

BERKAY MENGUNOGUL

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EDUCATION

Northeastern University

Master's in Informatics; GPA: 4.0/4.0

Advisor: Carolyn Zuk

Massachusetts, USA

Sep 2023 - Present

Marmara University

Bachelor's in Computer Engineering; GPA: 3.04/4.00

Thesis: Early Diagnosis of Alzheimer's Disease with Artificial Intelligence

Advisor: Mustafa Agaoglu

Istanbul, Turkey

Jun 2020 - Sep 2022

PUBLICATIONS

Conference Publications

- C1.** C. Erdoğanılmaz, **B. Mengunogul** and M. Balci, "Unveiling the Black Box: Investigating the Interplay between AI Technologies, Explainability, and Legal Implications," 2023 8th International Conference on Computer Science and Engineering (UBMK), Burdur, Turkiye, 2023, pp. 569-574, doi: 10.1109/UBMK59864.2023.10286653.
- C2.** C. Erdoganyilmaz and **B. Mengunogul**, "An Original Natural Language Processing Approach to Language Modeling in Turkish Legal Corpus: Improving Model Performance with Domain Classification by Using Recurrent Neural Networks," 2022 Innovations in Intelligent Systems and Applications Conference (ASYU), Antalya, Turkey, 2022, pp. 1-6, doi: 10.1109/ASYU56188.2022.9925363.

WORK EXPERIENCE

VeriUs Technology

Generative AI Engineer, Remote

Istanbul, Turkey

Aug 2023 - Present

- Developed a data augmentation algorithm that expanded domain-specific dataset size from 500 to 10,000 entries, enhancing data diversity and model training robustness.
- Fine-tuned over 60 open-source large language models (LLMs), optimizing them for specific applications and improving overall performance.
- Significantly reduced LLM inference time by implementing continues batching and quantization techniques.
- Conducted training for 30 professionals in NLP tasks, including model fine-tuning and prompt engineering, enhancing team capabilities in AI applications.
- Improved vector database hit rate by restructuring data into a Q&A format, leading to more efficient and accurate information retrieval.

VeriUs Technology

Machine Learning Engineer

Istanbul, Turkey

Sep 2022 - Jul 2023

- Led a team of 5 interns, succeeded 98% accuracy by training BERT models for Name Entity Recognition task.
- Applied pretraining techniques and fine-tuned models for NER, Summarization, and Semantic Search tasks.
- Reduced the cost of training significantly by transitioning models from DataParallelism to ZeRO Stage 3.
- Reduced the size of the Fasttext Embedding by 37% by removing the negative vector matrix.
- Utilized MLFlow and Docker for tracking and managing developed services.

Compact Mind

Machine Learning Intern, Remote

Austin, Texas, USA

Aug 2022 - Sep 2022

- Obtained knowledge about Curriculum Learning, Backtests, Meta-Strategy Paradigm, Copula Theory.
- Explained "System 1 and System 2 Thinking" approach to improve decision-making.
- Implemented a tax-cutting mechanism in the algorithm's Environment Layer to enhance model realism.

Marmara University*Undergraduate Researcher, Supervisor: Assoc. Prof. Murat Can Ganiz***Istanbul, Turkey***Feb 2022 - Aug 2022*

- Presented and Implemented a clustering approach for 271 crime types, resulting in 30 clusters.
- Conducted experiments on Multi-Class Classification and NER tasks using various machine learning models.
- Deployed Doccano, assisted and monitored the users, collected approximately 10,000 labeled documents.

Redzeplin UG*Software Engineer Intern***Berlin, Germany***Aug 2021 - Oct 2021*

- Learned about Web 3.0 and Blockchain Technology. Developed decentralized applications (DApps) using Web3.js.
- Took a leading role in designing the system architecture that enables users to send cryptocurrencies as gifts.

Shelly Sleep*Full-Stack Developer, Remote***Berlin, Germany***Jun 2020 - Feb 2021*

- Designed and normalized database, developed a RESTful API using Flask.
- Built a custom Swift-React-Native bridge library to overcome iOS restrictions.
- Learned React-Native independently, enabling the successful completion of the project after team members left.
- Published the app in Germany and Turkey. Reached over 10,000 registered users till October 2021.

HONORS AND AWARDS

CPS Leaders and Scholars Award*May 2023*

The recipient was selected by the committee in recognition of impressive academic and personal achievements, as well as the potential to leverage their degree to create a difference in the world. The award offers tuition scholarship funding, which will cover a portion of the total program tuition costs.

Best Paper Award Certificate 2nd Place*Sep, 2022*

The project “An Original Natural Language Processing Approach to Language Modeling in Turkish Legal Corpus: Improving Model Performance with Domain Classification by Using Recurrent Neural Networks” has been awarded Best Paper Award 2nd Place at Innovations in Intelligent Systems and Applications Conference (ASYU 2022) September 7-9, 2022, Antalya, TURKEY.

Honor Student*Sep, 2022*

Graduated as honor student from Marmara University.

BlockFellow Hackathon 2019*Feb, 2019*

Developed a supply chain tracking system with blockchain technology. The project selected in top 10 among hundreds of projects from 15 Universities at first blockchain hackathon in Turkey.

GRANTS

Erasmus+*Aug 2021*

By the European Commission, a grant was awarded to undertake an internship in Germany, where practical experience was gained and language and cultural skills were improved.

TECHNICAL SKILLS

Programming Languages/Tools

Python, PyTorch, PyTorch Lightning, TensorFlow, Transformers, Evaluate, PEFT Pandas, Numpy, Scikit, OpenCV, Matplotlib, Plotly, DeepSpeed, Docker, Flask, SQL, C/C++, JavaScript, React-Native, REST API, Telerik Fiddler, Git, Gitlab, Jira, Bitbucket, \LaTeX

Skills

Machine Learning, Deep Learning, Generative AI, Reinforcement Learning, NLP, Computer Vision, RNN, LSTM, Transformer, GAN, Distributed Training, Agile

LANGUAGE PROFICIENCIES

Turkish Native

English Full Proficiency, TOEFL 96 Points