YOUSSEF AMDOUNI

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★ CAREER 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 – Present | **Research Assistant, UQAM, Montreal, QC**
Classification of human oocytes images
Python | Computer Vision | OpenCV | Deep Learning | CNN

Sep 2023 – Dec 2023 | **Teaching Assistant, UQAM, Montreal, QC**
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 – Apr 2023 | **Data Scientist (Part-time), CIENA, Montreal, QC**
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 | Databricks | Deep Learning | LSTM | Transformer | BERT | Regex

Oct 2020 – Dec 2021 | **Data Scientist, AXEFINANCE, Tunisia**
- 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 | Haar cascade classifier | Image processing | data analysis | social network | Default probability | Bag of words | RNN | LSTM | Words embedding | bert

Feb 2020 – Jul 2020 | **Data scientist (Graduation project), QUANT-DEV, Tunisia**
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

🎓 EDUCATION

Jan 2022 Jan 2024	**Masters of Computer Science (GPA 4.23/4.3)** 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 2020	**Bachelor of Engineering, Economic and Scientific Management** École Polytechnique de Tunisie Multidisciplinary three-year courses : Applied Mathematics, Computer Science, Algorithms, Optimization, Machine Learning, Quantitative Finance, etc.
2015 2017	**Associate Degree** Institut Préparatoire aux Études d'ingénieurs de Tunis Two-year courses : Linear Algebra, Numerical Analysis, Computer Science, Physics, Chemistry, and Engineering Techniques.

🈯 LANGUAGE SKILLS

French and English

▤ TECHNICAL SKILLS

Programmation	Python, C/C++, R, SQL, Git
Operating systems	Windows, Linux.
Python/R Libraries	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
Machine Learning	Linear/Polynomial Regression, Logistic Regression, KNN, K-means, Principal 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
Coursera	Certificate in Machine Learning
Coursera	Deep Learning Specialization by deeplearning.ai
Coursera	Applied Machine Learning in Python Specialization by Michigan University
Coursera	Stochastic Processes by the National Research University Higher School of Economics

🖥 PROJECTS

- **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.
- **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.
- **Detection of Tunisian Vehicle License Plates and Information Extraction :** Use YOLO V3 for object detection and Tesseract for information extraction.