

Mirza Özer

Data Scientist | Applied AI & ML

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PROFESSIONAL SUMMARY

I work as a Data Scientist in the R&D team at Turkuvaz Media Holding. I contribute to recommender systems, sales/demand forecasting, fraud detection, computer vision, NLP/LLM, simulation, and optimization projects across retail and marketplace domains. My work spans data preparation and model development through automation, evaluation, and decision-support processes.

EXPERIENCE

Data Scientist — Turkuvaz Media Digital — R&D Team

Mar 2024 – Present | Istanbul, Türkiye

- I work on end-to-end R&D projects for D&R and idfix teams, covering data preparation, modeling, optimization, evaluation, and automation.
- I develop personalization, cross-sell, and product discovery solutions using Collaborative Filtering, Content-Based Filtering, Sequential Pattern Mining, and semantic/LLM-assisted ranking approaches.
- I combine ML and Operations Research methods for operational problems such as sales/demand forecasting, inventory replenishment, inter-store transfers, store simulation, bottleneck analysis, shift scheduling, warehouse slotting, and order batching.
- I build data and ML pipelines for fraud detection, product color recognition, sentiment analysis, and generative marketing imagery using Python, SQL, Spark/PySpark, Docker, and orchestration tools.

Data Engineer — Treo Bilgi Teknolojileri (Treamind)

May 2023 – Mar 2024 | Istanbul, Türkiye

- Implemented HPE Data Fabric and Unified Analytics solutions in enterprise environments; managed distributed data pipelines and ML deployment workflows across Hadoop- and Docker-based infrastructures.

AI & Backend Intern — WizardTales

Oct 2022 – Mar 2023 | Düsseldorf, Germany

- Worked on deep learning-based recommender systems for e-commerce, focusing on inference performance and recommendation quality improvements.

AI & Backend Intern — Texinsight

Jan 2022 – Jun 2022 | Istanbul, Türkiye

- Developed transformer-based NLP/OCR pipelines for document-scanning applications, focusing on model accuracy and processing efficiency.

R&D PROJECT PORTFOLIO

Completed R&D Projects

- D&R — Personalized Recommendation System for Media and Retail Using Collaborative and Content-Based Filtering (Recommender Systems, Collaborative Filtering, Content-Based Filtering, Sequential Pattern Mining, Ranking).
- idfix — Personalized Recommendation System for Media and Retail Using Collaborative and Content-Based Filtering (Personalization, Candidate Generation, Behavioral Patterns, Semantic Ranking).

Mirza Özer — Data Scientist

- D&R — Sales Forecasting, Inventory Replenishment and Transfer Optimization for Airport Stores (Demand Forecasting, Inventory Optimization, Transfer Optimization, Decision Support).
- D&R — System Design for Store Simulation-Based Bottleneck Analysis and Shift Scheduling Optimization in Retail (Simulation, Bottleneck Analysis, Shift Scheduling, Operations Research).

Ongoing R&D Projects

- idefix — Agent-Based Fraud Detection System for Marketplace Environments. I work on fraud prediction, ranked alerts, review queues, audit sampling, feedback datasets, and a human-in-the-loop decision-support structure.
- idefix — Machine Learning-Based System for Product Color Recognition Automation in a Marketplace Environment. I develop a Computer Vision pipeline for color recognition and classification from product images.
- idefix — Sentiment Analysis-Based Decision Support System. I develop NLP pipelines that extract sentiment from text for use in decision-support processes.
- D&R — Warehouse Slotting Optimization. I work on warehouse layout and operational efficiency using Warehouse Slotting and Multi-objective Optimization methods; Order Batching is also one of the related areas of study.

Internal Applied AI Systems

- Complementary Category & Product Recommendation — category-to-category and category-to-product ranking systems for cross-sell and product discovery at idefix.
- Scene Generation for Product Images — Multimodal / Generative AI pipelines that generate product- and image-aligned background scenes for idefix product marketing visuals.
- Book Content Identification & Listing — catalog classification and listing pipelines for D&R books using metadata enrichment, NLP, and rule-based content analysis.

RESEARCH PUBLICATIONS & CONFERENCE CONTRIBUTIONS

- Retail Sales Forecasting Using Competitor Data: An XGBoost Model Optimized with Optuna — ISPR 2025; Springer, AI-Driven Production with Green Sustainability, Lecture Notes in Mechanical Engineering (2026), pp. 162–169. DOI: 10.1007/978-3-032-22784-3_14.
- A Comparative Analysis of GSP and PrefixSpan for Sequential Pattern Mining using Real-World Data — ETMS 2025. Published by Springer.
- Comparative Analysis of Heuristic and Meta-heuristic Algorithms for Order Batching Problem in Warehouse Management — INFUS 2026.
- Depolama Yeri Atama Problemi İçin Çok Amaçlı Optimizasyon Modeli ve Çözüm Yaklaşımlarının Karşılaştırmalı Analizi — YAEM 2026.

TECHNICAL EXPERTISE

Applied AI & ML: Recommender Systems, Collaborative Filtering, Content-Based Filtering, Sequential Pattern Mining, Ranking, Fraud Detection, Anomaly Detection, Computer Vision, NLP, Sentiment Analysis, Demand/Time-Series Forecasting, Classification, Deep Learning, scikit-learn, XGBoost, LightGBM, Optuna

Optimization & Simulation: Operations Research, Mathematical Optimization, Inventory & Transfer Optimization, Warehouse Slotting, Order Batching, Shift Scheduling, Multi-objective Optimization, Heuristics/Metaheuristics, Simulation, PuLP, COIN-OR CBC

GenAI & LLM: LLMs, RAG, Embeddings, Vector Databases, Semantic Retrieval/Reranking, Agentic AI, Human-in-the-Loop, Hugging Face Transformers, LangChain, LlamaIndex, FAISS, Milvus, Pinecone, Multimodal AI, ComfyUI

Data Engineering & MLOps: Python, SQL, Apache Spark, PySpark, Hadoop, Dask, ETL, Airflow, n8n, Docker, FastAPI, MLflow, Git, Linux, REST APIs, CI/CD for ML, Model Monitoring/Versioning, AWS, GCP, BigQuery, Snowflake, HPE Data Fabric, Kubernetes (basic)

EDUCATION & CERTIFICATIONS

Istanbul Commerce University — B.A. in Business Administration (English) | GPA: 3.54 / 4.00 |
Ranked 2nd in department | Academic Merit Scholarships (2019–2020, 2021–2022)
Certifications: DeepLearning.AI Deep Learning Specialization | Google Data Analytics Professional
Certificate | IBM Data Science Professional Certificate | HPE Unified Analytics & Data Fabric