

# AMIN BOUHAMED

IT Engineering Student

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<https://aminbouhamed.github.io/portfolio/>

## EDUCATION

### Hochschule schmalkalden-University of Applied Sciences

Master's degree in Computer Science

oct. 2023 – Now

Schmalkalden, Germany

### Higher School of Engineering and Technologies of Tunis

IT Engineering Student

Sep. 2021 – Now

Ghazela, Tunisia

### Preparatory institute for pre-engineering studies of sfax

Mathematical and physics diploma

Sep. 2019 – Juin 2021

Sfax, Tunisia

## EXPERIENCE

### RDI research group ESPRIT

Data Science Intern

July 2023 – September 2023

ghazela, Tunisia

- As a part of a 2-members team I helped in developing a cutting-edge recommendation system for an online marketplace, 97% of accurate recommendations.
- Keywords : Collaborative filtering, Content filtering, ML

### 3S Startup

Backend Developer Intern

July 2022 – September 2022

Tunis, Tunisia

- Assisted in development of the Backend end of an online marketplace using Django, SQL server, MongoDB. optimized database queries, resulting in a 12% reduction in page load time and improved user experience.
- Keywords : Django, Django, Pymongo, SSMS, MongoDB

## 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 successfully predict links between entities, reached interesting 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

### 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 To Detect and classify inserted items, achieving an outstanding 95% detection accuracy, surpassing YOLOv7 by 2%.
- Fine-tuned a CNN model **InceptionV3** to identify brands with a remarkable 97% accuracy rate, enhancing the sorting process
- 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

## KEY SKILLS

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**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),NLP,CNN

**Data science&miscellaneous technologies:** Statistics,Linear Algebra, Time series, Hypothesis testing,FastAPI, Linux, GitHub, Git, Docker, Latex, Django

**Databases:** PostgreSQL, MongoDB, Microsoft SQL Server

## CERTIFICATIONS

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- 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

## LEADERSHIP / EXTRACURRICULAR

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### 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

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