Naoufal BERQUECHA

Applied Mathematics & Data Science Engineering Student

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About Me

Engineering student specialized in Applied Mathematics and Data Science with strong expertise in machine learning, statistical modeling and data-driven systems. Passionate about building robust and interpretable ML models, designing scalable data pipelines and deploying reliable AI-driven decision systems.

Technical Skills

Programming: Python (Pandas, NumPy, SciPy, Matplotlib, Scikit-learn, PyTorch, TensorFlow), SQL, Scala, Java

Backend & APIs: Spring Boot (REST APIs, MVC architecture)

Machine Learning: Supervised & Unsupervised Learning, Gradient Boosting, Random Forest, Cross-validation, Hyperparameter Optimization, SHAP

Deep Learning: Neural Networks (MLP), LSTM, Feature Engineering

Data Engineering: Spark, Hadoop, ETL Pipelines, Data Quality Monitoring

Tools & Platforms: Git, Jira, Power BI

Professional Experience

Data Supervision & Business Analyst Apprentice
Bpifrance
France • Sept 2024 – Present

- Designed and implemented a data supervision framework including KPI definition and anomaly detection metrics.
- Built ETL workflows for financial datasets and regulatory reporting.
- Contributed to regulatory e-invoicing reform (FacturX format integration).
- Developed operational dashboards for performance monitoring and decision-making.

Data Analyst Intern
Ministry of Agriculture
Morocco • July – Aug 2024

- Performed large-scale data preprocessing using SQL and Python.
- Integrated machine learning models into decision-support systems.
- Conducted exploratory data analysis and feature engineering to improve predictive performance.

Academic Projects

Robust Classification under Data Drift
- Built a Gradient Boosting pipeline with robustness evaluation.
- Simulated covariate and concept drift scenarios.
- Applied SHAP for model interpretability.
- Evaluated model stability using cross-validation techniques.

Parkinson's Disease Detection (Deep Learning)
- Developed MLP and LSTM models for medical signal classification.
- Compared models using ROC-AUC and F1-score metrics.

Time Series Modeling (ARMA / ARIMA)
- Conducted stationarity testing and parameter estimation.
- Performed forecasting evaluation and residual diagnostics.

Languages

French (C1) • English (C1) • Arabic (C2) • Spanish (Basic)