

# Ayşın Tümay

Department of Electrical and Electronics Engineering, Bilkent University, Ankara, Turkey

github.com/aysintumay in linkedin.com/in/aysintumay

#### Education

## Ankara Atatürk Anatolian Highschool

Sep. 2015 – Jun 2019

 $Science/Maths\ student$ 

Graduation Grade: 97.38/100Diploma Grade: 512.43/560

Ankara, Turkey

Ankara, Turkey

## Bilkent University

Bachelor of Science in Electrical and Electronics Engineering

Sep. 2019 – May 2024

• **GPA:** 3.81/4.00

• Ranked 9 out of 158 students.

## Research Interests

• Machine Learning

• Data Science

• Convex Optimization

• Data Analysis

#### Relevant Coursework

• CS 464 Introduction to Machine Learning

• EEE 485 Statistical Learning and Data Analytics

• EEE 424 Digital Signal Processing

• EEE 392 Individual

Research Study
• EEE 486 Statistical
Foundations of Natural
Language Processing

• EEE 431 Digital Communications

• ECON 439 Game Theory

## Experience

## UMRAM, Bilkent University

August 2021

Undergraduate Research Assistant

Ankara, Turkey

• Practiced Deep Learning methods for detecting brain illnesses in MRI scans.

#### ASELSAN, Radar and Warfare Systems

Algorithm Design Intern

Jun 2022 – July 2022 Ankara, Turkey

• Practiced different tools and methods for geolocation detection of radars using warfare systems in MATLAB.

#### DataBoss Security and Analytics

Machine Learning Intern

August 2022 – Sep. 2022

Ankara, Turkey

 Practiced Machine Learning techniques on Time-Series data using Gradient Boosting and Neural Networks models with Python.

#### **DataBoss Security and Analytics**

 ${\bf December~2022-Present}$ 

Machine Learning Researcher

Ankara, Turkey

- Working on sequential data to build state-of-the-art Machine Learning algorithms.
- Developing novel methods to overcome the curse of dimensionality in high dimensional feature spaces with Gradient Boosting algorithms.

#### **Projects**

## Digital FPGA Piano for Beginner | VHDL, BASYS3

February - May 2021

• Designed a digital piano which outputs notes of 8 octaves from a buzzer based on timer frequency, and the piano image in a VGA screen.

## Analog Multiplier | BJT, LTSpice, DipTrace

February - May 2022

• Designed an analog multiplier with 6 BJTs by simulating it in LTSpice and designing the PCB in DipTrace.

#### Magnetically Levitated Lamp

September - December 2022

• Designed a levitated lamp by constructing 3 magnetic loops for lighting, levitating and magnetization.

#### Image Reconstruction $\mid MATLAB$

• Reconstructed an image from its basis element with FFT.

#### Song Recommendation System for Spotify Playlists | Python, TensorFlow

September - December 2022

- Used Spotify API to extract the musical properties of songs and playlists.
- Trained unsupervised clustering algorithms such as k-Means, DBScan, Autoencoder to give several song recommendations to a playlist.

#### A Basic Level Category Analysis with Commonsense Question Answering

February - May 2023

- Measured the common sense question answering performance of one of the GPT language models, GPT-3.5-turbo, by integrating a well-known language game, Family Feud.
- Analysed basic level category words based on Family Feud dataset.

#### Wind Energy Production Prediction

February - May 2023

- Designed a system to predict hourly total electrical energy consumption in Spain with Linear Regression, Decision Tree, and AdaBoost.
- The models are designed without any builtin library support of Python.

#### Achievements

#### $5^{th}$ Place at Invent Analytics Data Analysis Challange | Jupyter

September 2022

• Trained and tested a Machine Learning model to forecast the sales amount of a clothing brand.

## $3^{rd}$ Place at Ipsos Datathon | Jupyter

May 2023

• Solved a case study about predicting a company's market share by trend analysis using ARIMA and Linear Regression.

#### **Technical Skills**

Languages: Python, SQL, VHDL, MATLAB, Assembly 8051

Developer Tools: Pycharm, Eclipse, Google Cloud Platform, Android Studio

Technologies: Linux, GitHub, LaTex, MS applications

Frameworks: Pytorch, Tensorflow, Scikit-learn

Electronics Tools: LTSpice, DipTrace, Proteus, MCU IDE

#### Publications

**Aysin Tumay**, Mustafa E. Aydin, Suleyman S. Kozat. "Hierarchical Ensemble-based Feature Selection for Time Series Forecasting", *IEEE Transactions on Signal Processing*, 2023. (submitted)

#### Extracurricular

- Active member at Young Entrepreneurs Society, and IEEE Student Branch.
- Ankara Start-up Summit committee member for 2019, and 2020.
- Classical guitar player at high school orchestra.

December 2022