# Soulaimane EL Mennaoui

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## Objective

I am seeking a permanent position as a datascientistin the banking industry to leverage my strong analytical skills, and to combine it with all the data science skills i learned during my career to help build data-informed strategies.

## Education

**ENSTA Paris, IP Paris** Master's degree in Data Science and Optimization , 2023-2024.

- Optimization and Datascience : Discrete and convex Optimization, NLP, Deep Learning, ML Theory, Reinforcement learning, AI methods for texts and graphs ,Causal inference, Time-series, Monte Carlo.

**ENSTA Paris** Engineering school in Computer Science (Ecole Nationale Supérieure des Techniques Avancées), 2020-2023.

- Mathematics and physics : PDEs, Distribution theory, Signal Processing, Optimization, Probability, stochastic calculus, Statistics, machine learning, Continuum Mechanics, Quantum Physics, Statistical Physics, Numerical Simulation.

**Advanced preparatory school for the French Grandes Écoles,** Lycée Déodat de Severac , 2018-2020.
Field : Physics, Chemistry , Maths, Engineering (PCSI/PSI*).

## Work Experience

**Intern Data Scientist**, *Quantcube Technology*, April 2024 - October 2024.

- Designed and implemented signal extraction methods using asymmetric filters to analyze high-frequency alternative economic time series, enhancing trend detection and real-time insights.

- Applied advanced Kalman filtering techniques to impute missing values and developed optimization-based algorithms for robust outlier detection and removal, improving forecast accuracy and data reliability.

**DATA project Manager apprentice**, *SNCF Réseau*, September 2022 - September 2023.

- Managed the SURFO project (Optical Fiber Monitoring) roadmap and coordinated internal development efforts, and designed project specification based on market analysis.

**Data Analyst/Data engineer apprentice**, *OSMOS Group*, September 2021 - August 2022

- Developed and automated large-scale Python-based data validation workflows for sensor streams, integrating FastAPI services for real-time monitoring and anomaly detection.

- Designed interactive dashboards (Plotly/Dash, Streamlit) to visualize data quality metrics, enabling stakeholders to track anomalies, optimize detection thresholds, and ensure end-to-end data reliability.

**Research intern**, Centre de mathématiques appliqués (CMAP), Ecole Polytechnique , May 2021 - August 2021.

- Developed and analyzed domain decomposition algorithms for solving PDEs using finite element methods.
- Proved convergence results for various algorithms for some particular equations, including the Helmholtz equation.

## Computer Skills

**Programming languages** : Python, C, C++, R, Julia, SQL, PowerBI.
**Frameworks** : NumPy, Pandas, PyTorch, Keras, Scikit-learn, Hugging Face, NLTK, Bert, Transformers, Spark, CVXPY, JAX, Statsmodels, Django, Matplotlib, Plotly.
**Developper tools** : Git, VS Code, AWS, GCP, Jira, Notion, Docker, Daitaku.

## Projects overview

**Finance Projet** : Developed an automated trading bot using Python and Scikit-learn to exploit weather-driven energy market opportunities.
**The shortest Path Algorithm : Airplanes race** Using operations research algortihms to find the fastest route.
**Reinforcement Learning :** Implementation of the Soft Actor-Critic article and experimenting with differents games.
**Ai methods for text and graphs :** Develop a joint embedding model that learns to represent textual descriptions of molecules and their molecular graphs, enabling cross-modal retrieval achieving a 93% accuracy using cosine similarity as a metric.
**Meta-heuristics:** Solved the Minimum Connected K-Coverage Problem using Ant Colony to optimize sensor network mapping.
**Causal inference :** Implementation of Conformal Inference of Counterfactuals and Individual Treatment Effects.
**Deep Learning :** Implementation of RBM, DBN, DNN for the binary alpha digits and MNIST Data.

## Languages

**French** : Mother tongue | **Arabic** : Mother tongue | **English** : Fluent (Scholarly C1)