MAHMOUD ALBARDAN

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SUMMARY

I am a Ph.D data scientist with 6 years experience (+ 3 years of PhD research) during which I worked on many projects in multiple domains (IOT, telecom, medical, automotive, retail, research). I have technical expertise in artificial intelligence and I am a certified Professional Machine Learning Engineer from Google Cloud Platform (GCP).

EXPERIENCE

Senior Data Scientist

📍 Mutuelle assurance des instituteurs de France (MAIF), Niort, France   📅 January 2025 – Present

- *EOSS Project: Segmentation of MAIF members based on surveys received after contact*
  - Extracted and prepared data processing pipelines for modeling from a PostgreSQL database using SQLAlchemy.
  - Analyzed customer data to optimize marketing insights.
  - Built clustering models for clients based on business needs.
  - Communicated with business teams to understand their needs and provide actionable insights.
- **Tech Stack: Clustering, Classification, Python, PostgreSQL, SQLAlchemy**

Senior Data Scientist

📍 Orange, Paris, France   📅 February 2022 – July 2024

- *Smart CAPEX Project: Using machine learning algorithms to optimize CAPEX investments for Orange subsidiaries in Egypt, Morocco, and Ivory Coast*
  - Analyzing mobile network data in collaboration with different business teams to understand requirements.
  - Forecasting data/voice traffic and congestion detection across 2G/3G/4G sites.
  - Analyzing socio-economic data (population, GDP, etc.) to identify the most profitable locations for new telecom sites.
  - Building customer churn prediction models for sites.
  - Conducting economic assessment of model outputs in terms of net present value NPV.
  - Implementing unit tests, end-to-end tests, and CI/CD pipelines (GitLab) for data processing, model development, and evaluation.
  - Maintaining models throughout different project phases.
- **Tech Stack: Time Series, Regression, Python, Spark, Scala, MySQL, GCP, GitLab, CI/CD, Docker**

Data Scientist

📍 Institut Polytechnique de Paris (Télécom Paris), Paris, France   📅 February – September 2021

- *Analysis and detection of motion sickness in vehicles (with Stellantis-PSA)*
  - Processing physiological signals using multiple techniques depending on the signal type (ECG, EDA, Respiration).
  - Processing vehicle data (acceleration, speed, etc.).
  - Building algorithms for anomaly detection in time-series signals related to driving.
  - Developing algorithms for detecting motion sickness and predicting its severity.
- **Tech Stack: Anomaly Detection, Regression, Python**

Data Scientist

 Blue Radar, Niort, France   January 2019 – January 2021

- *FluxDataVision Project: Analysis of pedestrian/customer flows for cities and retail using WiFi sensors*
  - Developing prediction and anomaly detection algorithms for human flow analysis.
  - Building heatmap generation algorithms for human flow inside stores.
  - Designing an alpha version of a product (using cameras) to detect, recognize, and compare customer faces, estimating morphological data such as age, gender, and BMI using deep learning techniques.
  - Creating a dataset of 150k labeled facial images with morphological data.
- *Project YouTakeCare: Analysis of elderly behavior in their homes through indoor localization using WiFi sensors*
  - Development of a Proof of Concept (POC) and implementation of the necessary algorithms to address the behavioral analysis problem
  - Construction of a behavioral model of the home through an analysis of daily activity
  - Development of anomaly detection and management algorithms for behavioral monitoring
  - Improvement of indoor geolocation through data fusion techniques and signal processing
- **Technical Stack: Python, SQL**

EDUCATION

University of Lille, France
PhD in Artificial Intelligence   2015–2018

University of Technology of Compiègne, France
Master in Complex Systems, Labex Scholarship   2014–2015

Lebanese University, Lebanon
Engineering Degree   2010–2015

PROJECTS AND CONTRIBUTIONS

- **GitHub Projects**
  - Fraud detection in banking transactions with MLOps using GitHub Actions and Flask API deployment on GCP (GitHub Repository Link)
  - Prediction of valve condition in a hydraulic system based on sensor signals (GitHub Repository Link)
  - Real-time person and face detection in video (Dior perfume ad) with age and gender estimation using YOLO-MTCNN (GitHub Repository Link)
- **Publications**
  - PhD manuscript
  - First publication
  - Second publication
- **Teaching**
  - Teaching in multiple universities(python, machine learning)
- **Menroting activity**
  - Since 2021 I mentor futur data scientists on OpenClassrooms