

# EMRE DEMIR

+49(1520) 797-9960 ◇ Munich, Germany

[contactemredemir@gmail.com](mailto:contactemredemir@gmail.com) ◇ [linkedin](#) ◇ [portfolio](#) ◇ [github](#)

## EXPERIENCE

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### Master Thesis Student

German Aerospace Agency(DLR)

May 2023 - Ongoing

*Munich, Germany*

- Introducing Hardware Aware Neural Architecture Search for Earth Observation Computer Vision models to increase the performance of the algorithm on certain hardware.

### Data Scientist - Working Student

Siemens Financial Services

Dec 2021 - Ongoing

*Munich, Germany*

- Developed cash flow prediction Machine Learning models for teams in the United Kingdom and Poland, resulting in predictions that outperformed the existing baseline by 70
- Worked on a solution for extracting tables from scanned PDFs by developing a PDF-Table extractor. The solution was successfully implemented and deployed to the IT department.

### Machine Learning Engineer

Insider (Unicorn Software Startup)

July 2020 - Aug 2021

*Istanbul, Turkey*

- Contributed to development and maintenance of an in-house Auto ML Platform, serving over 450 customers.
- Developed a prototype NLP model using PyTorch to predict webpage types for customer clicks.
- Enhanced Machine Learning Operations pipeline using Apache Airflow, Kubernetes, Docker, and AWS products.

### Software Engineer

Vodafone

June 2019 - July 2020

*Istanbul, Turkey*

- Successfully developed Chaos Engineering tool for Cloud Operations Team. To enhance system performance and reliability.
- Designed and developed a vulnerability notifier web application using for the Cyber-Security Team. Which effectively manages and tracks inventory of various device types, minimizing security risks and ensuring compliance.

## EDUCATION

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Master of Computer Science, Technical University of Munich

2021 - Expected 2023

Bachelor of Computer Science, Anadolu University

2014 - 2019

## PROJECTS

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**Neural Architecture Search for Computer Vision** Developed an automated a Neural Architecture Search pipeline that efficiently trains hundreds of Computer Vision models on HPC, resulting in the successful training of 1000 Deep Learning models.

**Federated Learning on Medicine with Diabetes Data** Utilized the Python-based Flower framework to develop a simulation for Horizontal Federated Learning. The simulation involved distributing the dataset among 10 clients in a heterogeneous manner and training it in a centralized manner while preserving the privacy.

**Picky-Rabbit** Implemented the LLM Powered Food Content Information Chatbot project, which provides users with detailed information about the contents of their packaged food. In the second version, the chatbot incorporates Similarity Search with LLMs, enabling it to respond by considering the food data stored in the compact vector database FAISS.

**Deep Learning to find 2D to 3D Point Correspondence on Non-Textured Objects** Using a cutting-edge 6D pose estimation model, we were able to find successful 2D to 3D feature correspondence for non-textured objects.

**MusicMood** It suggests songs based on the selected mood and utilizes a Machine Learning classifier to refine the choices according to the user's preferences.

## SKILLS

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- Python, C++, Scala
- Machine Learning, Deep Learning, Object Detection, Image Segmentation, Large Language Models
- Pytorch, FastAPI, Flask, Apache Spark, Kubernetes, Docker, Airflow, AWS, Azure, Linux, Git