Mohamed Charfi

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INTRODUCTION

I am a passionate data science master's student with a strong interest in turning data into useful insights.
I enjoy working on projects involving machine learning, data analysis, and visualization. I am especially interested in applying data science to solve real-world problems in different fields like healthcare, finance, market analysis etc.
I am eager to join a team where I can continue learning and contribute to exciting projects.

EDUCATION

École polytechnique fédérale de Lausanne, Master of Data Science   Lausanne, Switzerland / Sep. 2023 – present
- Major courses: applied data analysis, machine learning, modern natural language processing, large-scale data science for real-world data, Principles of finance, distributed information systems.

École polytechnique fédérale de Lausanne, Bachelor of Communication Systems   Lausanne, Switzerland / Sep 2020 – Jul. 2023
- Major courses: algorithms, probability and statistics, theory of computations, introduction to machine learning, functional programming.

Technical University of Denmark - DTU, Exchange year   Copenhaguen, Denmark / Aug. 2022 – Jul. 2023
- Major courses: database systems, agile object-oriented software Development.

WORK EXPERIENCE

Philip Morris, Data Analyst - Full stack developer   Neuchâtel, Switzerland / 16/02/2025 – Ongoing
- Developed a new planning platform from scratch, encompassing all layers: SQL database, backend, and frontend. The platform's key functionalities include:
  - Managing operator schedules, including holidays and sicknesses.
  - Assigning employees to production lines.
  - Generating customized operational reports.
  - Displaying assignments and training plans on interactive touch screens for real-time visibility.

Dnext, Data Analyst   Morges, Switzerland / 08/07/2024 – 31/01/2025
- Worked on US crop prediction based on future contracts prices and cost of production data for every state.
- Designed a WASDE report prediction based on multiple firms predictions.
- Contributed to adding multiple datasets by using different scrapping techniques. (BeautifulSoup, Selenium, ...).

EPFL, Teaching assistant in the introduction to programming course   Lausanne, Switzerland / 22/09/2023 – 01/02/2024
- Helped students understand object oriented concepts and solve programming exercises.
- Exams and projects correction.

ST2I, Full Stack Engineer   Tunis, Tunisia / 19/06/2023 – 04/08/2023
- Designed a server and an android app to help collect data including fingerprints and verifying if the fingerprint is used in the database before adding it.

PROJECTS

Applying Learning by Arguing with LLM
Sep. 2024 - present

- Collaborated on an upcoming research paper that implements a chatbot that is an expert in debating using techniques like RAG and prompt engineering.
- Created an interface that deploys this chatbot.

Education related chatbot
Feb. 2024 - Jun. 2024

- Worked on collecting EPFL courses related dataset used to finetune an open weighted model (mistral 7b)
- used several techniques including SFT, DPO and RAG to finetune the model with the goal to make the model give better results while asked EPFL exam questions.

Switzerland robust journey planner
Feb. 2024 - Jun. 2024

- Applied Apache Spark and Spark Streaming for distributed processing.
- Used historical SBB/CFF dataset to create a robust journey planning within the Swiss transportation network that gives the best possible routes with their corresponding probability of success taking into account the delays.

Football dashboard website
Feb. 2024 - Jun. 2024

- Worked on processing and merging several football related datasets to get insights on European football teams and players.
- Designed a website that implements interactive visualizations on clubs and players using D3 (JavaScript).

IMDb ratings analysis
Sep. 2023 - Jan. 2024

- Conducted preprocessing and detailed analysis of the CMU Movie Summary dataset, alongside the IMDb dataset. featuring over 42,000 movies and 450,000 characters, further augmented with advanced NLP techniques.
- Worked on analyzing the impact of various factors on IMDb movie ratings and presented the results on a website.

Deep Learning for Road Segmentation
Sep. 2023 - Jan. 2024

- Collaborated on collecting and preprocessing over 5,000 satellite images from diverse global locations
- Led the experimentation of multiple neural network architectures, among with an innovative model reproduced from a research paper.

Other projects

- all my other projects are available on my website mohamedcharfi.com ↗

SKILLS

Programming Languages: Python (pandas, PyTorch, scikit-learn), Java, C, C#, R, Scala, SQL, HTML, CSS, JavaScript

Machine Learning & Data Science: PyTorch, scikit-learn, Matlab, R, Pandas, SQL, Wandb

Development Tools: Git, GitHub, Docker, Unity

Languages: English (C1), French (C2), Arabic (C2), German (A2)