Berkay Guler

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Professional Summary

I am a Machine Learning researcher advancing the field of wireless communications through data-driven approaches. Currently pursuing a Ph.D. in Networked Systems at UC Irvine, I have a strong theoretical foundation in machine learning, digital communications, signal processing, and computing. I have hands-on experience implementing ML solutions for wireless systems, language, and vision for industrial and research applications.

Education

University of California, Irvine Sept. 2023 – June 2028 (expected)
Ph.D. Student in Networked Systems Program, Computer Science Department Irvine, California
- Henry Samueli Endowed Fellow, research on Machine Learning for Wireless Communication Networks
- Advised by Prof. Hamid Jafarkhani

University of California, Irvine Sept. 2023 – June 2025 (expected)
M.S. in Networked Systems Program, Computer Science Department, (GPA: 3.86/4.0) Irvine, California
- Research on Machine Learning for Wireless Communication Networks
- Advised by Prof. Hamid Jafarkhani

École Polytechnique Fédérale de Lausanne (EPFL) Feb. – Aug. 2022
Exchange Student in School of Computer and Communication Sciences Lausanne, Switzerland
- Advised by Prof. Touradj Ebrahimi on evaluation of deep learning-based deep fake detection methods

Bilkent University Sept. 2018 – June 2023
B.S. in Electrical Engineering, Summa Cum Laude (GPA: 3.82/4.0) Ankara, Turkey
- Full tuition waiver and stipend during the program

Publications

- B. Guler, H. Jafarkhani, "AdaFortiTran: An Adaptive Transformer Model for Robust OFDM Channel Estimation," 2025 International Conference on Communications (ICC), Montreal, Canada
- B. Guler, B. Aygun, A. Gerek and A. S. Gurel, "Deep Active Learning for Address Parsing Tasks with BERT," *2023 31st Signal Processing and Communications Applications Conference (SIU)*, Istanbul, Turkey

Experience

Graduate Student Researcher June 2024 – Present
UC Irvine CA, USA
- Conducting research on machine learning for wireless communications, specifically focusing on data-driven wireless channel modeling

Machine Learning Engineer Feb. – Aug. 2023
DataBoss Security & Analytics Ankara, Turkey
- Conducted research on **text summarization** and **text normalization** with **Transformers**
- Developed **APIs** to host inference endpoints of text normalization and text summarization models
- Developed and deployed an image processing pipeline for automatic information extraction from documents

Senior Year Project Engineer Sept. 2022 – May 2023
TUBITAK (Scientific and Technological Research Council of Turkey) Ankara, Turkey
- Worked on **catastrophic forgetting prevention strategies** for **continual learning** from live video streams

- Implemented **object tracking** and **object detection** algorithms on NVIDIA **edge AI** devices

Undergraduate Student Researcher Mar. 2022 – June 2023
ICON Lab, Bilkent University Ankara, Turkey

- Research on improving image classifier robustness with synthetic data from **diffusion probabilistic models**
- Worked on mitigating site class imbalance issues in MRI synthesis with **federated learning**

Machine Learning Research Intern Aug. 2022 – Feb. 2023
Huawei Istanbul, Turkey

- Decreased labeling costs of Address Parsing Module in Huawei Petal Maps app by improving sample complexity with **active learning** on **Transformers**
- Developed a **Python** framework to mine brand names from the web for use in Huawei Petal Maps

Technical Skills

Programming Languages: Python, MATLAB, C/C++, Java
Tools & Frameworks: Sionna, PyTorch, Tensorflow, Scikit-learn, Git, Docker, Linux, Bash, SQL, Spark, Pandas, NumPy, LaTeX, OpenCV, Scikit-image, Flask
Machine Learning & AI: Transformers, CNNs, Generative Models (Diffusion, GANs, VAEs, Flow Models), Sequential Models (RNNs, LSTMs, GRUs), Self/Semi-Supervised Learning, Classical ML (Statistical Learning, Ensemble Methods, Optimization, Bayesian Methods, ...)

Selected Coursework

Machine Learning: Deep Generative Models, Machine Learning, Image Analysis and Pattern Recognition
Communications: Digital Communications 1 and 2, Signal Processing for Communications, Digital Signal Processing, Communication Networks, Computer Networks
Mathematics: Engineering Mathematics, Optimization, Statistics, Random Processes
Computing: Graph Algorithms, Design and Analysis of Algorithms, Data Structures, Internet Analytics

Leadership & Activities

Mentor, Undergraduate Research Opportunities Program (UROP), UC Irvine 2025 – Present
POWER Ambassador, UC Irvine 2024 – Present
Mentor, Graduate International Connection, UC Irvine 2024 – Present
Student Guide, Bilkent University Information Office 2021 – 2023
Head of Sponsorship, Bilkent MUN Club 2021 – 2022
Team Member, Skyworks UAV Robotics Team 2020 – 2021
Interests: Judo, Soccer, Cycling, Running, Guitar