Milad Bafarassat

milad.bafarassat@gmail.com

Website | LinkedIn | GitHub | Google Scholar | Istanbul

Education

Koç University
PhD in Electrical Engineering, Istanbul, Turkey — *Feb 2026 – Present*
Awarded the *KU Graduate Fellowship* for starting PhD studies. **Advisor:** Prof. Sinem Coleri (IEEE Fellow)

Sabanci University
BSc in Computer Science and Engineering, Double Major EE, Minor Physics, Istanbul, Turkey — *Sep 2021 – Jan 2026*
CGPA: 3.74/4.0 – Ranked 63/729 (top 8%) in Faculty of Engineering. Awarded the *Dilek Sabanci Scholarship* for exceptional academic performance.

Sharif University of Technology
BSc in Chemical Engineering & MBA Master's, Tehran, Iran — *Sep 2009 – Feb 2019*
Ranked **5th** in the national MBA entrance exam out of **30,000** applicants (Top 0.02%). Ranked **1374th** in the nationwide undergraduate entrance exam out of **308,875** students (Top 0.4%).

Honors and Awards

Mar 2026: Awarded Sabanci University's prestigious *Distinguished Science and Technology Scholarship (DSTS)* for PhD studies; declined upon accepting Koç University's PhD offer.
Jul 2022– Jul 2025: Recipient of the *Dilek Sabanci Scholarship* for exceptional academic performance, Sabanci University.

Publications and Patents

[J1] M. B. Usta, **M. Bafarassat**, M. Erdem, Ö. Gürbüz, A. Saeed, K. K. Tokgöz, K. Qaraqe. (2026)
Transformer-Driven Beam Control via Reconfigurable Antenna Arrays for Terahertz UAV Communications
IEEE Open Journal of the Communications Society

[C1] C. Li, R. Yang, T. Li, **M. Bafarassat**, K. Sharifi, D. Bergemann, Z. Yang. (2024)
STRIDE: A Tool-Assisted LLM Agent Framework for Strategic and Interactive Decision-Making
AutoRL Workshop, ICML 2024

[C2] M. Bafarassat, M. Yazici, K. K. Tokgoz. (2025)
FET Modeling with Deep Neural Networks and GAN-Augmented Small Measurement Dataset
IEEE SMACD 2025 (Oral Presentation)

[P1] M. Bafarassat, K. K. Tokgoz. (2025)
A Deep Neural Network-Based FET Simulation Method and System Implementing the Model
Patent Application No.: 2025/008782 **Filing Date:** June 30, 2025 **Ref No.:** P7069-TR

Research Experience

Undergraduate Researcher, Sabanci University
AI for Wireless Communications, Advisor: Prof. Özgür Gürbüz — *Sep 2025 – Jan 2026*
Developed CORTEX, a transformer-based beam selection system for THz UAV communications combining convolutional front-ends with causal transformers and RoPE. Key contributions: two-stage angle prediction, circular-aware refinement, knowledge distillation, and focal loss. *Paper accepted to **IEEE Open Journal of the Communications Society.***

Undergraduate Researcher, Sabanci University
Attacks on Time-Series Models, Advisor: Prof. Emre Özfatura — *Sep 2025 – Dec 2025*
Investigated security vulnerabilities in time-series models via two attack classes: (1) input-aware poisoning with sample-specific triggers, and (2) GAN-based trigger synthesis for stealthy backdoors against RNNs, LSTMs, and transformer classifiers. Conducted threat-model design, empirical evaluations, and defense experiments.

Remote Researcher, Shanghai AI Lab
Mechanistic Analysis of Language Models, Advisors: Dr. Jie Fu, Wenyu Du (HKU PhD Student) — *Jan 2025 – Mar 2025*
Researched mechanistic interpretability of transformer-based language models for AI reliability and safety. Implemented a Meta-CoT-inspired approach to automate interpretability workflows.

