



## Nada Joobeur, Software engineering student

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### Professional Summary

Software Engineer with expertise in AI, machine learning, and data automation. Experienced in big data processing, predictive modeling, and scalable AI-driven solutions. Passionate about building intelligent systems to optimize decision-making and efficiency.

### Education

#### Higher Institute of Computer Science and Mathematics of Monastir – Tunisia

- **Integrated Preparatory Cycle in Mathematics and Computer Science** | 2021 – 2023
- **Engineering Cycle – Software Engineering** | currently in 2nd year

### Professional Experience

#### Machine Learning Intern – *Pharmaceutical Laboratory* **Hôpital Fattouma Bourguiba** *March 2025 – Present*

- Collaborated with a multidisciplinary team of pharmacologists, and engineers to automate critical clinical tasks through intelligent systems.
- Developed predictive models (Random Forest, GridSearch, Ensemble Learning) to recommend optimal corticosteroid doses ensuring therapeutic concentration for multiple conditions, including liver transplantation and tuberculosis.
- Preprocessed and analyzed medical data from 1,605 patients using Excel-based datasets, with a focus on data cleaning, transformation, and feature selection for model reliability.
- Currently integrating the final solution into a user-friendly desktop application using Electron.js to facilitate real-time doses recommendations for medical professionals.

#### AI & Software Engineering Intern – **Biophysics Laboratory**

#### **Faculty of Medicine, Monastir** **July – September 2024**

- Designed and trained deep learning models using U-Net architecture enhanced with InceptionV1, V2, and V3 modules to perform brain lesion segmentation from FLAIR MRI scans of 75 patients.
- Conducted comparative analysis of different Inception variants to enhance segmentation accuracy.
- Developed **Medical Vision**, a full-stack web platform for medical imaging workflows using React and Flask with a MySQL database.

- Integrated preprocessing tools, training interfaces, and model deployment features into the platform to automate the end-to-end deep learning process.
- Built a history-tracking module to store and manage preprocessed data and trained models.

## Data Engineering Intern – TaDa Startup

June 2024

- Extracted and structured an Arabic-language tabular database (70,000+ entries) from PDFs, APIs, and web sources.
- Automated data collection and preprocessing workflows to improve processing efficiency.  
**Technologies:** Python (BeautifulSoup, Scrapy, Pandas), REST APIs

## Cybersecurity Intern – L'EPI D'OR

July 2023

- Gained hands-on experience with Linux system commands for configuring and optimizing Greenbone vulnerability scanner.
- Performed security assessments and generated automated audit reports for system vulnerabilities.  
**Technologies:** Linux, Greenbone

## Academic Projects

### Epileptic Seizure Prediction using EEG Signals

- Worked with a dataset of **12 patients' EEG signals** to predict epileptic seizures, classifying the signals into **multiple phases**: ictal, preictal, postictal, or non-seizure.
- Preprocessed EEG signals, handling noise removal, normalization, and segmentation to prepare the data for training.
- Designed and trained a **CNN model** for classification, achieving **75% accuracy** in predicting the current state and risk of future seizures.
- Integrated the model into **EpilepticTrack**, a platform that enables physicians to analyze patient EEG signals and predict current states and future seizure risks.  
**Technologies:** Python (TensorFlow, Keras), EEG signal processing, CNN, Platform development

### Predictive Analysis of Health & Work Risks for Female Agricultural Workers

- Analyzed a dataset of **80 agricultural workers** to predict health and workplace risks.
- Performed data cleaning, visualization, and handled class imbalance with **SMOTE** and **RandomOverSampler**.
- Optimized models (**RandomForest**, **XGBoost**) using **Optuna** and explained predictions with **SHAP**.
- Validated models with **StratifiedKFold** and evaluated using metrics like **ROC AUC** and **confusion matrix**.  
**Technologies:** Python (Pandas, Scikit-learn, Matplotlib, Seaborn, Optuna, SHAP)

## Competitions & Achievements

### Twice Night Challenge – October 8, 2025

**National Winner:** Implemented a conversational agent based on a RAG system for a medical information website on neurological diseases (Multiple Sclerosis, Parkinson's, Alzheimer's, Stroke).

### Entrepreneur Initiator Status – March 6, 2025

Awarded by **Pôle étudiant entrepreneur de l'Université de Monastir**, offering mentorship for the project idea and full development.

## Technical skills

- Programming & AI: Python (TensorFlow, Keras, Scikit-learn, OpenCV), Java, C++, C
- Data Engineering & Visualization: Pandas, NumPy, Matplotlib, Seaborn, Apache Spark, Hadoop
- Web & Backend Development: React, Flask, MySQL, Electron.js
- Machine Learning & Deep Learning: Predictive modeling, medical image processing, time-series analysis
- DevOps & CI/CD: Git Bash, GitHub Actions, Jenkins, Docker, Docker Hub, Kubernetes
- Cloud & Deployment: AWS (basic services & deployment), container orchestration

## Certifications

- **Fundamentals of Deep Learning** – NVIDIA | Sep 2024
- **Building Transformer-based NLP Applications** – NVIDIA | Jan 2024
- **Generative AI with Diffusion Models** – NVIDIA | Apr 2025

## Extracurricular Activities

### IEEE, Computer Society Chapter

**General Secretary** | Jan 2024 – Present

- Handled administrative tasks and maintained relationships with partners.

### AIESEC, RUSPINA

**Member, International Relations and Data Department** | Jan – May 2024

- Built international relationships with global partners.

## Languages

- **English** – Fluent
- **French** – Fluent
- **Arabic** – Fluent