Amin Bouhamed
IT Engineering Student

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in https://www.linkedin.com/in/amin-bouhamed ○ https://github.com/aminbouhamed
https://aminbouhamed.github.io/portfolio/

EDUCATION

Exchange Computer Science Student   oct. 2023 – Now
Hochschule schmalkalden-University of Applied Sciences   *Schmalkalden,Germany*

Information Technology Engineer   Sep. 2021 – Now
Higher School of Engineering and Technologies of Tunis   *Ghazela,tunisia*

Mathematical and physics diploma   Sep. 2019 – Juin 2021
Preparatory institue for pre-engineering studies of sfax   *Sfax,Tunisia*

EXPERIENCE

RDI research group ESPRIT   July 2023 – September 2023
Data Science Intern   *ghazela, tunisia*

- As a part of a 2-members team I helped in developing a catting-edge recommendation system for an online marketplace , 97% of accurate recommendations.

  Keywords : *Python,Collaborative filtering ,Content filtering ,Machine Learning*

3S Startup   July 2022 – September 2022
Backend Developer Intern   *Tunis, Tunisia*

- Assisted in development of the Backend end of an online marketplace using Django , SQL server , MongoDB . optimized database queries, resulting in a ĩ12% reduction in page load time and improved user experience.

  Keywords : *Django,Djongo,Pymongo,SSMS,MongoDB,SQL,NoSQL.*

PROJECTS

Conceptual graph-based Recommendation System for PRM issues: Ontology Learning September 2023-November 2023

Spearheaded the development of a groundbreaking knowledge graph and chatbot for Project Risk Management (PRM), revolutionizing the way organizations approach risk assessment.

- engineered a custom **LayoutParser Model** to extract valuable insights from the PMBOK book ensuring the original structure of the book,then Leveraged post-tagging,lemmatization and normalization,to refine the extracted text.
- Employed state-of-the-art **RAKE model** to extract relevant keywords and fine tuned the **query2triplet model** to generate Triplets, with an outstanding accuracy reached 96% .
- Architected and implemented a **graph neural network (GNN) model** to build a novel knowledge-graph with 465 nodes and 1082 edges using **Deep Graph Library**.
- Combined a two-layers GraphSAGE model and a dotpredictor to sucessfully predict links between entities, reached interresting AUC value 93 with 0.048 as loss.
- Integrated the knowledge graph into a robust chatbot implemented with flask.

  Keywords : *Python,NLP,Ontology learning, LLM,Graph neural network (GNN),Pytorch,DGL,Keyword Extraction*

Intelligent machine :Reverse vending machine   February 2023-april 2023

Developed an intelligent Robot that sorts bottles and cans, identifies brands, and measures volume accurately. secured the 3rd place out of 200 Best projects at esprit .

- Fine-tuned **"centernet_hg104_512x512"** pre-trained model for the object recognition , achieving an outstanding 95% detection accuracy, surpassing **YOLOv7** by 2%.
- Fine-tuned **InceptionV3** model to identify brands by **feature extraction technique** with a remarkable 97% accuracy rate.
- Generated a comprehensive dataset ,including height, width, and brand, derived from object detection results. fueled an Artificial Neural Network (ANN) model, achieving an impressive 98% accuracy in classifying bottle volumes.
- Developed a user-friendly **Django-based** web application, integrated with **PostgreSQL**, featuring real-time gamification System.

  Keywords : *Python, Django,PostgreSQL,Computer vision,image segementation,image processing,objet recognition,feature extraction*

Key Skills

Programming Languages: Python, Java, C, SQL
Big Data&Machine Learning: Spark, Hadoop, Python (eg.numpy, pandas,matplotlib, Tensorflow,PyTorch, Keras, Scikit-Learn, Open-cv, NLTK),Computer vision,image captioning,NLP information retrieval, documents embedding,transformer-based models,video sequence classification,neural networks, MLOps.
Data science&miscellaneous technologies: Data mining, data engineering,Statistics, ETL pipelines, web scraping, statistical analysis, feature engineering, data visualization,Linear Algebra, Time series, Hypothesis testing,FastAPI,Linux, GitHub, Git, Docker, Latex, Django
Databases: PostgreSQL, MongoDB, Microsoft SQL Server

Certifications

- Applications of AI for Anomaly Detection Using Generative Adversarial Networks By NVIDIA

- Building Transformer-Based Natural Language Processing Applications By NVIDIA

- Natural Language Processing Specialization By Coursera & DeepLearning.ai

Extracurricular

Inceptum Junior Entreprise   Mars 2022 – Present
Consultant   *ESPRIT*
  * Senior Member of commercial development department at "INCEPTUM" junior enterprise.
  * Senior Member of project department at "INCEPTUM" junior enterprise.

DeepFlow Club ESPRIT   November 2022 – Aout 2023
Project Manager   *ESPRIT*
  * Spearheaded a Team of 5 members , sucessfully delivred an AI project for our partner (Faza.tn)

Languages

- Arabic(native)
- English (Fluent)
- Deutch(A1.2)
- French(Fluent)