# **Mert** Kurttutan

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## Experience

### AON | Machine Learning Developer | Docker | Azure | Python | Pytorch

**August 2022 - Present | Remote, Part-time, Germany**

- ➔ Developed Automatic Speech Recognition micro-service with FastAPI needed for Data Science Team, and Dashboard used internally by Company
- ➔ Worked on a project to create deep learning model for anomaly detection.
- ➔ Collected Resume Data and (working on) NLP solutions (e.g. Named Entity Recognition) to process resume for better candidate evaluation

### SINCH | Machine Learning Engineer

**January 2023 - Present | Remote, Internship | NLP | Large Language Models**

- ➔ Prepared the fine-tuning data for LLM on internal pipeline
- ➔ Optimize pipeline using LLM to extract knowledge from doc, prompt engineering

### UNIVERSITY OF AMSTERDAM | Research Internship | Numerical Simulation

**May 2019 - August 2019 | Amsterdam, Netherlands**

- ➔ Research on topological insulators and reported to Prof. van Wezel
- ➔ Co-authored publication on Phy Rev B. To see the paper, click **here**

### LMU MUNICH | Research Internship - High Performance Computing

**July 2021 – September 2021 | Online**

- ➔ Conducted numerical simulations on crystalline systems using tensor network methods, e.g. DMRG, to study magnetic properties and used HPC Clusters
- ➔ Co-authored publication on Phy Rev B. To see the paper, click **here**

### SABANCI UNIVERSITY | Teaching Assistant for Linear Algebra and Abstract Algebra

**January 2016 – May 2020 | Istanbul Turkey**

- ➔ Conducted Recitation classes, Prepared Quizzes and Graded assignments

## Projects

### NBA MATCH RESULT PREDICTION |AWS, Apache Airflow, XGBoost,TF, | github link

- ➔ Extracted data from nbastats endpoint using api, webscraping proxies; used Airflow, AWS EventBridge and ECS to automate data processing
- ➔ Implemented DNN and boosted tree to predict match results, val accuracy $\sim 74\%$
- ➔ Deployed containerized web app for prediction using Flask and AWS ECS

### OBJECT DETECTION | Pytorch, Tensorflow, TFX | github link

- ➔ Implemented Pytorch and Tensorflow version of YOLOv2 architecture (darknet19) and implemented hyperparameter tuning process with Optuna and KerasTuner
- ➔ Created deployment with TFX, and Kubernetes on Google Cloud using Kubeflow

### SALES PREDICTION | Python | github link

- ➔ Implemented tree-based ensemble methods via Xgboost, and stacking method
- ➔ Implemented app for sales prediction using FastAPI and Docker

### AUCTION WEB APPLICATION | PHP, MySQL, C++ | github link

- ➔ Implemented ETL process and database with features e.g. trigger, buffer manager
- ➔ Implemented web application that conducts process of bidding using PHP and CSS

### TORCHVIEW | python | Github Actions | Pytorch | github link

- ➔ Created fully functional and customizable python packaging for visualizing pytorch models, 10k downloads

## Skills

### PROGRAMMING

**Proficient:**
MATLAB • • Rust • MySQL • PostgreSQL • Bash

**Experienced:**
Python • Julia • LaTeX • • Go

### TOOLS/PLATFORMS/OS

Git • Docker • Kubernetes • CMake • Linux • Google Cloud Platform / AWS • TensorFlow, • Pytorch • Kube-flow/Airflow/FastAPI/django

## Publications

• Topological invariants of rotationally symmetric crystals
• Ferromagnetism and Skyrmions in the HFH Model

## Education

### FREIE UNIVERSITÄT BERLIN

Master's in Physics (Quantum Information Theory)
**Sep 2021 - Present | Berlin**

### SABANCI UNIVERSITY

Bachelors in Materials Science
**Sep 2017 - June 2021 | Istanbul**
School of Engineering
Minor in Physics and Math,
GPA=3.96/4.00

## Certificates

Coursera Deep Learning Specialization, TensorFlow: Advanced Techniques Specialization, ML Engineering for Production Specialization, For verification and complete list, please see **here**

## References

**Jasper van Wezel**, Associate professor, University of Amsterdam.
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**Durmus Ali Demir**, Professor of Physics, Sabanci University
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