Karahan Sarıtaş

+49 1575 4831418 | karahansaritas@gmail.com | LinkedIn | Github | Website | Stackoverflow | Tübingen, Germany

EDUCATION

University of Tübingen   Tübingen, Germany
*M.Sc. in Machine Learning - **GPA: 4.00/4.00***   *Oct 2023 – Jul 2025*

Boğaziçi University   İstanbul, Turkey
*B.Sc. in Computer Engineering - **GPA: 3.88/4.00***   *Sep 2018 – Jul 2023*
Ranked 3 out of 91 – High Honors
*Bachelor's Project: A Comprehensive Analysis of Static Word Embeddings for Turkish**

WORK EXPERIENCE

Trendyol   İstanbul, Turkey
Data Scientist (Computer Vision & NLP)   *Oct 2025 – present*
- Working on large-scale Computer Vision and NLP problems, focusing on multimodal approaches for search and recommendation systems.
- Technology Stack: Python, PyTorch, SQL, BigQuery

Aalto University   Espoo, Finland
Machine Learning Research Assistant at Machine Learning Research Group   *Jun 2025 – Aug 2025*
- (1) Worked on the kernel perspective of the self-attention mechanism; conducted a reproduction study that refutes the recent claim deriving canonical self-attention from kernel principal component analysis. * (2) Worked on object-level self-supervised learning and video pretraining. Developed a novel method for temporally related sequences by extending iBOT with object-level temporal consistency loss, leading to improved object-level token quality across downstream tasks.
- Technology Stack: Python, PyTorch, Hugging Face timm, Wandb

Max Planck Institute for Biological Cybernetics   Tübingen, Germany
Machine Learning Research Assistant at Department of Computational Neuroscience   *Sep 2024 – Feb 2025*
- Developed novel features to quantify structural and chromatic aspects of images for visual complexity prediction. Additionally, investigated the role of cognitive dimensions like surprise scores in visual complexity perception by creating a new dataset (Surprising Visual Genome) with human-annotated ratings collected via Prolific pairwise comparison experiments and analyzed using the Bradley-Terry model for final rankings. Developed an interpretable model achieving significant improvements over prior methods, with correlation increases exceeding 0.10 in multiple datasets, surpassing previous handcrafted features.*
- Technology Stack: Python, PyTorch, Hugging Face Transformers, LLMs, Prolific, jsPsych, JavaScript, PHP

University of Tübingen   Tübingen, Germany
Machine Learning Research Assistant at Computer Graphics Lab   *Sep 2024 – Feb 2025*
- Worked on a comprehensive benchmark evaluating the in-domain performance, transfer learning, multi-domain pretraining, OOD detection, and generalizability of self-supervised learning methods in medical imaging. Compared 8 SSL frameworks across 11 diverse medical datasets, using both convolutional and transformer-based architectures with different initialization strategies for self-supervised pretraining to assess their effectiveness in real-world clinical applications.*
- Technology Stack: Python, PyTorch, PyTorch Lightning, Wandb, Hydra

The Scientific and Technological Research Council of Turkey   İstanbul, Turkey
Tübitak Star Research Intern at Sabancı DHLab   *Jun 2023 – Jul 2023*
- Contributed as a Tübitak (The Scientific and Technological Research Council of Turkey) undergraduate research intern to the project "Automatic Transcription of Ottoman Turkish Documents using DL Technologies"*. Solved the OCR and ground truth sequence alignment problem with Dynamic Time Warping and Levenshtein distance

Trendyol   İstanbul, Turkey
Associate Developer   *Jul 2022 – Dec 2022*
- Developed and maintained batch data pipelines using **Apache Spark**, **Scala**, and **Alibaba Cloud EMR Service**. Worked on integrating different monitoring tools including Datadog, Grafana, New Relic, and Alibaba Cloud Monitoring with various products. Improved documentation by integrating Swagger and preparing data pipeline diagrams
- Technology Stack: Scala, Spark, Alibaba Cloud, Terraform, Kubernetes, Kafka, Zeppelin, Hadoop, Hive

Teaching Experience

University of Tübingen   Tübingen, Germany
Teaching Assistant at Autonomous Learning Group   May 2024 – Sep 2024
- Served as a practice group leader for the course "Introduction to Machine Learning" (Summer 2024). Supervised an exercise group, evaluated weekly student submissions, and assisted in grading the final exams

Boğaziçi University   İstanbul, Turkey
Undergraduate Teaching Assistant   Mar 2021 - Jun 2023
- Courses: Spring 2023 - Fundamentals of Software Engineering, Spring 2022 - Introduction to Object Oriented Programming, Fall 2021 - Introduction to Computing, Spring 2021 - Introduction to Computing
- Engaged in a diverse array of responsibilities, including project preparation, formulating weekly lab questions, evaluating student submissions, maintaining communication with students, and producing educational videos

Publications

K. Sarıtaş, C. A. Öz and T. Güngör. "A Comprehensive Analysis of Static Word Embeddings for Turkish". In: *Expert Systems With Applications, 2024* [Paper] [arXiv] [Code]

K. Sarıtaş, P. Dayan, K. Shen, S. N. Surabhi. "Complexity in Complexity: Understanding Visual Complexity Through Structure, Color, and Surprise". In: *Proceedings of the 47th Annual Conference of the Cognitive Science Society, 2025* and *Second Workshop on Representational Alignment at ICLR, 2025* [Paper] [arXiv] [Code]

K. Sarıtaş, Ç. Yıldız. "A Reproduction Study: The Kernel PCA Interpretation of Self-Attention Fails Under Scrutiny". In: *ACL 2025 Student Research Workshop* [Paper] [arXiv] [Code]

V. Bundele*, **K. Sarıtaş***, B. Kargı*, O. A. Çal*, K. Tezören*, Z. Ghaderi, and H. Lensch. "Evaluating Self-Supervised Learning in Medical Imaging: A Benchmark for Robustness, Generalizability, and Multi-Domain Impact". In: *The 36th British Machine Vision Conference* [Paper] [arXiv] [Code]

*: Joint first-authorship

Scholarships & Achievements

TEV-DAAD Scholarship: Selected for the joint scholarship awarded by the German Academic Exchange Service (DAAD) and the Turkish Education Foundation (TEV) to pursue my master's studies in Germany, among 45 recipients annually.

Wübben Foundation Student Grant: Selected for the scholarship for outstanding Master's students, awarded by the Wübben Foundation, among up to 55 recipients annually.

KYK Top 100 Government Scholarship: Awarded to undergraduate students who have been ranked in the top 100 on National University Admission Exam by Higher Education Credit and Hostels Institution (KYK)

Trendyol & TOG Education Scholarship: Awarded to top 50 undergraduate students based on university entrance ranking and academic achievement in the university

Tübitak 2247-C Intern Researcher Scholarship: Awarded to undergraduate students who take part in research projects carried out by the Scientific and Technological Research Council of Turkey

Bending Spoons Transcend 2022: Selected to be one of the 5 students from Turkey and 25 students from Europe to receive exclusive, one-on-one mentorship from a senior engineer at Bending Spoons

National University Admission Exam: Ranked 143rd in Mathematics and Science among ca. 2 million candidates

National University Admission Exam (Foreign Language): Ranked 99th in Foreign Language (English) among ca. 2 million candidates

Boğaziçi University Computer Engineering Third Ranking Award: Graduated as the third-highest ranked student in my class

Haydarpaşa Anatolia High School Salutatorian Award: Graduated as the second-highest ranked student

Languages

Turkish: Native language

English: Advanced (IELTS 8.0 in 2022)

German: Elementary (did deutsch-institut zertifikat in 2023)