Metehan Kaya

Software Engineer

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Education

- **Technical University of Munich** — Munich, Germany
  Master of Science in Informatics — *Apr 2021 - Present*
  - **GPA:** 1.7
  - **Areas:** Machine Learning and Analytics (MLA), Computer Graphics and Vision (CGV), Algorithms (ALG), Scientific Computing and High Performance Computing (HPC)
  - **Interdisciplinary Project (IDP):** Dynamic Vehicle Routing Problem, in cooperation with SAP
- **Bilkent University** — Ankara, Turkey
  Bachelor of Science in Computer Engineering, Comprehensive Scholarship — *Sep 2014 - Jun 2019*
  - **CGPA:** 3.63/4.00,
  - **Relevant Coursework:** Algorithms II, Algorithms I, Image Analysis, Machine Learning, Algorithms for Web-Scale Data, Automata Theory and Formal Languages, Software Product Line Engineering, Database Systems, Operating Systems, Object-Oriented Software Engineering, Programming Languages

Work Experience

- **Kinexon** — Munich, Germany
  Machine Learning Engineer - Working Student — *Jan 2022 - Present*
  - **Sports Analytics:** I work on the 2D/3D pose estimation of players and its usage in the action recognition (player is throwing a ball, player is jumping, etc.). In addition, I develop UI tools to inspect the predictions of models to eliminate the false positives from the synthetic datasets. Also, I support my team in the implementation, training and evaluation of deep learning models for detection and tracking of players and balls in the basketball games.
- **Google** — Dublin, Ireland
  Software Engineer - Intern — *Oct 2022 - Jan 2023*
  - **Canary Analysis Service (CAS):** I built a data pipeline to store more accurate Monarch time series data without facing the retention policy. Against the incomplete data pipeline runs, a recovery system is implemented. Also, I prepared a visualizer tool to plot time series and observe trends, patterns and seasonality. In addition, I implemented various anomaly detection/classification models on Monarch time series to compute verdicts of CAS evaluations, meaning if the queried experiment population is significantly different from the already existing control populations.
- **Aselsan** — Ankara, Turkey
  Software Engineer — *Jul 2019 - Mar 2021*
  - **Electronic Warfare Systems:** My team was involved in the implementation of given algorithms which classify and match electronic warfare signals to modern radars and updates the corresponding data each time receivers receive these signals. I worked on radar electronic attack, localization of origin of the signals, matching the signals to the modern radars.
- **Aselsan** — Ankara, Turkey
  Software Engineer - Working Student — *Dec 2018 - Jun 2019*
  - **Tool for Software Release Announcements:** I developed a Java based tool documenting releases of a software regarding commits, branches and tags of the repository. GitLab API, Apache POI and Selenium are used. Also, it is used by some of the sister teams with different configurations.
- **Aselsan** — Ankara, Turkey
  Software Engineer - Intern — *Aug 2018 - Sep 2018*
  - **UI for Static and Dynamic Scheduling Algorithms:** I implemented a Java based graphical user interface that displays results of different famous and hybrid algorithms on scheduling periodic and aperiodic tasks in hard real time systems. The interface is used to schedule scan regimes to track the signals emitted from different radars.
- **CEY Defence** — Ankara, Turkey
  Software Engineer - Intern — *Jun 2017 - Jul 2017*
  - **Time Management Service:** I built a C++ based service responsible for time management of events of a simulation tool called Nautilus.

Extracurricular Activities

- **IEEE Turkey Computer Society Congress Tutor, 2019:** Teaching advanced algorithms & data structures.
- **Bilkent IEEE Student Member, 2015-2016:** Organizing CS 101 trainings.
- **TÜBITAK Science Olympiad Committee Member, 2014-2015:** Preparing and testing the 2^{nd} and 3^{rd} phases of National Olympiad in Informatics and 22^{nd} Balkan Olympiad in Informatics.
- **TÜBITAK Science Olympiad Camp Participant, 2011-2014:** Exceeded the determined scores in 2^{nd} and 3^{rd} phases of National Olympiad in Informatics and participated at summer and winter camps.

Honors & Awards

- **IEEEXtreme 12.0, 2018:** As a team of two students, ranked 1^{st} in Turkey, 9^{th} among over 4000 teams.
- **Nationwide University Entrance Exam, 2014:** Ranked in top 300 among 2.1 million students in Turkey.
- **TÜBİTAK National Olympiads in Informatics, 2011-2013:** Awarded bronze medals.

Projects

- **Algo Problem Recommender, 2022:** A project that recommends problems based on the algorithms for any competitive programming enthusiast considering his rating, problem difficulty and filters applied by the user. Codeforces API is used to retrieve the essential data from the platform.
- **Dressify, 2019:** A senior project that is an Android mobile application where users will be recommended clothes that suit their style and similar users to follow. Users are able to view clothes from various shopping platforms with the choice of their styles, rate them and upload their own clothes. I worked on the recommendation system and applied a hybrid solution that is a combination of content and collaborative based approaches. Also, I dealt with some computer vision challenges like clothing boundary detection, foreground extraction with GrabCut and skin removal.
- **Stylist, 2019:** A style transfer project where high level features are extracted from the source image and combined with low level features of the target image. Tensorflow and Keras are used as Machine Learning libraries. Different methods such as Gatsy's method and Johnson's method are applied to see which method is better in terms of loss. VGG16 is used as a CNN model. L-BFGS algorithm is implemented to minimize the loss function.
- **Recomma, 2018:** A project working on web-scale data and checks if scripts can be used for movie recommendations systems. Imdb Movie Scripts and MovieLens 20M Dataset are used to collect scripts and rating data. The project applies various methods like Jaccard Similarity on genres, Cosine Similarity on TF-IDF, LSH and Word2Vec to calculate scripts' similarities. Gradient Descent is used as a validation method.
- **ICOL, 2018:** An image analysis project that classifies images containing different kinds of animals and locates bounding boxes for each animal. After normalizing data, features are extracted and the model is trained with the help of ResNet-50 and SVM classifier, respectively. 10-fold cross validation method is applied to decide which parameter to use for SVM.
- **STARS League, 2018:** An object-oriented software engineering project which is a java game which is a football game similar to "Football Manager". User plays as a manager who can control his team by changing its tactics, swapping players, etc. Also, the user has an opportunity to view groups, elimination stages, fixture, football players, man of the match, top goal scorers.
- **Musicholics, 2018:** A database project which is a web-based music service allowing users to stream and buy music online anywhere anytime. It aims to be a breath of fresh air to the field by combining music streaming and social life. Musicholics users can be friend each other, post on others' wall, and gift songs to their friends.

Skills

- **Areas:** Algorithms, Machine Learning, Computer Vision, Full Stack Web Development
- **Languages:** C/C++, Python, Java, Go, R
- **Machine Learning:** PyTorch, TensorFlow, Keras, Scikit-learn
- **Web Development:** React, Express.JS, Node.JS
- **Databases:** MySQL, Redis, MongoDB, Postgres

Languages

- **Turkish:** Mother Tongue (C2)
- **English:** Proficiency (C1)
- **German:** Elementary (A1)
- **French:** Elementary (A1)