

MEHMET İŞIK

Data Scientist & Machine Learning Engineer

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PROFESSIONAL SUMMARY

Data Scientist with 10+ years of industrial plant management experience, specializing in Machine Learning, NLP, and GenAI. Currently leading AI product development at a TÜBİTAK-funded startup, architecting an NLP-driven analytics platform with a team of 5. Unique combination of domain expertise in wastewater engineering with advanced data science — from full-stack AI-powered plant management systems to multi-LLM autonomous agent architectures. Active Kaggle contributor (120+ notebooks) with published benchmarks evaluating 22+ frontier LLMs on domain knowledge, sequential decision-making, and autonomous management.

TECHNICAL SKILLS

Programming & Data	Python, SQL, Pandas, NumPy, Scikit-learn, SciPy
Machine Learning	Regression, Classification, Clustering, Ensemble (XGBoost, LightGBM, CatBoost), NLP, Time Series, Recommender Systems
Deep Learning & AI	TensorFlow, Keras, Neural Networks, CNNs, Sentiment Analysis, SHAP, Optuna
GenAI & LLM	Prompt Engineering, Multi-Agent Architectures, LLM Benchmarking, Groq API, RAG, Streamlit AI Apps
Cloud & Data Eng.	AWS (S3, Lambda, DynamoDB, Kinesis, Redshift, SQS, Glue, QuickSight), Kafka, Spark, Docker, Elasticsearch
Full-Stack & Web	React 19, Tailwind CSS 4, Supabase (PostgreSQL, Auth, Realtime), Vite, Vercel, PWA
Visualization & BI	Matplotlib, Seaborn, Recharts, Power BI, Kibana, Plotly
Tools & Platforms	Git/GitHub, Kaggle, Streamlit, SCADA Systems (WinCC), MLflow

PROFESSIONAL EXPERIENCE

AI Team Lead

Sofkar — AI-Powered Software Startup | **TÜBİTAK BİGG Funded (₺1M)**

2024 - Present

- Leading development of an NLP-driven analytics platform converting natural language to SQL for non-technical database access.
- Architected the core RAG pipeline: LLM-based query generation, schema-aware retrieval, and automated visualization.
- Managing a cross-functional AI team of 5 — hiring, task allocation, and technical direction from prototype to product.

Data Science Mentor

Freelance

2024 - Present

- Mentoring aspiring data scientists in Python, ML, feature engineering, and CRM analytics through project-based training.

Data Scientist

Adana ASKİ General Directorate — Ceyhan WWTP & Biogas Plant, Adana

2023 - Present

- Architected ATİKSİS, a full-stack AI-powered plant management platform (React 19, Supabase, Claude/DeepSeek AI) now in production at Adana Water Authority with role-based access for 6 user types.
- Built AI briefing engine generating automated weekly facility assessments with process analysis, trend evaluation, and action recommendations.
- Created the WWTP Engineering Benchmark on Kaggle, evaluating 20+ LLMs on 10 real-world engineering tasks.

Plant Manager

Adana ASKİ General Directorate — Ceyhan WWTP & Biogas Plant, Adana

2016 - 2023

- Managed operations of a WWTP serving 91,000+ population equivalents (34,896 m³/day), including biological treatment, sludge processing, biogas cogeneration, and SCADA systems.

- Oversaw commissioning of 3 treatment plants. Led cross-functional teams managing budgets and municipal coordination.

Maintenance Specialist

2015 – 2016

Adana ASKİ General Directorate — Ceyhan WWTP, Adana

- Equipment maintenance, pump repairs, and machinery operation; hands-on process control and SCADA experience.

KEY PROJECTS

ATİKSİS — Wastewater Treatment Plant Management System

2025

React 19, Supabase, Claude/DeepSeek AI, Tailwind CSS 4, PWA | Production System

- Full-stack AI-powered plant management platform in production at Adana Water Authority. Simulation engine calibrated on 4 years of real data (1,454 data points), 16 process charts, AI briefing reports, inventory & procurement tracking. Multi-facility architecture.

WWTP AI Benchmark Series

2025

Kaggle | LLM Benchmarking | Sequential Decision-Making | Multi-Agent Architecture

- Operator Challenge: 22 LLMs tested as plant operators for 30 days via Monod kinetics simulation with crisis scenarios; best score 64/100. Autonomous Management: 7 frontier LLMs on 10 emergency scenarios, multi-agent architecture achieving 92% Grade A.

Higgs Boson Detection with ML

2025

Kaggle | 9-Layer Feature Engineering + CatBoost + SHAP

- ML pipeline for CERN ATLAS particle detection. 9 layers of feature engineering (28 → 100+ features). Top-tier CatBoost performance with SHAP interpretability.

Real-Time IoT Sensor Data Analytics

2024

Kafka, Spark, Elasticsearch, Kibana, Docker, ML

- End-to-end real-time pipeline: Kafka streaming, Spark processing, Elasticsearch storage, Kibana dashboards with ML-based activity prediction.

AI-Powered Applications Suite

2024-2025

Streamlit, Groq API, Hugging Face, Multi-Platform AI

- 5 AI apps: Smart API Agent, Data Insight Agent, SQL Insight Agent, Image Variations Generator, Text Generation Studio.

AWS Cloud Data Pipelines

2023-2024

AWS (S3, Lambda, DynamoDB, Kinesis, Redshift, SQS)

- 6 cloud-native pipelines for real-time crypto analytics via Binance API. Lambda triggers, Kinesis-to-Redshift, SQS event-driven architectures.

EDUCATION

Micro MBA – Business & Financial Services Marketing

2021 – 2022

Istanbul Technical University

B.Sc. in Mechanical Engineering

2009 – 2014

Karabük University, Turkey

GPA: 3.14/4.00 | Erasmus: Koszalin University of Technology, Poland (2012)

TRAINING & CERTIFICATIONS

Deep Learning (Miuul, 2025) • MLOps Bootcamp (VBO, 2025) • Generative AI & Prompt Eng. (VBO, 2024)

Data Engineering Bootcamp (VBO, 2024-2025) • Data Scientist & ML Bootcamp (Miuul, 2022-2023)

AWS Cloud Technical Bootcamp (Miuul, 2023) • Data Engineer Path (Miuul, 2023)

LANGUAGES

Turkish (Native) | English (Intermediate) | Polish (Elementary)