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 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

Undergraduate Student Researcher   Feb. – Aug. 2022
MMSPG, EPFL   *Lausanne, Switzerland*

- Designed a realistic assessment framework to evaluate the robustness of **deepfake detectors**
- Implemented state-of-the-art deepfake detectors in **PyTorch** for framework testing

AI and Embedded Software Intern   June – Aug. 2021
Baykar Defence   *Istanbul, Turkey*

- Developed **embedded AI C/C++** software for UAV Gimbal payload, focusing on improving CAN communication latency

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

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 (Peers Offering Wellness Education Resources) 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