Umut Ekinci – Data Scientist / MLOps Engineer

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https://github.com/umut-ek/umutekinci.git

Data Scientist with 4 years of experience turning complex data into actionable insights that improve performance and decision-making. I combine strong analytical rigor with solid business understanding to design and deliver production-ready, scalable, and reliable data/ML solutions. Autonomous and collaborative, with strong communication skills, I stay continuously up to date with the latest technological and methodological advances to drive impact and innovation.

TECHNICAL SKILLS

Langages : Python, SQL, R
Machine Learning : Scikit-learn, TensorFlow, PyTorch
MLOps : Docker, CI/CD, FastAPI ,CloudWatch , MLflow
Big Data : PySpark, Databricks
Visualisation : Power BI, Matplotlib, Seaborn
Cloud : AWS (EC2, S3, EventBridge, SageMaker, Athena), Git

PROFESSIONAL EXPERIENCE

SNCF Réseau – Data Scientist (Jan 2022 – Present) | Paris, France

SNCF Réseau is the public entity managing France's railway infrastructure, operating one of the largest rail networks in Europe.

- **Rail risk modeling & urgency scoring (U0–U3):** Following a nationwide rail infrastructure crisis, I designed an urgency framework (U0–U3) by integrating operational business rules (aging, load, speed, defect progression) and developed a **Random Forest** model to identify the highest-risk track areas and prioritize monitoring efforts.
- **Power BI operational dashboard (C4Rails):** Built a near real-time monitoring and decision-support environment by integrating **U0–U3 KPIs** and continuous data streams on active defects, enabling faster operational steering and reporting at scale.
- **Full industrialization / automation (MLOps):** Delivered an end-to-end **automated pipeline** orchestrating preprocessing, scoring, and model retraining using **AWS EC2 + EventBridge**, ensuring autonomous updates and continuous performance tracking.
- **Inspection strategy optimization:** Modeled the detection capability of heavy inspection vehicles ("seen / missed") using **Logistic Regression** to produce interpretable detection probabilities per defect; aggregated results at inspection-tour level to measure global performance and optimize resource allocation.
- **Computer Vision / image analytics (Project Lead):** Launched and led the initiative end-to-end: data acquisition, labeling & quality control, preprocessing, **CNN training and evaluation**. Industrialized the solution into an automated pipeline to classify suspicious visual anomalies; integrated **GPS matching** and the active defect database to automatically distinguish known defects from new events—reducing field checks and improving targeting of high-risk areas.
- **Mentorship & leadership:** Supervised and technically mentored **2 MSc interns and 1 apprentice**, coordinating projects including 5-year inspection capacity forecasting, a national rail breakage dashboard, and image-based anomaly detection. Conducted weekly follow-ups, code reviews, and best-practice sharing.

EDUCATION

Data Science & MLOps Training Program — DataScientest & Mines Paris – PSL Executive Education
Master 1 (M1) in Applied Economics — *University of Lille*
Bachelor's Degree in Economics & Management — *Université Paris II Panthéon-Assas*

ADDITIONAL PROJECTS

Selected Projects: Built a TF-IDF + Cosine Similarity content-based recommendation system, an energy consumption forecasting solution (Random Forest + FastAPI deployment), and a Human Activity Recognition model using CNN/LSTM architectures. Live demos and source code are available on GitHub.

LANGUAGES & OTHER

Languages: French (native), Turkish (native), English (B1 – intermediate)
Other: Driving license (Category B) — vehicle owner — available for assignments/missions across France or Europe
Interests: Automotive, aviation, economics, finance, and stock markets