

# Efe Sahin

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I focus on **generative AI** and aim to contribute to the **intersection of AI and neuroscience**. Currently, at MEF University in Istanbul, Turkey, I am developing an **AI-based academic and career assistant bot** for students under the supervision of *Dr. Seniz Demir*, head of the Department of Computer Engineering. I plan to **apply for graduate school** to pursue an MSc and PhD to further utilize my knowledge in neuroscience. Additionally, I **participate in hackathons**, as such competitive environments greatly encourage me.

## Technical Skills

NLP, Diffusion, Time Series Forecasting | Pytorch, Numpy, Pandas, Matplotlib, Seaborn, Solara, StreamLit | Hugging Face, Colab, Kaggle Competitions, Nvidia HPC, Latex | Git, Linux, C, Docker, FastAPI | Apache Spark, AWS, DataBricks, MATLAB, SQL

## Education

Penn State University, University Park, PA

2020 - 2023

Bachelor of Computer Science, B.S. Engineering in **3 years** with a **3.40 GPA. Dean's List** (Spring 2021 & Spring 2023).

BME 450W Biomedical Senior Design: **(A-)**

CMPSC 465 Data Structures and Algorithms: **(B+)**

MATH 452 Deep Learning Algorithms and Analysis: **(A-)**

EE456 Intro to Neural Nets: **(A-)**

MATH 486 Theory of Games: **(A-)**

CMPSC 497 Deep Learning for Computer Vision: **(A-)**

International Baccalaureate, Istanbul, Turkey

2016 - 2020

IB Diploma at MEF International and took higher level courses e.g.: **HL ITGS** and **HL Math**.

## Projects

EEG Data OSC Reciever 05.2024:

Developed script to **log brainwave data streamed** from MUSE headband via Mind Monitor App and also save to CSV for processing.

RealTime Audio Translation 05.2024:

Developed multi-threaded script to **translate internal audio to English** and display. Added an extra layer to **speak back the translation**. Reduced to 5-second delay.

LLM Performance Testing 04.2024:

**Customized and Evaluated 11 different models** inference speed and outputs. Performing **finetuning LLaVA** with custom data on ITU University's UHeM HPC.

Hdmr-opt app2scale 03.2024:

Developed a wrapper function and **optimized XGB Regressor hyperparameters** for **forecasting** e-commerce transaction load data. Advised by *Dr. Huseyin Kaya*.

Smooth Life Cellular Automaton 03.2024:

Implemented **Smooth Life paper** and developed **interactive UI** for tuning simulation parameters. Deployed on **Hugging Face** with **Docker**.

RealTime Audio Censorship 04.2023: Helped

the team design a **multi-threaded module** to "bleep" out banned words in real time and **documented a model card** for the OpenAI whisper model.

Instrumented Mouthguard Design 04.2023:

Researched ways to **receive and transmit kinetic data** inside a mouthguard. The team designed a mouthguard and was given **2nd place in the K12 awards**. Advised by *Dr. Reuben Kraft*.

Maze solver via auto-encoder 12.2022:

Generated a **custom maze dataset** and developed an **auto-encoder network** to solve it. Outputs drew silhouettes of the paths with about **90% accuracy**.

## Certificates

Generative AI with LLMs 02.2024

Agile Project Management 01.2024

Generative AI for Everyone 01.2024

Fundamental Neuroscience for Neuroimaging 01.2024

Purdue University, West Lafayette, IN 07.2017

Harvard University, Cambridge, MA 06.2019-08.2019

Kaplan International School, Manhattan, NY. 10118 08.2018

## Work Experience

Columbia Data Analytics, Junior Programmer Manhattan, NY, 10013

08.2023 - 04.2024

Developed attrition tables for a **Health Economics** startup as a programmer.

Given customer query requests about **drugs, diagnostics, and procedures**, derived tables of patients from relevant **Medical Plans**. Delivered for **6> different requests per week**. Kept track of **past and future customer requests weekly** and reported recent count improvements to the sales team. Participated in weekly, bi-weekly pipeline, and **project discussion meetings** with project managers and programmers. Acted as the **versatile quick-fix go-to person** in technical and non-technical issues in the **dynamic startup environment**.

Bogazici University, Technical Assistant, Remote

08.2023 - 05.2024

In classes of Economy 1 and 2 with *Dr. Onur Baser*, **administered classes of size >200**. Wrote **customizable scripts for automated exams**. Created weekly quizzes in Moodle, **tracked student performance**, and contributed to setting quiz difficulty levels. **Resolved student complaints** regarding grading and course platform errors.