

Education

ETH Zurich, Zurich, Switzerland

Department of Computer Science - Data Science MSc.

CGPA: 5.76/6.0 (Ausgezeichnet ~ Summa Cum Laude)

Thesis: *Constrained Two-Player Zero-Sum Bandit Games with Gaussian Processes*

Advisor: *Prof. Dr. Andreas Krause*

Sep. 2020 – May. 2023 (expected)

Bilkent University, Ankara, Turkey

Department of Engineering - Electrical and Electronics Engineering BSc.

CGPA: 3.92/4.0 (Summa Cum Laude)

Sep. 2016 – Jun. 2020

Nanyang Technological University, Singapore, Singapore

School of Engineering - Electrical and Electronics Engineering BSc. Exchange

CGPA: 5.0/5.0 (First Class Honors)

Aug. 2018 – Jan. 2019

TED Ankara College, Ankara, Turkey

High-School Scholar Development Program

CGPA: 96.43/100 (8th out of 650 in the cohort)

Sep. 2012 – Jun. 2016

Research Experience

ETH Zurich - Social Networks Lab, Zurich, Switzerland

Research Assistant

Advisor: *Prof. Dr. Ulrik Brandes*

Nov. 2021 – Jan. 2023

- Worked with spatio-temporal tracking data obtained from UEFA to cluster passing patterns of players and teams by building spatial networks.
- Also worked with the same dataset to create modified formation detection algorithms through spatial graph structures.

Industry Experience

Karel Electronics, Ankara, Turkey

Computer Vision Engineer Intern

Jun. 2019 – Jul. 2019

- Built a fullstack application that detects soldering defects in the printed circuit boards used for the phones manufactured in Karel's main factory.
- Utilized realtime 4K cameras, CV techniques such as SURF and SIFT, as well as Convolutional Neural Networks to identify the region of interests.

Deloitte, Istanbul, Turkey

Software Engineer Consultant Intern

Jun. 2018 – Jul. 2018

- Supported the digital team working with a client in the telecommunications industry to optimize circuitry in their high-power centrals.
- Main task was to build the frontend of their mobile application for progress monitoring, defect notification and power adjustment.
- Worked with Android Studio and Java, as well as SQL to connect users to the log database.

Stigma Electronics, Ankara, Turkey

Electronics Engineer Intern

Jan. 2017 – Feb. 2017

- Worked with elevator circuitry to optimize waiting time and idleness of the elevators in large buildings.
- Mainly used Embedded C to support the electronics engineering team with helper subroutines.

Publications

Ask "Who", Not "What": Bitcoin Volatility Forecasting with Twitter Data

M. E. Akbiyik*, **Mert Erkul***, K. Kaempff*, V. Vasiliauskaitė, N. Antulov-Fantulin

ACM International Web Search and Data Mining (WSDM) Conference 2023

Tightening the Loop in Mixed-Initiative ML Engineering and Domain Annotation using Active Learning and Visual Analytics

Mert Erkul*, P. Priyatamwong*, B. Tomekce*, M. Morales-Wyden, W. A. Baumgartner, E. White, M. Bada, L. Hunter, M. El-Assady

Visualization in Biomedical AI workshop @ IEEE VIS 2022

Teaching

ETH Zurich - Deep Learning

Teaching Assistant

Lecturers: *Prof. Dr. Thomas Hofmann*, *Prof. Dr. Fernando Perez-Cruz*

Fall 2022

263-3210-00L

ETH Zurich - Network Analysis

Teaching Assistant

Lecturer: *Prof. Dr. Ulrik Brandes*

Fall 2022

851-0252-15L

Significant Academic Projects

Offline Reinforcement Learning for Efficient and Realizable Fertilization Policies, ETH Zurich

Research in Data Science - Grade: 6.0/6.0

Spring 2022

Supervisors: Scott Sussex, Dr. Matteo Turchetta, Prof. Dr. Andreas Krause

- Applied offline reinforcement learning algorithms such as CQL, IQL, AWAC, BC and BCQ to offline logs obtained from crop growth models.
- Main aim was to obtain sample efficient and generalizable policies that are better than the status-quo policies applied in real situations.
- Also tried to tackle state distribution shifts in different locations, as well as experimenting with offline-to-online fine tuning of these models to improve performance.

Word-Level Adversarial Defense Layer for Robust Natural Language Classification, ETH Zurich

Deep Learning - Grade: 6.0/6.0

Fall 2022

Team: Mert Erkul, M. Herde, N. Canevascini, Y. Schnider

- Created a novel algorithm called WLADL to tackle word-level black-box adversarial attacks on document classification tasks.
- The main purpose was to generate a defense layer working similarly to a dropout layer, before tokenization to increase robustness.
- Worked with the IMDb, AG News and Yahoo! Answers datasets, showed competitive performance with SEM and vanilla adversarial training, against state-of-the-art attack algorithms such as BAE-R, GA and PWWS.

BeeSMART, Bilkent University

Bachelors Graduation Project - Grade: 4.0/4.0

Spring 2020

Supervisor: Prof. Dr. Ezhan Karasan

- The project had embedded components consisting of GSM, GPS, Microphone, Weight, and Temperature sensors to monitor the smart hive in addition to Edge Learning.
- Main aim was to predict the internal conditions of the hive using bee sounds, while simultaneously reporting the results to a cloud server to establish the IoT communication over MQTT with Android and Web applications for the clients.

Academic Achievements

- Comprehensive Scholarship (100% + stipend), Bilkent University, Turkey.
- Ranked 266th among 2.225.386 students in University Placement Examination.
- Comprehensive Scholarship (100%), TED Ankara College, Turkey.
- Ranked 106th among 1.075.533 students in High-School Placement Examination.
- Attended in TUBITAK Biology Project Competition 2015, ranked 4th among over 1.023 projects, with "Examining the Effects of Bee Apitoxin Over Colon Cancer Cells".

Skills

Software: Python, SQL, R, MATLAB, C/C++, JavaScript, Java, Swift, VHDL/Verilog

Technologies: PyTorch, TensorFlow, Keras, W&B, Spark, MongoDB, Neo4j, Hadoop, HDFS

Tools: Git, VSCode, Docker, PyCharm, React, d3.js, Wireshark, Arduino, AWS, XCode

Languages

English

Level: Advanced

German

Level: A2

Turkish

Level: Native

Examinations

TOEFL iBT

Date: 17 Aug. 2022

Grade: 114/120

GRE General Test

Date: 18 Jul. 2019

Grade: 325/340

Extracurricular

- Worked as a free tutor of Maths and Physics for high school students who are preparing for University Placement Examination at Matris Private Teaching Institution in 2016.
- Worked as a free tutor in a variety of subjects to help primary and secondary school students excel in scholarship examinations at Anatolian Contemporary Education Foundation in 2014.
- Was a member of the Table Tennis Team at TED Ankara College from 2013 to 2015.
- Played as a starting shooting guard in TOFAS Ankara Junior Basketball Team from 2011 to 2012.