V8**, yielding an F1-score of **0.97** for fashion products recognition.
- Orchestrated end-to-end system development, introducing a **quantization** technique that accelerated the pipeline by **1.5 times**, reduced storage by **half**, and maintain consistent results.
- Employed **OpenSearch** clusters for systematic data organization, leveraging classification outcomes as indexes.

Keywords: Python, OpenSearch, Computer Vision, Quantization, Blip, YOLO-V8

Data Science Intern

07/2022 – 09/2022

3S, Tunisia

- Contributed to the development of a **recommendation system** that integrated collaborative filtering and content filtering approaches to provide a comprehensive and personalized experience.
- Implemented a **user-based collaborative filtering** algorithm to identify similar users based on their past interactions with products, achieving a Mean Absolute Error score of **0.68**.
- Employed the **TF-IDF Vector Space** Model to analyze product attributes and descriptions, suggesting items that match the user's search criteria and achieved a cosine similarity of **0.7**.

Keywords: Python, TF-IDF, Content filtering, Collaborative filtering, Machine Learning

EDUCATION

Master in Data Science

10/2023 – present | Schmalkalden, Germany

Hochschule Schmalkalden University of Applied Sciences

Master in computer science with specialization in Data Science

09/2021 – present | ariana, Tunisia

Higher School of Engineering and Technologies of Tunisia

Mathematics and physics diploma

09/2019 – 06/2021 | sfax, tunisia

Preparatory Institute for pre-engineering studies of sfax

PROJECTS

Conceptual graph-based chatbot for PRM issues

09/2023 – 11/2023

- Designed and developed a **knowledge graph-based chatbot** to revolutionize project risk assessment. Architected a **LayoutParser** Model to effectively extract valuable
- insights from the PMBOK book, leveraging POS tagging, Named entity recognition, Semantic role labeling and Dependency parsing for text refinement.
- Exploited the power of state-of-the-art **RAKE and query2triplet** models to identify relevant keywords and generate triplets with an accuracy of **96%**.
- Constructed a knowledge graph employing **Deep Graph Library**, paving the way for a more comprehensive understanding of project risks and Integrated it into a robust chatbot implemented with **flask**.

Keywords: Python, Pyteserract, NLP, Ontology learning, LLM, Graph neural network GNN, Pytorch, DGL, Keyword Extraction, Named entity recognition, Entity linking, POS tagging, Dependency parsing.

Reverse vending machine

01/2023 – 05/2023

- Created a high-performance robotic system to sort, recognize and measure bottles and cans, linked with a Django-based web application, incorporating a real-time gamification system.
- Fine-tuned the "**centernet hg104 512x512**" pre-trained model for object recognition, achieving **95%** detection accuracy, surpassing YOLOv7 by **2%**.
- Employed the **InceptionV3** model for brand identification, reaching **97%** accuracy rate.
- Generated a comprehensive dataset comprising height, width, and brand information from object detection results. This dataset was used to train an Artificial Neural Network ANN model, achieving a **98%** accuracy in classifying bottle volumes.

Keywords: Python, Django, PostgreSQL, Computer vision, image segmentation, image processing, object recognition, feature

extraction,raspbian os .

SKILLS

Programming Languages: Python , R , Schell Scripting , C , SQL	Data Science/Machine Learning: Computer vision, Web scraping, Image captioning, NLP, Information retrieval, Documents embedding, Transformer-based models, Transfer-learning, Entity Linking, Data mining, Feature engineering, Data analysis, Data visualization
Packages/Frameworks : Numpy, Pandas, Matplotlib, PyTorch, Keras, Scikit-Learn, Open-cv, Scrapy, NLTK, FastAPI, Django	Tools/OS: Linux , Git , Docker ,LaTex
Databases : PostgreSQL , MongoDB , SQL Server , MySQL	

CERTIFICATES

- Natural Language Processing Specialization By Coursera & DeepLearning.ai [↗](#)
- Applications of AI for Anomaly Detection Using Generative Adversarial Networks By NVIDIA [↗](#)
- Building Transformer-Based Natural Language Processing Applications By NVIDIA [↗](#)

EXTRACURRICULAR & VOLUNTEERING

Inceptum Junior Entreprise • Senior Member of commercial development department at "INCEPTUM" junior enterprise. • Senior Member of project department at "INCEPTUM" junior enterprise	03/2022 – 09/2023 ESPRIT
Deepflow Esprit Executive board member • led a Team of 5 members to successfully deliver an AI-based project for our partner (Faza.tn)	11/2022 – 08/2023 ESPRIT

LANGUAGES

Arabic (native)	English (Advanced)	French (Fluent)	German (A2)
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