Metehan Kaya

Machine Learning Engineer
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Summary

Skilled Machine Learning Engineer with a strong foundation in machine learning, deep learning and computer vision, expert in Python, PyTorch, TensorFlow, various machine learning libraries and frameworks. Proficient in developing and deploying sophisticated models to address complex challenges, with a proven track record of improving project outcomes. Eager to apply cutting-edge AI technologies to drive innovation.

Education

Technical University of Munich **Munich, Germany**
Master of Science in Informatics, GPA: 1.8 *Apr 2021 - Mar 2025*

- **Areas:** Machine Learning and Analytics, Computer Graphics and Vision, Algorithms
- **Relevant Coursework:** Machine Learning, Machine Learning for Graphs and Sequential Data, Introduction to Deep Learning, Advanced Algorithms, Algorithmic Game Theory
- **Master Thesis:** Temporal Segmentation of Subgroup Activities in Basketball Trainings

Bilkent University **Ankara, Turkey**
Bachelor of Science in Computer Engineering, GPA: 3.63/4.00 *Sep 2014 - Jun 2019*

- **Relevant Coursework:** Algorithms I, Algorithms II, Image Analysis, Machine Learning, Algorithms for Web-Scale Data, Automata Theory and Formal Languages, Database Systems

Experience

Machine Learning Engineer (Part-time / Working Student) **Jan 2022 - Present**
Kinexon *Munich, Germany*

- Trained phase segmentation models using player positions and shots; achieved accuracy between 95% and 98%, depending on the complexity of the phase set.
- Trained GNN-based action recognition models using 2D human body and wholebody keypoints extracted with MMPose; achieved 96% and 97% accuracy for shot and jump detection, respectively.
- Contributed to the implementation of player detection models; achieved 0.97 mAP and 0.98 mAR.
- Developed UI tools to inspect the predictions, eliminate the false positives and clean up the synthetic datasets.

Site Reliability Engineer (Intern) **Oct 2022 - Jan 2023**
Google *Dublin, Ireland*

- Built a data pipeline to store more accurate Monarch time series data without facing the retention policy, helping Canary Analysis Service (CAS) to make more reliable tests.
- Implemented a visualizer tool to plot time series, observe trends, patterns and seasonality.
- Trained anomaly detection models on Monarch time series to compute verdicts of CAS evaluations, serving as an additional approach to canary testing.

Software Engineer **Jul 2019 - Mar 2021**
Aselsan *Ankara, Turkey*

- Contributed to electronic warfare systems that classify electronic warfare signals and match these signals to modern radars, implemented in C++.
- Implemented algorithms for radar electronic attacks and pinpointing warfare radar locations.

Software Engineer (Part-time / Working Student) **Dec 2018 - Jun 2019**
Aselsan *Ankara, Turkey*

- Built a Java tool for software release announcement, generating documents which mention commits, branches and tags of the Git repository.
- Retrieved repository-related data from GitLab API, manipulated documents with Apache POI, and used Selenium for web browser automation.

Software Engineer (Intern) **Aug 2018 - Sep 2018**
Aselsan *Ankara, Turkey*

- Implemented a Java GUI visualizing static and dynamic scheduling algorithms for periodic and aperiodic tasks in hard real time systems.
- Inspected how scan regimes are scheduled to track the signals emitted from different radars in the GUI.

Projects

Time-Dependent Vehicle Route Visualizer **2024**

Full-stack Developer *JavaScript, Python, Vercel, Supabase*

- Deployed a web application for Time-Dependent Vehicle Routing Problem (TDVRP), visualizing optimal routes for multiple vehicles on the map, given a set of locations and dynamic duration costs.
- Fetched location and duration data from Mapbox's Matrix API, and stored in Supabase.
- Implemented a microservice for solvers such as Ant Colony Optimization, Simulated Annealing and Genetic Algorithm.

Algorithmic Problem Recommender **2022**

Software Engineer *Python*

- Developed a tool to recommend algorithmic problems to competitive programming enthusiasts, based on user level, problem difficulty and filters set by the user.
- Utilized Codeforces API to obtain user-related and problem-related data including rating, tags, statistics, etc.
- Implemented web scrapers for other platforms such as CodeChef and AtCoder.

Dressify **2019**

Machine Learning Engineer, Mobile App Developer *Python, PyTorch, Kotlin, GCP*

- Implemented an android mobile application suggesting clothes to purchase and users to follow where users can view clothes from various shopping platforms with the choice of their styles, rate them, and upload their own clothes.
- Built a hybrid recommendation system which is a combination of content-based and collaborative-based approaches.
- Classified clothing images based on type, color and style.
- Performed clothing boundary detection, foreground extraction and skin removal to increase classification accuracy.

Stylist **2019**

Machine Learning Engineer *Python, Tensorflow, Keras*

- Developed a tool for style transfer, creating a new image by merging the content of one image with the style of another.
- Extracted low-level and high-level features of the source images using a pre-trained VGG16 model.
- Implemented Gatsy's method and Johnson's method to combine images and L-BFGS as an optimizer.

Recomma **2018**

Software Engineer *Python, PyTorch*

- Built a recommendation system suggesting movies based on ratings and scripts.
- Extracted features of scripts collected from IMDB Movie Scripts and MovieLens 20M Dataset.
- Applied various methods such as Jaccard Similarity on genres, Cosine Similarity on TF-IDF, LSH and Word2Vec to calculate similarities of scripts.
- Utilized Gradient Descent Algorithm as a validation method.

Skills

Areas: Machine Learning, Computer Vision, Data Engineering, Full-stack Development, Algorithms

Programming Languages: C/C++, Java, Python, Go, R

Machine Learning: PyTorch, TensorFlow, Scikit-learn, Keras

Data Engineering: Airflow, Spark, Kafka, Hadoop, BigQuery

Web: HTML, CSS, JavaScript, ExpressJS, NodeJS, TypeScript, Django, Spring Boot, React, Angular

Database: MySQL, PostgreSQL, MongoDB

Miscellaneous: Git, Docker, GCP, AWS, Kubernetes

Honors & Awards

IEEEXtreme 12.0: As a team of two students, ranked 1^{st} in Turkey, 9^{th} out of over 4000 teams globally. **2018**

Nationwide University Entrance Exam: Ranked in top 300 among 2.1 million students in Turkey. **2014**

TÜBİTAK National Olympiads in Informatics: Awarded bronze medals. **2011-2013**