

Malak Khouja Mathematics and Computer Science Student

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👤 Profile

Third-year Mathematics and Computer Science student passionate about **Data Science, Web Development, and Artificial Intelligence**.

I am currently seeking a **PFE internship** to apply my technical skills and contribute to innovative projects.

🎓 Education

Bachelor's Degree in Mathematics and Computer Science

09/2023 – Present | Tunis,Tunisia

Faculty of Sciences of Tunis

- Strong foundation in mathematics (analysis, algebra, differential calculus, topology, probability, and statistics).
- Proficient in programming (Python, Java, C, R), data analysis and visualization (Pandas, NumPy, Matplotlib, Seaborn, Scikit-learn), and database management (MongoDB, PostgreSQL).
- Experienced in Linux system administration and software/system design using UML.

📁 Projects

Passenger Satisfaction Prediction System

Python, FastAPI, MongoDB, React, CSS, Plotly.js, Scikit-learn

- Full-stack application to predict and monitor airline passenger satisfaction.
- Data preprocessing, visualization, and KNN model training to generate reliable predictions.
- Developed APIs with FastAPI and used MongoDB to store passengers and their predictions.
- React frontend with interactive form and Plotly.js dashboard to visualize metrics and high-risk services.

Smart Queue Management System

Technologies: React, Node.js, Express, MongoDB

- Developed a full-stack web application to reduce waiting times through remote queue management.
- Built secure REST APIs with real-time updates and authentication.
- Designed a responsive React interface for a smooth user experience.

Movie Rating Prediction System

Technologies: Python, Pandas, NumPy, Scikit-learn

- Implemented predictive models (SVD, KNN, Linear Regression) to estimate user ratings.
- Performed data preprocessing, exploratory analysis, and feature engineering to boost model accuracy.
- Evaluated performance using RMSE and selected the most accurate model for deployment.

User Management System

Technologies: MongoDB, Express, React, Node.js

- Designed and implemented a full-stack application to manage users, roles, and permissions.
- Integrated authentication, validation, and CRUD operations for secure management.
- Built an intuitive React dashboard for administration and user interaction.

Data Analysis Dashboard

Technologies: Python, Tkinter, Pandas, Matplotlib, Seaborn

- Built an interactive desktop application to import datasets and perform exploratory data analysis.
- Generated dynamic visualizations (bar charts, curves, heatmaps) to reveal trends and correlations.
- Computed and displayed key statistics (mean, variance, correlation) for comprehensive analysis.

Facial Recognition using Supervised Learning

Technologies: Python, Pandas, NumPy, Scikit-learn

- Designed a facial recognition system to identify Arnold Schwarzenegger among multiple individuals using PCA features.
- Compared several classifiers (Logistic Regression, KNN, SVM) and optimized via cross-validation.
- Achieved high identification accuracy and analyzed performance using confusion matrices and metrics.

Skills

- Programming Languages: Python, Java, C, R
- Data Science & AI: Pandas, NumPy, Matplotlib, Seaborn, SciPy
- Artificial Intelligence : Scikit-learn, NLTK, PyTorch (CNN, RNN, Transfer Learning)
- Databases: SQL, MongoDB, PostgreSQL
- Web Development: HTML, CSS, JavaScript, React, Node.js, Express.js, FastAPI, Plotly.js
- Other Tools: UML, Linux, Git, Docker

Extracurricular Activities

Active member of multiple student clubs including **IEEE**, **Enactus**, **SecuriNets**, and **ATIA**. Participated regularly in workshops, hackathons, and collaborative projects that strengthened my teamwork, leadership, and problem-solving skills while exploring real-world technologies.

Competitions:

- **IEEEXtreme Hackathon:** Global problem-solving competition where I developed coding and collaboration skills under time constraints.
- **Lunar Hack (ATIA):** AI-focused hackathon where my team built a **Smart Campus Assistant** and a **Lost Items Assistant** to enhance student life.

Certificates

React

Comprehensive training on components, state management, hooks, and interactive web app development.

Data Analyst

120-hour program covering data manipulation, visualization, statistical analysis, and machine learning with Pandas, NumPy, Matplotlib, and Scikit-learn.

Deploying AI into Production with FastAPI

Training on building, containerizing, and deploying AI/ML models in production environments.

Fundamentals of Deep Learning – NVIDIA (DLI Certification)

Hands-on certification covering neural network construction, model training with PyTorch, CNNs, RNNs, data augmentation, and transfer learning.

Intermediate SQL – DataCamp

A practical course covering data selection, filtering, aggregation, and grouping using SQL, with hands-on exercises based on real-world scenarios.