AYDIN JAVADOV

PhD Candidate at ETH Zurich

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EXPERIENCE

PhD Candidate & Research Assistant in Data Science

ETH Zurich

Sep 2024 – Present Zurich, Switzerland

Supervised by:
Prof. Dr. Bjoern Schuller
(GLAM @ Imperial College London & CHI @ TUM)
Prof. Dr. Florian von Wangenheim
(Mobiliar Lab for Analytics @ ETH Zurich)
Focusing on: Large Language Models, Reinforcement Learning, Explainable AI

Machine Learning Engineer Working Student

BMW Group

Apr 2023 – May 2024 Munich, Germany

Focusing on: Large Language Models, Time Series Analysis, Graph Representation Learning, Explainable AI

Master Thesis: Explainable AI for Graph Representation Learning and Clustering Algorithms

BMW Group

Oct 2022 – Apr 2023 Munich, Germany

Technologies: Python, Pytorch, AWS, Git
Graded: 1.0 (German System)

Guided Research: Explainable AI and Computer Vision for Clinical Decision Support in Dermatology

Technical University of Munich, Chair of Computational Imaging and Inverse Problems

Apr 2022 – Nov 2022

The subject of this project is the understanding and implementation of several interpretability techniques for deep learning models for skin lesion classification, in computer vision context. The work was on the theme of human-centered explainable AI and involved close collaboration with Munich University Clinic physicians.

Data Science Working Student

novuter GmbH

September 2021 – May 2022 Munich, Germany

- Extracted raw data and transformed the data stories on different domains (e.g. finance) to optimize the decision making.
- Created business related data stories for Digital Assistant in www.novuter.com with SQL

Technologies: PostgreSQL, JavaScript, Python, R

Artificial Intelligence Intern

ATL Tech - AI Lab

Oct 2019 – Feb 2020 Baku, Azerbaijan

- Took part in the Advanced research of Speech recognition in Dialog Systems for Azerbaijani Language

Technologies: Python, pandas, numpy

Mars Academy- Engineering, Robotics and Programming instructor

Mars Academy

August 2018 – August 2019

- Taught Python to primary and high school students.
- Taught basic Engineering techniques concerning Arduino UNO.

Technologies: Python, Arduino UNO, Lego Mindstorms EV3

EDUCATION

PhD Candidate in Data Science

ETH Zurich

November 2024 - Present

M.Sc in Data Engineering & Analytics (Distinction)

Technical University of Munich

April 2021 – July 2024

German Grade: 1.5 (Top 15%)

B.Sc (Exchange Student) in Computer Science

Korean Advanced Institute of Science and Technology

Feb 2018 – June 2018

B.Sc in Computer Engineering (Distinction)
ADA University
Sept 2016 – June 2020

German Grade: 1.1 (Top 5%)

PUBLICATIONS

- "BioSyncHRI: Synchronizing Human Robot Interaction via Real-Time Biosignal Adaptation", Workshop in Envisioning the Future of Interactive Health, CHI'25, Yokohama, Japan.
- "Approximation of CIEDE2000 color closeness function using Neuro-Fuzzy networks", Applied Intelligence, Volume 51
https://link.springer.com/article/10.1007/s10489-021-02326-1
- The Playground, Math Horizons, 27:1, 30-33, DOI:10.1080/10724117.2019.1629214

TECHNICAL SKILLS

ML/AI Concepts Representation Learning | LLM | XAI | Deep Learning | Computer Vision | Machine Learning | Time Series | Deep Generative Models | Uncertainty Quantification

Application Areas Finance | Affective Computing | AI for Medicine | Signal Processing | Dynamic Systems

Other PyTorch | Python | Keras | Git | Bash | MATLAB | Java | Azure | AWS | PostgreSQL | Oracle/PL SQL

LANGUAGES

Turkish (native), Russian (native) Azerbaijani (native), English (fluent), German(elementary), Korean (beginner)

PROJECTS

- Guided Research:
Explainable AI for clinical decision support in dermatology
Technical University of Munich,
Chair of Computational Imaging and Inverse Problems
Apr 2022 – Nov 2022

  The subject of this project is the understanding and implementation of several interpretability techniques for deep learning models for skin lesion classification. The results of this project will be presented to human physicians for analysis.

- 🏆 **(winner)** Hackaton HackaTUM:
Technical University of Munich
& Carl Zeiss AG (ZEISS)
Nov 2021

  Machine Learning and Software Engineering solution to offer the domain experts a tool to visualize the temperature data as well as detect and predict temperature fluctuations in microscopic data. The project selected as winner. More Info here: https://devpost.com/software/munichdortmund#

AWARDS & PARTICIPATIONS

- 1st Place in HackaTUM Hackathon
Technical University of Munich
November 2021
- Magna Cum Laude Honor and Diploma of distinction for graduation
ADA University
August 2020
- Dean's List of Honour and Merit-Based Scholarship
ADA University
January 2020
- Rector's List of Honour and Merit-Based Scholarship named after Lotfi Zadeh
ADA University
October 2019
- Head Jury Certification at First Lego League (FLL) Competition
Ministry of Education of Azerbaijan Republic
April 2019
- Volunteer Organizer of 'Purple Comet' International Math Olympiad
ADA University
April 2019
- Dean's List of Honour and Merit-Based Scholarship
ADA University
January 2019
- Lego Official Trainee
Lego Education
February 2019
- Global Korea Scholarship
Ministry of Education of Korea Republic
February - June 2018

- Rector's List of Honour and Merit-Based Scholarship

  ADA University

  January 2018

- Dean's List of Honour and Merit-Based Scholarship

  ADA University

  May 2017

- Bachelor Thesis Project:
  Advanced Research in Analytics with Machine Learning and Data Visualization of DTS Data of British Petroleum

  ADA University

  Jan 2020 – Jun 2020

  Dealt with data analytics, anomaly detection using several machine learning techniques (One-Class SVMs, Isolation Forests), time series analysis, interpolation techniques, and other various 3D visualizations.
  A fairly small portion of the work was published (see the link for pdf version (page: 463)):
  https://www.bhos.edu.az/kcfinder/upload/files/Tezisler_2020.pdf

- Practical Course Project:
  Explainable AI for Controllable Text Generation for German Language

  Technical University of Munich

  Oct 2022 – Mar 2023

  Motto & Motivation: To generate a simplification that best fits the user's needs, it can be important to adapt the amount or strength of simplification. Moreover, the user might highlight important passages that must be considered. In this project, we want to explore how control mechanism can be included into German simplification models.

- Practical Course Project:
  Machine Learning in Crowd Modeling & Simulation

  Technical University of Munich

  Oct 2023 – Feb 2024

  Motto & motivation was to learn about the core mechanics in human movement and interactions in crowds. The current state of the art in mathematical modeling has been be discussed along with practical exercises. As a reference, the crowd simulation software VADERE (www.vadere.org) was introduced. After this introduction to modeling of crowds, current machine learning approaches were discussed to analyze the simulated results, as well as experimental data. Techniques from statistics, dynamical systems theory, manifold learning, and numerical analysis are be introduced in short lectures, implemented by the students.