

Soner Can KALKAN

AI Researcher

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I'm a computer engineer with a deep passion for Artificial Intelligence and Deep Learning. I'm driven by the idea of drawing inspiration from nature's complexities and translating those insights into cutting-edge computational solutions. With a strong commitment to continuous learning and innovation, my goal is to push the boundaries of AI to create meaningful advancements that have a real-world impact.

WORK EXPERIENCES

Senior Data Scientist - EPAM Systems

Sep 2024 - Present

- **OCR and LLM Integration for Astra Zenaca**
 - Led the integration of Amazon Bedrock and Textract to automate the processing of drug test reports, improving efficiency by **80%** and reducing manual data entry errors by **25%**.
 - Applied image augmentation techniques to enhance Textract results, boosting data extraction accuracy by **30%** and ensuring reliable document interpretation.
- **Machine Learning Based Vitro Vivo Test optimization**
 - Optimizing Animal test for drugs to reduce test number and live tests.

Data Scientist - *Buluttan*

Oct 2023 - Aug 2024

- **Energy demand forecasting**
 - Developed energy demand forecasting models for mixed usage (industrial, residential, and commercial), improving forecast accuracy by **50%** and optimizing resource allocation.
 - Designed and implemented Seq-to-Seq models for both intraday and day-ahead energy demand predictions, leading to a **35%** reduction in forecasting errors and improved energy distribution efficiency.
- **Renewable energy prediction**
 - Created predictive models for dispersed solar energy generation, achieving a **35%** improvement in prediction accuracy for both intraday and day-ahead forecasts.
 - Developed wind energy prediction models based on turbine data, enhancing prediction accuracy by **25%** and supporting more reliable energy storage strategies and multi-source energy management

Data Science Customer (Domain Lead) - *Hepsiburada*

Dec 2021 - Aug 2023

- **Buybox and Ranking**
 - Developed and implemented Logistic Regression models for BuyBox ranking, improving the algorithm's ranking accuracy by **1.5%** according to add to cart and return to sales perspective and boosting product visibility.
- **PCA and Graph-Based Recommender System**
 - Led the design of a PCA and graph-based recommender system using PageRank with BCT for edge scoring, resulting in a **10%** improvement in product recommendations and an optimized customer shopping experience.
- **Image-Based Profile Moderation**
 - Developed an image-based profile moderation system using Convolutional Neural Networks (CNNs) and transfer learning (EfficientNet) to automatically detect inappropriate content, increasing moderation accuracy by **92%**.
 - Applied image augmentation techniques to enhance model robustness and improve overall detection performance.

AI Researcher - *Huawei*

Jan 2021 - Dec 2021

- Graph-Based Recommender System
 - Designed and implemented a Graph-Based Recommender System, improving personalized recommendations.
 - Developed a tailor-made topic modeling system using Latent Dirichlet Allocation (LDA), allowing for more accurate categorization and topic identification, leading to better content discovery.
 - Applied Chinese Tokenization, Text Summarization, and Knowledge and Keyword Extraction techniques to efficiently process and extract meaningful information from large text corpora, improving the overall efficiency of NLP pipelines.
 - Utilized NLP and word vectorization techniques (e.g., Word2Vec, GloVe) to enhance semantic understanding and improve downstream tasks such as sentiment analysis and recommendation relevance.

AI Engineer - *DonanimHaber*

Sep 2019 - Dec 2020

- Sensitive Content Classification with Computer Vision and NLP.
 - Orienting state of art models (E-Net, Inception-Net, Caps-Net)
 - Domain specific image processing
 - Image denoising and watermark removing with Autoencoders
 - Layer based deep learning model analysis
- Recommender System Research & Development
 - Collaborative Filtering
 - Content-Based Recommendation
 - Item2Vec For Recommendation
 - Word2Vec For Content-Based Recommendation
 - Session-Based Recommendation Systems

Junior Data Scientist - *TFI Tab Food Investments*

Aug 2018 - Sep 2019

- Restaurant-based forecasting with time-series analysis (on SAS) .
- LSTM Supply Demand estimation.
- Geo-based sales and profit prediction.
- Data scraping and gathering platform for Baidu Map and Amap (Chinese Navigation)
- Customer Satisfaction Survey - Profit optimization with Genetic Algorithms

Data Science Intern - *TFI Tab Food Investments*

Jul 2018 - Aug 2018

- LSTM Network has been developed for forecasting operations. That can be alternative to time series analysis.

R&D Engineer - *Universal Bilgi Teknolojileri*

Oct 2017 - July 2018

- Social media analysis for municipalities
- Sentiment analysis for complaint and wishes
- Geo-based real estate base-value prediction

Research And Development Intern - *Universal Bilgi Teknolojileri*

Jul 2017 - Aug 2017

- Geo-based real estate base-value prediction

EDUCATION

İstanbul Kültür University- *Master Degree, Computer Engineering*

2019 - 2021

Related Courses:

- Natural Language Processing
- Advanced A.I
- Advanced Data Mining Topics
- Software Architecture and Microservice Patterns

İstanbul Kültür University - *Bachelor Degree, Computer Engineering*

2014 - 2018

Related Courses:

- Parallel and Distributed Computing
- Machine Learning
- Image Processing
- Artificial Intelligence
- Robotics

CERTIFICATION

- Deep Learning - Udacity
- Machine Learning Engineer - Udacity
- Convolutional Neural Networks in TensorFlow
- Introduction to Self-Driving Cars
- Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization
- Neural Networks and Deep Learning

ACADEMICAL WORKS

- Deep Learning Based Classification of Malaria from Slide Images
- Session-Based Recommender System for Social Networks' Forum Platform
- A Cloud Based Video Game Sales Prediction Model
- Intrusion Detection System With Machine Learning For Controller Area Network
- Preprocessing Effect on Sensitive Content Classification With Transfer Learning
- How to Segment Turkish Words for Neural Text Classification?

PROJECTS

- **Sensitive Image Filter**
 - Violence and sexual content filter that developed with tensorflow
 - State of art models (Efficient-Net, InceptionNet, RestNet etc) has been used for transfer learning.
 - Autoencoders has been tested for image denoising
 - U-Net has been tested for skin based segmentation.
 - System has been dockerized.
- **China Location Based Data Acquisition Platform**
 - End-to-end project from profit estimation according to geo-based data
 - Data gathering platform that has been developed with python
 - Baidu and Gaode Maps API has been used for location data
- **LSTM Network System For Financial and Logistic Forecasting**
 - Forecasting system for profit estimation and stock optimization.
 - System design to replace or work with time series models.
 - LSTM architectures has been developed with KERAS.

- **Turkish Sign Language Duplex Hand Finger Alphabet Recognition System**

- Bachelor degree final project.
- Whole system for Turkish Hand Finger Alphabet Recognition
- Data has been collected by hand with 12 different people for every letter in Turkish alphabet.
- Image processing techniques have been used to denoise images and detect position of the hand
- With color based skin segmentation and hand contour detection techniques position of hand has been detected.
- Custom image classification model has been developed to classify hand
- ***Dataset has been shared to public :***
<https://www.kaggle.com/feronial/turkish-sign-languagefinger-spelling>
- PyQt has been used to develop front end of the project.
- OpenCV has been used for image processing.

SCHOLARSHIP

Istanbul Kultur University Education Scholarship - %65

Intel® Edge AI for IoT Developers - *Udacity Nanodegree Scholarship*

Bertelsmann Scholarship for AI Product Manager - *Udacity Nanodegree Scholarship*