

RESEARCH
INTERESTS

My research spans the interdisciplinary fields of machine learning and natural language processing, with a particular focus on addressing societal challenges through computational methods. I aim to develop tools and apply techniques to uncover complex patterns that can be leveraged to tackle pressing social issues.

EDUCATION

Sabanci University, Istanbul, Turkey

Feb. 2022 - May. 2024

M.Sc., **Computer Science and Engineering**

Thesis: Developing Turkish Language Models on Social Media

Advisor: **Asst. Prof. Onur Varol**

CGPA: 3.71/4.0

University Of Tabriz, Tabriz, Iran

Sept. 2017 - Sept. 2021

B.Sc., **Computer Science and Engineering**

CGPA: 16.58/20

PUBLICATIONS
GOOGLE SCHOLAR
CITATIONS: 20
H-INDEX: 3

Journal Articles in preparation

J.5 **Najafi, A.** and { Mikko Kivelä, Onur Varol, Letizia Iannucci, Alp Onder Yener } **“Social Media Data Adaptors: Standardization and Anonymization of Social Network Datasets”**

J.4 **Najafi, A.**, and Onur Varol. **“Analyzing Hateful Content During the Nights of the 2023 Turkish Election”**

Journal Articles

J.3 **Najafi, A.**, & Varol, O. (2024). **“Turkishbertweet: Fast and reliable large language model for social media analysis.”** Expert Systems with Applications, 255, 124737. [🔗](#)

J.2 **Najafi, A.**, Mugurtay, N., Zouzou, Y., Demirci, E., Demirkiran, S., Karadeniz, H. A., & Varol, O. (2024). **“First public dataset to study 2023 Turkish general election.”** Scientific Reports, 14(1), 8794. [🔗](#)

J.1 **Najafi, A.**, Gholipour-Shilabin, A., Dehkharghani, R., Mohammadpur-Fard, A., & Asgari-Chenaghlu, M. (2023). **“ComStreamClust: a communicative multi-agent approach to text clustering in streaming data.”** Annals of data science, 10(6), 1583-1605. [🔗](#)

Refereed Conference Proceedings

C.2 Yener, A. Ö., **Najafi, A.**, & Varol, O. (2024, May). **“City-level User Location Detection from Social Media and Analysis of Political Participation.”** In 2024 32nd Signal Processing and Communications Applications Conference (SIU) (pp. 1-4). IEEE. [🔗](#)

C.1 **Najafi, A.**, & Varol, O. (2024, March). **“VRLLab at HSD-2Lang 2024: Turkish hate speech detection online with TurkishBERTweet.”** In Proceedings of the 7th Workshop on Challenges and Applications of Automated Extraction of Socio-political Events from Text (CASE 2024) (pp. 185-189). [🔗](#)

CONDUCTED
RESEARCH AND
ACADEMIC
EXPERIENCE

VRL LAB, Istanbul, Turkey

Sept 2022 - Present




– **TurkishBERTweet**

- * Achieved almost 10% significant improvement in the F1-Score of Text Classification Tasks
- * Developed classification pipelines for Sentiment Analysis and Hate Speech Detection Tasks
- * Used Google TPUs to train TurkishBERTweet from scratch
- * Trained BPE tokenizer from scratch on 894M Turkish Twitter Data

– **Turkish Election Dataset**

- * Analyzed the Retweet Speed of specific Turkish Politicians for different time spans of election day
- * Conducted network analysis of politicians on Twitter using Networkx and Gephi
- * Analyzed the followers of politicians to identify social bots using Botometer
- **CON-NET** under CHIST-ERA call funded by EU and TUBITAK
- * Developed a Tool for Standardizing and Anonymizing Social Network Datasets

INVITED LECTURER AND TALKS

1. Presented the paper "VRLLab at HSD-2Lang 2024: Turkish Hate Speech Detection Online with TurkishBERTweet" at **EACL"2024** , Malta, March 2024.
2. Presented the paper "First Public Dataset to Study the 2023 Turkish General Election" at the **Turkey Computational Social Sciences Conference (TCSS) 2023** , Koc University, Turkey.
3. Invited lecturer for the talk "Applications of Large Language Models for Social Scientists" in the Political Science course at Sabanci University, Turkey, under the supervision of **Dr. Fatih Serkant Adiguzel**, Fall 2023.
4. Invited lecturer for the talk "Natural Language Processing for Social Scientists" at the **Summer Institutes in Computational Social Science (SICSS)** , Ozyegin University, Turkey, Summer 2023.

TEACHING EXPERIENCE

Sabancı University - Faculty of Engineering and Natural Sciences

CS210: Introduction to Data Science

Spring 2023, Fall 2023

CS412: Machine Learning

Fall 2024, Spring 2024, Fall 2022

CS201: Introduction to Computing

Spring 2022

Held weekly office hours and recitation sessions to address course-related questions.

Graded exams and assignments

COMPUTER AND LANGUAGE SKILLS

Skills:

Programming Languages: Python, C++, Java

Frameworks: Pytorch, Tensorflow, Keras, Flax, Django

Librares: Matplotlib, Seaborn, Pandas, Numpy, Gephi, NetworkX, OpenCV, Jax, Docker

DataBase: SQL, NoSQL (Redis)

Familiar with GCP, AWS, L^AT_EX, HTML, CSS, JS

Languages: English (Fluent), Persian (Native), Azerbaijani (Native), Turkish (Fluent)

HONORS AND AWARDS

Hate Speech Detection in Turkish - EACL"2024

Jan. 2024

Earned 3rd Rank among 11 participated teams

TUBITAK Scholarship

Aug. 2023 - Present

The Scientific and Technological Research Council of Turkey, Turkey

Awarded a full tuition waiver and monthly stipend as a researcher on a TUBITAK-funded project.

Sabancı University Scholarship

Feb. 2022 - Aug 2023

Sabancı University, Istanbul, Turkey

Awarded a 100% tuition scholarship and a monthly stipend as a Teaching Assistant