

FERDA GUL AYDIN

<https://www.linkedin.com/in/ferdagulay/> <https://github.com/Ferdagulay>

SUMMARY

I have worked on end-to-end projects, including model training (**PyTorch, Python, and TensorFlow**), writing web services (**Flask and .NET**) and deployment (**Microsoft Azure**), and my master's studies have further strengthened my expertise. I hold a Master's in Data Science and have published research on **GANs, Diffusion Models, and LLMs**. I developed a **RAG** pipeline for searching and summarizing academic papers. Currently based in London with a valid work visa until April 2029, I do not require sponsorship.

EDUCATION

MSc, Game and Interaction Technologies, Istanbul Technical University GPA : 3.56 2019 - 2023

Relevant Coursework: Deep Learning, Machine Learning, Natural Language Processing, Introduction to Game Design And Development, 3d Modelling at Video Games, Game Project Studio, Maths for Games.

BSc, Computer Science, Istanbul University 2011 - 2016

Relevant Coursework: Object Oriented Programming, Software Engineering, Web Programming, C Programming.

SKILLS

Technical Skills : RAG, LLMs, Langchain, Elasticsearch, OpenSearch, AWS, Azure, numpy, pandas, Databricks, Python, Terraform, Tensorflow, Pytorch, Flask, Docker, Scikit-learn Javascript, SQL, .NET Core

Soft Skills : Problem Solving, Agile Teamwork

EXPERIENCE

Volunteer Mentor March 25 - Present

GirlsWhoML *Research and Development* London, UK

- Worked on Deep Learning and Machine Learning projects.
- Preparation of course content related to ML and organization of workshops.

Machine Learning Scientist Aug 23 - Nov 2024

PIMI LAB, *Research and Development* London, UK remote

- Worked on Deep Learning and Machine Learning projects.
- Designed and built a RAG-based system leveraging LLMs and vector search for efficient document retrieval. Utilized the open-source LLaMA model with AWS Bedrock and deployed it using AWS Lambda and ECS.
- Published a journal article on LLMs (OpenAI API) and Diffusion models, a paper titled Game Character Generation with GANs.

ML Engineer / Data Scientist Aug 2021 - Aug 2023

Anatolian Insurance, *Insurance* Istanbul, Turkey

I led end-to-end projects in Document Recognition, Policy Comparison, Car Damage Detection, Logo Detection, Insurance Premium Estimation, and Information Extraction, handling deployment, model training, and coding, and successfully bringing them into production. I also shared my expertise with the team to enhance collective knowledge.

- **Developing and optimizing models** for Classification, Segmentation, Object Detection, CV, NLP, LLMs GLMs and ensemble learning using PyTorch, Python, and TensorFlow.
- **Creating and deploying web services** with Flask and .NET Core to serve trained models effectively.
- **Pioneering Docker implementation** within the team, leading initial experiments, and deploying Docker images to the Azure Cloud environment.

My role required not only technical expertise but also leadership in project deployment and team collaboration, ensuring successful and scalable AI solutions.

Software Engineer

Aug 2017 - Aug 2021

BNP Paribas (Partnership with TEB), *Banking - Finance*

- Worked with an agile team to develop and maintain teb.com.tr, cepteteb.com.tr, an intranet portal, and an EDMS, including designing and implementing CMS panels for these sites
- Used technologies such as .NET Forms, .NET MVC, HTML, JavaScript, CSS, jQuery, SharePoint, and TFS for version control and project management.

Software Engineer

Apr 2017 - Aug 2017

Gamegos, *Gaming*

- Developed test automation scripts for games using Java and image processing techniques with OpenCV to identify UI elements such as buttons. Utilized Appium and Selenium for comprehensive testing and automation.

PROJECTS

RAG-Based Paper Search and Summarization I developed a RAG-based system that allows students to quickly search and understand papers assigned by our professor. Using semantic search and LLM-generated summaries, the system helps students efficiently extract key insights from academic articles.

AI-Driven Game Character Generation: Diffusion, GANs and LLM-Based Evaluation I trained GAN models and diffusion models to generate game characters. Afterward, I used generated images in a game and collected feedback from users. Using this feedback, I made inferences with LLMs (OpenAI API). This work has been published as a paper in a journal.

Document Recognition I developed an AI application to classify 11 document types, training various models with TensorFlow. I then created a Flask web app and deployed it, achieving a 95/100 accuracy rate. This application greatly benefited many employees in the company

Information Extraction From Bills, Licence I worked on Layout Analysis approaches for extracting information from invoices. To achieve this, I utilized segmentation models such as MaskRCNN and U-NET. For certain areas within the invoices, I trained a YOLOv5 model. Finally, I employed OCR to extract the information. I applied similar methods for other document types. I used Flask to convert it to web service and successfully deployed it into production.

Logo Detection I developed a project to separate documents with two logos using a YOLOv3 model, achieving a 95/100 success rate.

Insurance Premium Estimation We developed an interpretable insurance premium model, initially exploring methods like GBMs, GLMs (logistic regression). We ultimately chose GLM (logistic regression) due to its better performance.

Insurance Policy Comparison I worked on a project to help customers understand policies by allowing them to upload and compare their policies with the company's offerings. I trained a Fasttext language model and used simple NLP techniques. The web service was built with .NET Core and successfully deployed into production.

Car Damage Detection I worked on an AI-based car damage detection and pricing project, focusing on deployment. I created a Docker image and deployed it to Azure Cloud platform using AKS, and also made the Flask service operationa

www.teb.com.tr I contributed to developing TEB's main website using .NET Web Forms, HTML, JavaScript, and jQuery, and enhanced its CMS component. ([Try it here](#))

www.cepteteb.com.tr I worked on the TEB's secondary website, using .NET MVC, HTML, JavaScript, and jQuery. I contributed to its development, including its CMS. ([Try it here](#))

www.intrateb.com.tr I was involved in the creation of an intranet website for internal access within the bank, where I used SharePoint.

www.edys.com.tr I developed a website for managing bank documents, utilizing SharePoint and .NET Web Forms for the backend, and HTML, JavaScript, and jQuery for the frontend.

PRIZES/PAPERS

- Game character generation with GANs ([Paper](#))
- One of 7 finalist teams in the Etathon Datathon Data Science Challenge by Borusan Logistic
- 3rd place in the AI Use Case Challenge competition organized by Global AI Hub.