

FURKAN KOCAK

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EDUCATION

MSc. in Big Data Management, Analytics and Data Science - Joint Degree

Sept. 2023 - Sept. 2025

- *Università di Padova*
- *Universitat Politècnica de Catalunya*
- *Université libre de Bruxelles*

Padova, Italy
Barcelona, Spain
Brussels, Belgium

Bsc. in Computer Engineering - Honor Student, GPA: 3.4

Sept. 2018 - July 2023

- *Orta Doğu Teknik Üniversitesi*
- *Politechnika Łódzka*

Ankara, Turkey
Lodz, Poland

PROJECTS

Age Prediction using Attention-based Image Processing on Hand X-Rays

- Achieved a 4% improvement in prediction error by developing attention mechanisms on state-of-art models.
- Boosted the accuracy by 7.7% for Inception-v4, ResNet50 and Deep CNN models employing augmentation.

Stock Index Forecasting

- Revealed a 44% negative correlation between the stock index and a natural phenomenon, El Niño.
- Forecasted 10 years of future stock values utilizing fine-tuned SARIMAX and Prophet models.

AI Research Assistant

- Boosted research efficiency for scholars by ~20% by pioneering an automated recommendation system.
- Implemented the ELT pipeline, processing the meta-data with PySpark and pre-trained Transformer models.

Anomaly Detection for National Railway Company of Belgium (SNCB)

- Helped SNCB to identify top 2 high-risk train routes, using outlier detection in time-series data.
- Achieved 85% recall in predicting engine malfunctions by implementing a Random Forest classifier.

AWS Lambda & Redshift Benchmark Reporting

- Identified a pricing issue causing 90% of total costs due to unexpected AWS Glue interactive sessions.
- Tested 99 TPC-DS queries across 1GB, 10GB, 100GB, and 1TB datasets to assess Redshift's performance.

PostgreSQL Chess Extension

- Extended the capabilities of PostgreSQL by implementing data structures for storing chess games.
- Accelerated the query execution time by ~99% implementing custom B+tree and GIN indexes.

WORK EXPERIENCE

LeanBit

Padova, Italy

AI Engineer

March 2025 - Current

- Building a self-hosted agentic RAG pipeline to automatize information extraction and decision tree processes.
- Testing and fine-tuning open-source LLMs using Huggingface Transformers for a privacy committed system.

United Nations Development Programme (UNDP)

Remote

Blockchain Data Engineer

Sept. 2022 - June 2023

- Led a team of 5 developers using Git issue tracking, ensuring on-time delivery of all client requirements.
- Pioneered a ~98% reduction in intermediary commission by building a decentralized funding platform.
- Implemented data pipelines for real-time predictive analysis and developed user-friendly dashboards.

Simsoft

Ankara, Turkey

Software Development Intern

July 2022 - August 2022

- Developed *Bead Master* (50,000+ downloads), boosting one of Turkey's 50 fastest-growing tech companies.
- Enabled seamless development for upcoming 14 months by applying Github best practices and OOP.

SKILLS

- **Programming & Query Languages:** Python, R, SQL, C/C++, C#, Cypher.
- **Big Data & Databases:** PostgreSQL, AWS (Glue, Redshift, Lambda, S3, EC2), NoSQL, PySpark, Neo4j
- **Machine Learning:** PyTorch, Tensorflow, Scikit-learn, Pandas, NumPy, RAG, LLM, Agentic AI
- **Other Tools:** Git, Linux (Bash), Tableau, Matplotlib, Seaborn, API integration, Airflow, CI/CD.

LANGUAGES

English (C2) - Turkish (C2) - Spanish (A1)