

Mustafa Aslan

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EDUCATION

PhD in Probabilistic Machine Learning in Healthcare Management Cardiff University, UK

Cardiff, UK
Oct 2024 — Present

Recipient of WGSSS-ESRC Studentship Award

Project focused on enhancing discharge care coordination in healthcare and social care using a probabilistic data-driven modelling approach

Supervisors: Prof Bahman Rostami-Tabar, Dr. Jeremy Dixon

MSc in Financial Mathematics Middle East Technical University, Turkey

Ankara, Turkey
Oct 2017 — Aug 2021

Dissertation: Effects of Exchange Rate Volatility and Firm-Specific Features on the Rates of Returns of the Manufacturing Firms Listed in Borsa İstanbul: A CAPM Approach

Statistical & Machine learning techniques used: Markov Switching GARCH Models, ARIMA, Panel Data Econometrics, Principal Component Analysis

BSc in Business Administration Middle East Technical University, Turkey

Ankara, Turkey
Oct 2011 — Aug 2015

WORK EXPERINCES

Reporting and Data Analytics Executive AKBANK (a leading bank in Turkey)

Ankara, Turkey (Remote)
Jun 2022 — Sep 2024

Applied time-series forecasting and machine learning techniques, including ARIMA, Bayesian Time Series, Prophet, ANN, LSTM, Random Forest, LightGBM and XGBoost, to historical data for making long-horizon forecasts of daily customer call volume. The best model achieved over 94% accuracy (1-MAPE) in forecasting all days of the next month.

Implemented machine learning models (e.g., XGBoost, LightGBM, CatBoost) to predict customer behavior with an over recall rate of 70% and an accuracy rate of 85%, enabling fewer customer complaints and increase sales by 14%.

Analyzing large amounts of data to identify trends and find patterns, signals and hidden stories within customer calls data.

Applied machine learning techniques (Z-score, IsolationForest) to detect anomalies.

Applied unsupervised machine learning techniques (DBSCAN, Gaussian mixture, K-means) to cluster customers.

Hyperparameter tuning for machine learning models using Hyperopt, Optuna and KerasTuner.

Research Associate The Economic Policy Research Foundation of Turkey (Think Tank)

Ankara, Turkey
Jan 2022 — Apr 2024

Determined areas of research to increase knowledge in the particular field.

Utilizing inferential statistics such as hypothesis testing (e.g., t-test, ANOVA test, population proportion test), confidence intervals, correlation analysis and regression analysis to make inferences and draw conclusions about data.

Developed statistical models (regression analysis, panel data modeling) for regional development projects to contribute to data-driven decisions.

Senior Process Development Analyst
ETI GIDA Inc (a major FMCG player in Turkey)

Eskisehir, Turkey
Jun 2019 — Jan 2022

Interacted with internal customers to understand business needs and translate into requirements and project scope.

Assessed the impact of current business processes on users and stakeholders and evaluated potential areas for improvement.

Maintained strong working knowledge of ERP (SAP), CRM and business intelligence tools and operational features.

Internal Auditor
Turk Telekom Inc. (the telecom giant of Turkey)

Ankara, Turkey
Nov 2015 — Jun 2019

Performed strategic planning, execution and finalization of audits using data analytics and critical thinking skills.

Investigated discrepancies discovered during the auditing process.

Recommended new methods to improve internal controls and operating efficiency.

RESEARCH INTERESTS

Data-driven decision making

Machine learning

Reinforcement learning and stochastic optimization in decision making

Time series forecasting

Probabilistic forecasting

Conformal prediction for time series forecasting

SKILLS & EXPERTISE

Expertise: Mathematical and Statistical Modeling, Machine Learning, Time Series Analysis and Forecasting, Stochastic Optimization and Reinforcement Learning, Statistical and Explanatory Data Analysis

Programming: Python, SQL

Reporting: Quarto, Advanced Excel, QlikView, SAS

Languages English (Fluent), Kurdish (Native), Turkish (Native)

PROFESSIONAL DEVELOPMENT

Certification:

[Data Science: Machine Learning, HarvardX \(edX\)](#)

Books (some of my go-to books):

Forecasting: Principles and Practice (Hyndman et al, 2021)

Introduction to Statistical Learning with Applications in R (Tibshirani et al, 2019)

The Elements of Statistical Learning (Tibshirani et al, 2008)

Probabilistic Machine Learning: An Introduction (Murphy, 2022)

Reinforcement Learning: An Introduction (Barto et al, 2018)

Reinforcement Learning and Stochastic Optimization (Powell, 2022)

Time Series Forecasting in Python (Peixeiro, 2022)

A Student's Guide to Bayesian Statistics (Lambert, 2018)

Dive into deep learning (Zhang, 2022)

REFERENCES

Available upon request