Dhiaa Mejdi

✉ dhiaamejdide@gmail.com   in Linkedin   ⌽ Github   ◆ Google Scholar   R^G ResearchGate

Research intrests

Reasearch intrest revolves around advancing the automation, interpretability, and scalability of data engineering pipelines using large language models (LLMs). My research focuses on how LLMs can be leveraged to generate, validate, and optimize ETL workflows and improve MLOps processes in production-scale distributed systems. Key questions I explore include the accuracy and executability of LLM-generated ETL scripts, their interpretability in complex data engineering contexts, and how such intelligent automation can modernize and transform cloud-based data pipelines. Through my PhD, I aim to develop novel methods and systems that bridge state-of-the-art natural language processing with practical, robust data engineering solutions for real-world applications.

Education

Computer science and Engineering Exchange student 🔗   01/2023 – 06/2023
Hochschule Offenburg
Accepted as a part of the DAAD KOSPIE competitive scholarship with only 10% acceptance rate (4.0 GPA)

Master's equivalent in Engineering | Computer science and Applied Mathematics Engineering 🔗   06/2023
National Engineering School of Sfax   Tunisia, Sfax
- Advisors: Adel M. Alimi 🔗
- 4.0 GPA Masters
- 3.5 GPA Cumulative

Degree in Mathematics and Physics   07/2020
Faculty of Sciences of Sfax
- First in Class during 1st year.
- During Second year, passed the national engineering school entrance exam ranked in the top 30% in the country.

Publications

STM32 miner : A lightweight blockchain mining system 🔗
Jalel Ktari, Hedi Choura, Tarek Frikha, Mouna Baklouti, **Dhiaa Mejdi**, Molka Kotti, Ahmed Zribi, Hassine Touil, Ghaith Oueslati.
2023 IEEE International Conference on Design, Test and Technology of Integrated Systems (DTTIS)

Integration of a Deep Neural Network for Product Identification And Spectra Dimensional Reduction (UV to VIS) in a Full Industry 4.0 Environment 🔗
Dhiaa Mejdi, Adel M. Alimi, Patrick Selle.
National Engineering school of Sfax

LLM-in-the-Loop Feedback-Driven ETL: A Modular Architecture for Trustworthy, Self-Adaptive Data Pipelines
Dhiaa Mejdi*, Manuscript in Preparation Target venue: VLDB 2026.

Prompt Engineering for Data Engineering Tasks: Techniques, Applications, and Comparative Analysis
Dhiaa Mejdi*, Manuscript in preparation Target venue: NeurIPS 2025 Workshop on Evaluating the Evolving LLM Lifecycle: Benchmarks, Emergent Abilities, and Scaling 🔗

Social User Profiling for Personalized Advertisement Recommendation: A Multi-Modal Deep Learning Approach
Dhiaa Mejdi*, Imen Selmi*, Oussama Mejri*, Adel M. Alimi. Manuscript under review

Research and Professional Experience

Deep Learning Research intern 🔗   03/2023 – 08/2023
Hahn-Schickard Gesellschaft fuer Angewandte Forschung e.V.   Villingen Schwenningen, Germany
- Selected for a prestigious German government scholarship awarded to the top 10% of Tunisian applicants.
- Developed and integrated a deep neural network to identify products and perform spectral dimensionality reduction (UV to VIS) within a fully digitized Industry 4.0 manufacturing environment.
- Designed an innovative Spectroscopic Process Analytical System enhancing product quality control and process efficiency.
- Applied advanced data preprocessing, feature importance analysis, and various machine learning techniques (e.g., MLP, XGBoost) to optimize model performance.
- Managed the full project lifecycle including data collection, model training, evaluation (MSE, R2 score), and deployment recommendations.
- Successfully defended thesis in front of a distinguished jury of professors and industry experts, earning **4.0 GPA, High Honours, and Jury Distinction**.

Research student assistant 🔗   09/2021 – 05/2022
Department of Computer Engineering and Applied Mathematics at ENIS   Sfax, Tunisia
Social User Profiling for Ads Recommendation
Got 4.0 GPA for the final research assistanship on the presented project
- Conducted research and developed a social user profiling app to improve ad targeting using machine learning, computer vision, and natural language processing.
- Implemented front-end with React.js, back-end with Firebase and MongoDB, and integrated deep learning models (TunBert, CNN, RNN, LSTM).
- Designed and performed web scraping using Selenium for data collection.

- Collaborated with academic supervisors and team members; documented findings in a formal project report.
- Conducted web scraping via Selenium for data collection and analysis.
- Managed project lifecycle with DevOps tools including GitLab and Azure DevOps.
- Achieved **4.0 GPA** on the project, ranked **first in the cohort**.
- Presented findings and demonstration to a jury of doctorate-level professors.

MLOps research intern 🔗
Udini (DeepSmile Lab)   06/2022 – 09/2022
- Implementation of a deployment workflow for deep learning models on the AWS platform.
- Investigate quantization and model compilation techniques to reduce the GPU memory footprint and the run-time of model inferences.
- Python, ONNX, tensorRT, AWS, Ci/Cd.

Data Engineer 🔗
ERGO GROUP AG   09/2023 – Present
                                                                       Düsseldorf; Germany
- Designed scalable big data pipelines for streaming and batch processing, enabling efficient ingestion and transformation of health insurance data into AWS-based data lakes (S3).
- Automated ETL workflows using Spark and PySpark, reducing data preparation time from one month to one day.
- Collaborated with stakeholders to define model development requirements and success criteria.
- Supported AI Factory architecture development on AWS by integrating data pipelines and deployment processes.
- Developed Python automation scripts for pipeline management and data processing.
- Utilized AWS Sagemaker Pipelines and Docker for model training, deployment, and endpoint management.
- Contributed to CI/CD workflows for MLOps, including model versioning, monitoring, and retraining.
- Enabled RESTful model serving via FastAPI to support internal integrations.

