

Amirhassan Babazadeh Darabi

Email `adarabi22@ku.edu.tr`
LinkedIn `Amirhassan Babazadeh Darabi`
Github `amirbabaz`
Website `amirbabaz.github.io`
Phone +90 544 155 5327
Address Koc University, Rumeli Feneri Yolu, 34450, Sariyer, Istanbul, Turkey

Education

Master's Degree in Electrical and Electronics Engineering **2022–2024**

Koc University, Istanbul, Turkey

Thesis: Deep Learning Based Resource Allocation for Ultra-Reliable Communications in Wireless Control Systems

Advisor: Prof. Sinem Coleri; **GPA:** 3.29/4

Bachelor's Degree in Electrical and Electronics Engineering **2017–2022**

University of Tabriz, Tabriz, Iran

Thesis: Image Captioning with Flickr8k and Flickr30k Datasets

Advisor: Prof. Hadi Seyedarabi; **GPA:** 16.61/20 (3.41/4)

High School Degree, Math and Physics **2014–2017**

National Organization for Development of Exceptional Talents (SAMPAD)

Research Interests

Wireless Networks; Machine Learning & AI; Wireless Communications; Communications Theory; Information Theory; Optimization

Experience

- **Research Experience**

Research Assistant

2022–present

Koc University, Istanbul, Turkey

Research Assistant in Wireless Networks Laboratory (WNL). Conducting research developing deep reinforcement learning and generative AI approaches applied to wireless communications scenarios.

- **Teaching Experience**

Teacher Assistant

2021–present

Koc University, Istanbul, Turkey

Teacher Assistant for ELEC411/511 Digital Communications (Fall 2022)

Teacher Assistant for ENGR421 Introduction to Machine Learning (Fall 2023)

Teacher Assistant for INDR344 Modeling and Simulation (Spring 2023)

Teacher Assistant for ELEC428/528 Communications Networks (Spring 2024)

Tabriz University, Tabriz, Iran

Teacher Assistant for Probability and Statistics for Engineering (Fall 2021)

• Professional Experience

Intern

2021–2022

Azar Sanat Kahroba Tarasheh (ASKTCO), Tabriz, Iran

Project: Detection and Segmentation of Car Plate Numbers Using Both Deep Learning and Conventional Image Processing Techniques

Vice President of IEEE Tabriz Branch

2020–2022

Publications

H. Q. Ali, **Babazadeh Darabi**, **Amirhassan**, and S. Coleri, "Optimization theory based deep reinforcement learning for resource allocation in ultra-reliable wireless networked control systems," *IEEE Transactions on Communications*, pp. 1–1, 2024

Babazadeh Darabi, **Amirhassan** and S. Coleri, "Diffusion model based resource allocation strategy in ultra-reliable wireless networked control systems," *arXiv preprint arXiv:2407.15784*, 2024

M. Nateghi, **Babazadeh Darabi**, **Amirhassan**, M. A. Tinati, B. M. Tazehkand, and M. R. G. Aghdam, "A novel ASCII based ECG compression and reconstruction algorithm for on-line ECG monitoring," (*Ready to submit*), 2023

Academic Projects

Deep reinforcement learning for joint channel selection and power control in D2D networks

Selecting channel and power in a D2D network for each agent using DQN algorithm (PyTorch is used to implement DQN)

PCA neural network application with local learning rule

Applied Principle Component Analysis (PCA) using Spiking Neural Networks (SNN) with local learning rule.

EEG signal compression by Huffman quantization approach in PYTHON

Applied Huffman quantization method to filtered EEG signals to compress the data and decompress it using the reverse technique

Information Maximization Criterion as Regularizers for Neural Networks

Applied information maximization criterion as regularizer block to enhance the generalization ability of neural networks and solve the dying ReLU problem using PyTorch

Skills

PROGRAMMING LANGUAGES

PYTHON, MATLAB, C/C++, Verilog

SOFTWARE

ns-3, CST Microwave Studio, Ansys HFSS, Advanced Design Systems (ADS), Proteus, Altium Designer, Quartus and ModelSim

OTHER

L^AT_EX, Linux, git, vim

LANGUAGES

English (fluent), Turkish (fluent), Persian (native), Azeri (native)

References

Prof. Sinem Coleri, Department of Electrical and Electronics Engineering

Koc University, Istanbul, Turkey

Office Phone: +90 (212) 338-1535; fax: +90 (212) 338-1548

E-mail: scoleri@ku.edu.tr

Prof. Alper T. Erdogan, Department of Electrical and Electronics Engineering

Koc University, Istanbul, Turkey

E-mail: alperdogan@ku.edu.tr

Prof. Behzad Mozaffari Tazehkand, Department of Electrical and Electronics Engineering

Tabriz University, Tabriz, Iran

Office Phone: +98 (41) 33393788

E-mail: mozaffary@tabrizu.ac.ir