Graduation Project, Sabanci University
FET Modeling using Deep Learning, Advisor: Prof. Korkut Kaan Tokgoz — *Feb 2024 – Jun 2025*
Developed data-driven FET models using GANs, autoencoders, and interpolation to augment 80,000 samples across 27 transistors. Integrated deep learning models into SPICE/Verilog-A pipelines. Paper accepted for Oral Presentation at **IEEE SMACD 2025**.

Remote Researcher, Yale University
LLM Agent Framework for Strategic Decision-Making, Advisors: Prof. Zhuoran Yang, Dr. Li — *Oct 2023 – May 2024*
Enhanced LLM-based multi-agent decision-making through tool integration. Paper accepted to the ***AutoRL Workshop at ICML 2024*** and the ***INFORMS Workshop on Market Design at EC 2024***.

Undergraduate Researcher, Sabanci University
Political Affiliation Detection via Computer Vision, Advisor: Prof. Onur Varol *Jul 2023 – Oct 2023*
Applied self-supervised clustering (SwAV, Barlow Twins) to 7M+ Twitter profile pictures to estimate political affiliation distributions and human/bot ratios.

Remote Researcher, University of Michigan-Ann Arbor
Graph Neural Networks for Urban Traffic Prediction, Advisor: Dr. Rafegh Aghamohammadi *Jan 2022 – Jun 2022*
Designed graph convolutional architectures with temporal modules for multi-region traffic forecasting using MFD principles. Explored transfer learning for sensor-sparse regions.

Teaching Experience

Programming Fundamentals (CS201) **Sabanci University**
Learning Assistant *Spring 2024*

Internships

Intraverse **Lugano, Switzerland (Remote)**
AI Engineering Intern *Jun 2025 – Jul 2025*
Designed a middleware pipeline connecting Unity to LLM APIs for dynamic NPC dialogue and decision-making. Developed a plugin-based architecture for extensible character/quest design with blockchain-backed validation. Delivered documentation, a prototype, and benchmarks for real-time multiplayer scenarios.

Work Experience

HezarDastan Holding **Istanbul, Turkey (Remote)**
AI Product Manager *Feb 2020 – Mar 2023*
Led a cross-functional team of 9 (engineers, ML researchers, operations, marketing). Co-founded 3 AI products: **Recrupen** (ATS processing 5000+ resumes/year across 6 subsidiaries), **QShoot** (AI math-solving app, 10K users in 2 months), and **Gorgeous** (AI makeup recommendation, 1K users in 2 days).

HezarDastan Holding **Tehran, Iran**
Human Resources Manager *Sep 2015 – Jan 2020*
Managed 40 professionals across HR, Recruitment, L&D, and Administration. Scaled headcount from 100 to 300 in two years. Built recruitment team from scratch to 7 recruiters. Raised employee NPS from low 80%s to 92%.

Extracurricular Activities

Program for Undergraduate Research (PURE)
Mentor *Jan 2025 – Jun 2025*
Mentored junior students on leveraging reinforcement learning for transistor data augmentation.

Sabanci AI Club (kAi)
Student Advisor *Apr 2023 – Oct 2023*
Identified and negotiated with potential sponsors for the club.

Select Coursework

Graduate-level:
Internet of Things Sensing System (A)
Scalable Learning Systems (A)

Math & Theory:
Probability and Statistics (A)
Linear Algebra (A)
Statistical Modeling (A)
Information and Coding Theory (B+)

CS & AI:
Algorithms and Data Structures (A-)
Advanced Programming (A)
Data Science (A)
Computer Vision (A-)
Digital Image & Video Analysis (A-)

EE & Physics:
Intro to Signal Processing (A)
Computer Networks (B+)
Multimedia Communication (A)
Quantum Mechanics I (A-), II (B+)

Skills

Programming: C++, Python
ML Frameworks: PyTorch, TensorFlow
Tools: Git, LaTeX, Linux, SPICE/Verilog-A

Languages:
English (C1), Turkish (C1)
Azeri (Native), Persian (Native)

Tests and Scores

GRE (323): Quantitative: 170 (perfect score, 27/27 correct), Verbal: 153
TOEFL iBT (100): Reading: 24, Listening: 29, Speaking: 21, Writing: 26