

Berke DİLEKOGLU

MSc. In Computer Science And Engineering

NLP Research Engineer at Huawei

📍 Sabancı Üniversitesi, 34956, Orhanlı, Tuzla/İstanbul

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Education

Sabancı University

Istanbul, Turkey

MSc. Computer Science and Engineering

09/2019-Present

- CGPA: 3.77 / 4.00
- High Honor Scholarship: Scholarship meets the 100% of the tuition fee and provides monthly stipend.
- Thesis title: Deep Classification of Sumoylation Sites

Sabancı University

Istanbul, Turkey

BSc. Computer Science and Engineering

09/2016-06/2019

- GPA: 3.54 / 4.00
- High Honor Scholarship: Scholarship meets the 100% of the tuition fee and provides monthly stipend.

Sabancı University

Istanbul, Turkey

BSc. Mechatronics Engineering

09/2013-06/2018

- GPA: 3.50 / 4.00
- High Honor Scholarship: Scholarship meets the 100% of the tuition fee and provides monthly stipend.

Work Experiences

Huawei

Istanbul, Turkey

ML/NLP Research Engineer

04/2021-Present

- Research to improve existing machine learning pipeline for keyword extraction.
- Parallel processing for keyword extraction on big data.
- Research for ensemble learning in sentiment analysis under domain shift.
- Working on term weighting project with multi-lingual bert model and rule based labeling algorithm.

Sabancı University

Istanbul, Turkey

Teaching Assistant: Hold Office Hours, Recitation Sections and Assist

Course Work Weekly 20 Hours

09/2019-Present

- Teaching assistant in Machine Learning Course (CS 512)
- Teaching assistant in Advanced Programming Course (CS 204)
- Teaching assistant in Machine Learning Course (CS 512)
- Teaching assistant in Introduction to Data Science Course (CS 210)
- Teaching assistant in Formal Languages and Automata Theory Course (CS 302)
- Teaching assistant in Introduction to Computing Course (CS 201)

Ford Motor Company Turkey

Istanbul, Turkey

Visitor Researcher

09/2017-05/2018

- Solid model of Ford Truck was prepared and sensors were placed in SolidWorks.
- Ready to use image stitching algorithms were examined to create 360 degrees view.
- Ready to use object detection algorithms were examined in Ford Truck Simulation.

Durham University

Durham, U.K

Visitor Researcher

06/2017-08/2017

- Multiple thermal cameras were connected with each other by using Linux and ROS
- Developed synchronization algorithm for multiple network connected thermal camera units in Robot Operating System.
- Tested ready to use person re-identification algorithm by synchronized thermal cameras in ROS.

Publications

- Afshan Nabi, Berke Dilekoglul, Ogun Adebali, Oznur Tastan*. "Detecting Misannotated Long Non-coding RNAs with Training Dynamics of Deep Learning." (Under review in RECOMB 2022)
- Şeyma Selcan Mağara, C. Yıldırım, Ferhat Yaman, Berke Dilekoğlul, Furkan Reha Tutaş, Erdinç Öztürk, Kamer Kaya, Oznur Tastan, and Erkey Savaş. "ML with HE: Privacy Preserving Machine Learning Inferences for Genome Studies." The ACM Conference on Computer and Communications Security (CCS), Privacy Preserving Machine Learning Workshop, 2021. Arxiv Link: <https://arxiv.org/abs/2110.11446>

- Can Özbey, Berke Dilekoğlu, and Sevim Açiksöz. "The Impact of Ensemble Learning in Sentiment Analysis under Domain Shift." 2021 Innovations in Intelligent Systems and Applications Conference (ASYU). IEEE, 2021.

Posters/Presentations

- Şeyma Selcan Mağara, C. Yıldırım, Ferhat Yaman, Berke Dilekoğlu, Furkan Reha Tutaş, Erdinç Öztürk, Kamer Kaya, Oznur Tastan, and Erkan Savaş. "ML with HE: Privacy Preserving Machine Learning Inferences for Genome Studies." The ACM Conference on Computer and Communications Security (CCS), Privacy Preserving Machine Learning Workshop, Virtual, November 19, 2021. (Poster presentation by Ş. S. Mağara.)
- Can Özbey, Berke Dilekoğlu, and Sevim Açiksöz. "The Impact of Ensemble Learning in Sentiment Analysis under Domain Shift." 2021 Innovations in Intelligent Systems and Applications Conference, Virtual, 6-8 October, 2021 (Oral presentation by C. Özbey.)
- Afshan Nabi, Berke Dilekoğlu, Ogun Adebali, Oznur Tastan*. "Detecting Misannotated Long Non-coding RNAs with Training Dynamics of Deep Learning." 15th International Symposium on Health Informatics and Bioinformatics, HIBIT 2021, Virtual, Sep 10-11, 2021 (Oral presentation by A. Nabi.)

Research Projects

Secure Multi-Label Tumor Classification Using Homomorphic Encryption

Supervisor: Oznur Tastan

08/2020-Present

Tumor classification is important to understand the molecular composition of the tumor cells and propose diagnosis and treatment for cancer patients. The aim of this project is, given a genetic variant dataset from tumor samples of unknown type and origin, design an accurate machine learning model that enable efficient homomorphic encryption.

Protein Sumoylation Site Prediction

Supervisor: Oznur Tastan

05/2020-Present

Sumoylation site prediction is highly imbalanced binary classification problem. Many machine learning architecture had been developed for this task. In consideration of recent developments in natural language processing, goal of this project is to build deep learning models (CNN, RNN, Transformers) on this task.

Medical Department Classification

Supervisor: Reyhan Yeniterzi

09/2019-01/2020

Goal of that research is to provide recommendation tool for patients with respect to their complaint. Pre-processing was done to clear data to fit pre-trained embeddings (GloVe and Vec2Word). Different architectures were created by combination of different models (CNN, RNN, Attention) on top of pre-trained word embeddings. State of the art accuracy was beat by transformers models (BERT and GPT2).

Skills

Programming Language:

Python, C++, Java, HTML5, CSS3, JavaScript

Useful Library / API:

Tensorflow, Keras, Pytorch, Scikit-learn, Pandas, P5.js, Bootstrap4

Honours & Awards

2019-2021 Sabanci University: **High Honor Scholarship**

Istanbul, Turkey

2016-2019 Sabanci University: **Dean's High Honor List**

Istanbul, Turkey

2013-2019 Sabanci University: **High Honor Scholarship**

Istanbul, Turkey

Course & Personal Projects

Simulation Of Algorithms

Summer 2020

Personal project for creating simulations of searching, sorting and path-finding algorithms by using JavaScript and p5.js library. Goal of this project is to provide visual understanding of algorithms and their running time difference.

Kernel Trick

Spring 2020

The aim of this project is creating a single layer feed forward neural network by using Rahimi's randomized kernel transformation for Deep Learning course assignment. Instead of using high level library such as Tensorflow, kernel, single layer neural network, mini-batch training, optimization algorithms (Adam, RMSprop etc.), softmax cross entropy loss and test pipeline were implemented from scratch by using numpy. Available in GitHub.

Sentiment Analysis in Turkish Tweets

Fall 2017

The main goal of this project is providing useful features among Turkish tweets data and using them to classify positive and negative tweets for one of the Turkish Bank. 86% accuracy was achieved by adding additional features according to semantic meanings.