ALPER SENER

CONTACT

ialpersener@gmail.com
+90 537 838 3960
https://github.com/ilyalper/
Ankara, Turkey

INTERESTS

- Energy Transition
- Power & Gas Markets
- Renewable Energy
- Probability and Statistics
- Data Analysis, Data Science
- Time Series
- Machine Learning
- Forecasting, Regression Classification, and Clustering Algorithms

SKILLS

Professional Knowledge

- Python
- R
- Matlab
- SQL
- MS Excel, Powerpoint, Word
- GAMS, XPress, CPLEX
- SDDP

Prior Experience

- SPSS
- Minitab
- Tableau
- IBM Cognos
- Simulation with Arena

HOBBIES

Video & Board Games | Travel | Energy Transition

EXPERIENCE

CO-FOUNDER
http://oplist.herokuapp.com/
Jan 2021 - Present

- Oplist is a scheduler application for enterprises that aim to optimize workload on their staff with respect to certain constraints
- Responsible for the mixed integer programming algorithm development by using Python-Mip library

FREELANCE CONSULTANT
Mar 2020 - Mar 2021

- Data driven consultancy is provided to Deloitte Turkey in demand forecasting projects for electricity, natural gas and cement sectors
- Management consultancy services are provided to Tara Development on Electricity Market Transition of Republic of Azerbaijan

RESEARCH ASSISTANT
Middle East Technical University
Mar 2020 - Present

- Working as a research and teaching assistant in Industrial Engineering Department

SENIOR CONSULTANT
Deloitte Consulting
Mar 2020 - Present

- Worked as a senior consultant by modeling and analyzing long term power & gas price forecasts for Turkish energy markets, optimizing the operation regimes of power plants for their power trading operations, developing commercial due diligence models for both international and local investors.
- *Fast tracked employee* title is granted and promoted to Senior Consultant role in 3 years

EDUCATION

MIDDLE EAST TECHNICAL UNIVERSITY
2019 - 2022
Master's Degree Candidate in Operations Research (GPA: 3.86/4.00)

- Mixed Integer Programming and Memetic / Genetic Algorithm Development for Clustering Problems with Feature Selection

BILKENT UNIVERSITY
2010 - 2015
Bachelors Degree in Industrial Engineering (GPA: 3.83/4.00)

- Finished 5th in terms of GPA
- Undergraduate Research: "*A Lagrangian Relaxation Heuristic for the Load Balanced Facility Location Problem*" Selection

Minor Degree in Economics (GPA: 3.82/4.00)

IZMIR SCIENCE HIGH SCHOOL, IZMIR, TURKEY
2006 - 2010

AWARDS & CERTIFICATES

- Professional Certificate of IBM Data Science from Coursera (December 2021)
- IELTS Academic Overall 7.5/9 (Speaking: 7, Reading: 8.5, Listening: 8.5, Writing: 6.5)
- Merit Based Graduate Research Scholarship from the Scientific and Technological Research Council of Turkey (2019 - 2021)
- Comprehensive Scholarship from Bilkent University (2010 - 2015)
- Ranked 13th among 410000 candidates in Selection Exam for Academic Personnel and Graduate Studies (ALES, 2019 Spring)
- Ranked 369th among 1.5 million candidates in the University Entrance Examination (2010)
- Ranked 177th among 1 million candidates in the High School Entrance Examination (2006)

SUMMARY OF SELECTED PROJECT EXPERIENCES

Electricity & Natural Gas Market Price Forecasting in Turkish Energy Markets

Deloitte Turkey performs a fundamental market model in order to forecast energy prices in Turkey and output of these models were mostly used for market analysis and asset valuation purposes. In correspondence with the results, we were able to provide valuable insights for Turkish Electricity Markets to the local and international companies.

In these projects I was in charge of the project management, including demand and supply forecasts, utilization of market models and providing sophisticated insights to the customers.

National Cement Demand Forecasting in Turkey with Machine Learning

In order to forecast cement demand internal and external data sources to be used in the model were determined and wrangled. Then, through LASSO and Ridge regression methods relevant features are selected. In the modeling phase, several machine learning algorithms are tested (Various regression approaches, Gradient boosting, XGBoost etc.) and XGBoost was selected as the fittest algorithm. To compare models, RMSE, MAPE and MSE scores were considered.

In this project, I acted as a consultant during feature selection and algorithm implementation phases.

Oplist Scheduler - http://oplist.herokuapp.com/

Oplist is a SaaS application that provides web-based services. The application can decrease scheduling time from days to minutes for health sector professionals. There are three main components of Oplist: frontend application, backend application and solver application.

I developed the solver application of the product, a mixed integer programming model that maximizes the staff satisfaction on scheduling. Here, I have utilized related Python libraries (Pandas, Numpy and MIP) to solve scheduling problem in an open-source environment.

Solver application takes input from backend application in JSON format and solves the constraint satisfaction problem. Output is provided to frontend application through backend application.

Mixed Integer Programming and Memetic / Genetic Algorithm Development for Clustering Problems with Feature Selection

I developed a mixed integer mathematical model to find an optimal clustering with feature selection. Since it is an NP-Hard (nondeterministic polynomial-time hard) problem, finding an optimal solution may take hours. Therefore, I proposed a memetic algorithm that follows a heuristic approach. This method is able to find feasible and close to optimal solutions in much shorter times (less than 1 minute) by using MATLAB.