YOUSSEF AMDOUNI

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★ CARFFR GOAL

Join an innovative team in the field of artificial intelligence. With a solid foundation in various subjects, particularly in mathematics and computer science, gained through courses such as machine learning, data mining, and probability and statistics, I am enthusiastic about advancing my career within the realm of artificial intelligence. This endeavor aligns with my passion for leveraging and applying my existing expertise, allowing me to deepen my understanding and contribute meaningfully to this dynamic field.



PROFESSIONAL EXPERIENCE

Oct 2023

Research Assistant, UQAM, Montreal, QC

Present

Classification of human oocytes images

Python Computer Vision OpenCV Deep Learning CNN

Sep 2023

Teaching Assistant, UQAM, Montreal, QC

Dec 2023

Assisting students during practical work, facilitating understanding and development of key skills for the INF5111 course (Fundamentals for using business data science platforms).

Python PostgreSQL UML MongoDB Interactive Visualization

Jan 2022

Data Scientist (Part-time), CIENA, Montreal, QC

Apr 2023

Anomaly detection in Ciena's system logs

- > Literature review on anomaly detection methods in system logs.
- > Data collection, analysis, and preprocessing.
- > Separation of system logs into a fixed part and parameters (variable part).
- > Implementation of an approach based on deep learning and semantics for classification.

Anomaly Models | SQL | AWS | Databricks | Deep Learning | LSTM | Transformer | LLM | BERT | Regex

Oct 2020

Data Scientist, AXEFINANCE, Tunisia

Dec 2021

- > Digital onboarding
 - > Liveness detection by asking clients to validate a randomly given gesture.
 - > Document detection and classification (Tunisian CIN and passport).
 - > Face detection and verification.
 - > Content extraction through optical character recognition (OCR) and text processing to enhance OCR results.
 - > Models deployment using flask.
- > Participated in an AI platform project to help credit risk analysts read financial news (financial sentiment analysis financial news (financial sentiment analysis, text synthesis, financial event detection).

OCR | Deep Learning | YOLO | VGG Model | flask | Postman | API | docker | Haar cascade classifier | Image processing data analysis | social network | Default probability | Bag of words | RNN | LSTM | Words embedding | LLM | BERT |

Feb 2020

Data scientist (Graduation project), QUANT-DEV, Tunisia

Jul 2020

Predictive Modeling for Intra-day Trading Volume in the Chinese Stock Market

- > Decomposing the volume into market component and specific component using PCA.
- > Predicting the market component using a moving average approach and linear regression model to forecast the abnormal changes.
- > Improving the market component forecast using different portfolios decomposition.
- > Improving the specific component prediction using more sophisticated machine learning models.

High-frequency trading Volume Turnover PCA Common Component Specific Component Linear Regression Huber Regressor RANSAC Linear SVR Stacking



Jan 2022

Masters of Computer Science (GPA 4.23/4.3)

Feb 2024

Université de Québec à Montréal

Courses: Machine Learning (INF7370), Foundations of Artificial Intelligence (INF8790), Association Rule Mining (INF7710), Concepts and Techniques in Data Mining and Exploration (INF8100), Methods of Artificial Intelligence in Bioinformatics (INF889E).

Research project: We present a novel self-supervised contrastive learning framework designed to learn representations at multiple levels of abstraction: node-, proximity-, cluster-, and graph-levels. Subsequently, we investigate the transition between these abstraction levels using geometric metrics.

2017 Bachelor of Engineering, Economic and Scientific Management

2020 École Polytechnique de Tunisie

> Multidisciplinary three-year courses: Applied Mathematics, Computer Science, Algorithms, Optimization, Machine Learning, Quantitative Finance, etc.

2015 **Associate Degree**

2017 Institut Préparatoire aux Études d'ingénieurs de Tunis

> Two-year courses: Linear Algebra, Numerical Analysis, Computer Science, Physics, Chemistry, and Engineering Techniques.



A LANGUAGE SKILLS

French and English

📑 TECHNICAL SKILLS

Programmation Python, C/C++, R, SQL, Git

Operating systems Windows, Linux.

Python/R Libraries mlflow, numpy, pandas, Bokeh, seaborn, sciket-learn, OpenCV, tensorflow, keras, pytorch,

nltk, Spacy, Gensim, Pyspark, sqlalchemy, pymongo, streamlit, sktime, statsmodels, ggplot2,

dplyr, shiny.

IDE Jupyter notebook, Databricks, Jupyter Lab, VS-code, R studio, Docker, PowerBI

Data Analysis, Linear/Polynomial Regression, Logistic Regression, KNN, K-means, Principal Machine Learning

Component Analysis, Support Vector Machine, Ensemble Learning, Exponential Smoothing,

ARIMA, Deep Learning (Fully connected neural network, CNN, RNN, YOLO).

Finance Portfolio Optimisation (Markowitz model, Capital Asset Pricing Model), Factor model, Trading

option pricing(Black-Sholes model)

CERTIFICATIONS

WORLDQUANT University Applied Data Science I: Scientific Computing & Python **WORLDQUANT University** Applied Data Science II: Machine Learning & Statistical Analysis

Certificate in Machine Learning Coursera

Coursera Deep Learning Specialization by deeplearning.ai

Applied Machine Learning in Python Specialization by Michigan University Coursera

Coursera Stochastic Processes by the National Research University Higher School of Economics

🖵 PROJECTS

- o Portfolio Optimization: Develop an application for analyzing stocks and constructing portfolios using methodologies like Markowitz and CAPM.
- Housing Price Prediction: Extract data from the Duproprio website and build a predictive model for housing prices in Quebec.
- o Image Classification: Create a convolutional neural network capable of distinguishing between six animal species and a convolutional autoencoder for encoding and reconstructing images.
- Sentiment Analysis: Analyze sentiment in texts using probabilistic models (TF-IDF, logistic regression, Bayesian classifier), CNN, LSTM. and BERT.
- Time Series Forecasting: Develop a Shiny application to analyze and forecast energy consumption in Quebec using models such as exponential moving average, ARIMA, linear regression, and LSTM.

0	Detection of Tunisian Vehicle License Plates and Information Extraction : Use YOLO V3 for object detection and Test information extraction.	sseract for