DevOps engineer 🔗
OliveSoft   09/2022 – 01/2023
                                                                       France, Paris
- Documenting and Creating of workshops to Educate partners on project management tools.
- Manage GLPI Service Desk tickets, and manage JIRA and confluence teams for Celine, and LVMH Group.
- Creation of Jira projects, Confluence spaces, and educating partners on them.
- Maintainance of the company's website, and mentorship on Azure and WordPress

Machine Learning Intern & Technology unit Leader 🔗
Rouge International   04/2022 – 07/2022
                                                                       Hong Kong, Online
- Building an AI-powered Search Engine, "FUTURE engine", to provide Analytics for ESG (Environmental, Social, and Governance) investing.

Teaching & Mentorship Experience

Guest Lecturer & Peer Instructor
National Engineering School of Sfax   10/2020 – 12/2022
                                                                       Tunisia, Sfax
Delivered short-form lectures and technical presentations to peers as part of advanced coursework and collaborative learning activities. Topics included:
- Microsoft Corporation (Quality Management course)
- Atlas AI Computing Platform (Huawei AI course)
- Introduction to Cybersecurity (Cyber Security course)
- .NET Architecture
- Web Servers & Application Servers (Web Development course)
- Microcontroller PIC & Microchip LE 16F84

Workshop Facilitator
IEEE ENIS Student Branch   01/2021 – 06/2024
                                                                       Sfax, Tunisia
Designed and led interactive technical workshops for students, covering:
- MLOps best practices
- C++ & Object-Oriented Programming
- Competitive Programming
- Video Editing Fundamentals

STEM Outreach & Youth Mentorship
IEEE STEM Mentorship at IEEE ENIS Student Branch   06/2022 – 09/2022
                                                                       Sfax, Tunisia
Led and Chaired the IEEE Summer Camp, where I developed and delivered a workshop on Space and Cybersecurity for teenagers and high school students, fostering early interest in STEM fields.

Awards

DAAD KOSPIE Scholarship Research Exchange Student 🔗
DAAD: German Academic Exchange Service   19/07/2022

Best Chapter IAS Award 🔗
IEEE TSYP Congress

IEEE Regional Exemplary Student Branch Award 🔗
Served as the Chair of IEEE ENIS SB when we got the award

Second Place in the Regional Technical Robotics Challenge at ENIS 🔗
National Engineering School of Sfax

Best tasks Ambassador 🔗
IEEEXtreme 15.0

Best Delegate Award
Tunisian International Model United Nations (MUN)

5th place Technical challenge 🔗
National Microsoft Tech Club

Skills

Programming Languages:
Python, C, C++ & Java

MLOps & CI/CD:
SageMaker Pipelines, Model Deployment & Monitoring, GitLab CI/CD, GitHub Actions, Jenkins, DataDog

Continuous Integration and Deployment:
GitLab, GitHub, Jenkins

Libraries & Data Tools:
Pandas, PySpark, Seaborn, OpenCV

Big Data & Data Engineering:
Apache Spark, PySpark, Apache Kafka, AWS EMR, Databricks, AWS S3, AWS Glue, Data Lake Architecture, Batch & Streaming Data Pipelines, ETL Development

Cloud Platforms & Services:
AWS (SageMaker, Lambda, Textract, S3, EMR), Microsoft Azure

Database Management:
PostgreSQL, MySQL

ML & Deep Learning:
Linear Regression, Logistic Regression, Naive Bayes, CNN, RNN, Keras, TensorFlow, PyTorch, Scikit-learn

Streaming & Real-Time Processing:
Apache Kafka, Spark Streaming

Web Development & APIs:
FastAPI, REST APIs, HTML, CSS, JavaScript, React.js, PHP

Generative AI & LLM Tooling:
LangChain, RAG, OpenAI API, Hugging Face Transformers

Containerization & Orchestration:
Docker, Kubernetes

Design:
Figma, Adobe Illustrator, XD, premiere.

Organisations

PyCon DE & PyData   05/2025 – 05/2025
Workshop chair   Darmstadt, germany
- Moderated Workshops as part of the organizing committee

IEEE ENIS Student Branch   01/2022 – 01/2023
Chairman
- Management of 10 Sub-Clubs with website maintenances of and animating training sessions.

IEEE ENIS Computer Society Chapter   01/2022 – 01/2023
Manager

IEEE ENIS PRESS   01/2021 – 01/2023
Writer
- Wrote articles on social media and did the media coverage of several events.

Pitch Yourself For A Career 6.0 & 7.0 🔗
Organizer and moderator
- Moderator, hosted interviews. The face of PYFAC 7.0 at the computer science department

IEEE ENIS Industry Application Society Chapter   01/2021 – 01/2022
Chairman
- Organized training sessions with national and international trainers
- Participated in the CMD awards, and TSYP where we won, best chapter award.

Microsoft Technologies Club   09/2020 – 09/2021
Media Manager
- Project Manager of Microsoft Tech Club design event
- Creator of MTC Tech Podcast
- Creation and Maintainance of MTC Website

Angel Club Sfax Japanse and Asian Culture Club   09/2015 – 09/2021
Vice president, head of marketing department
- Held a postition as the event chair for ABM musical festival for Orphans Charity

Radio Panorama 🔗   09/2015 – 06/2021
Moderator of Tech Podcast, Radio technician

Public Institute of Music Sfax   09/2016 – 09/2018
Music Student