

Farbod Raeisi

Biomechatronic Research Laboratory
Department of Electrical Engineering
K. N. Toosi University of Technology, Tehran, Iran

Phone: +98 (912) 398-2418
Primary Email: farbod.ra26@gmail.com
Secondary Email: f.raeisi@email.kntu.ac.ir
Webpage: farbod02.github.io
LinkedIn: www.linkedin.com/in/farbod-raeisi

Education

B.Sc. Electrical Engineering

2021 - *present*

K.N. Toosi University of Technology, Tehran, Iran
GPA: 17 of 20 via 113 credits

High School Diploma | Mathematics and Physics

2017 - 2020

Allame Helli High School, National Organization for Development of Exceptional Talents
GPA: 18.5 of 20

Research Interests

- Control Theory
- System Identification
- Deep Learning & ML
- IoT
- Mechatronics
- Cognitive Science
- Neural engineering
- Power Systems

Publications

- F. Raeisi, Dr. M. Delrobaei, "Predicting Mind Wandering During SART Tasks Using Electrooculography (EOG) and Reaction Time Analysis" (Bachelor's Thesis, to be submitted in the future)

Research Experience

Researcher

September 2023 – *present*

Biomechatronic Laboratory, K.N. Toosi University of Technology

- Under supervision of [Dr. Mehdi Delrobaei](#)
Working on a research paper about the correlation of mind wandering and SART fixation signal

Research Assistant

August 2024 – *present*

SBMU Neuroscience Research Center (NRC)

- Under supervision of [Dr. Mahdi Aliyari-Shooredeli](#)
Assisting in addressing LFP data acquisition challenges from rat brains to support neuroscience research initiatives.

Research Assistant

August 2023 – March 2024

Fault Detection & Identification Laboratory (FDI), K.N. Toosi University of Technology

- Under supervision of Dr. Mahdi Aliyari-Shooredeli
Part of a team analyzing NHTS data for a master's project, aimed at refining airbag performance prediction systems by evaluating American car crash sensor data.

Internship and Summer School

Neuromatch Academy Summer School

Summer 2023

- Explored research fundamentals in computational neuroscience using the Steinmetz dataset.

Internship at Fard Iran Inc.

Summer 2022

- Machine Learning and Image Processing Intern in Research & Development, working on development of car plate reader system.

Teaching Experience

Teaching Assistant of Probability and Statics Course

October 2022 – February 2023

[Dr. Bahare Akhbari](#)

- provided data analysis with python and programming courses in addition to the final project of the lecture to the students

Selected Projects

Rotational Inverted Pendulum System Simulation and Control

- Created state-space, bond graph, and Simscape simulations for a ball and beam system, with MATLAB model identification.

Advanced Control and Simulation of a Robotic Arm Utilizing LQR Optimization Techniques

- Implemented LQR optimization to design an efficient control system for a robotic arm. The system's dynamics were modeled in SolidWorks, and simulations were run in MATLAB Simulink to test and refine performance.

Design and Implementation of Control Systems for Propellant Spacecraft

- Conducted a detailed analysis of propellant spacecraft systems, deriving state equations, evaluating controllability and observability, and implementing state feedback and LQR control strategies.

Load Flow Analysis and Contingency Assessment of a 13-Bus Power System Using DIgSILENT

Automated Vending Machine Simulation Through Digital Circuit Design Techniques Using Proteus

Award & Honors

- Ranked 15th (top 10%) out of 150 students in the K. N. Toosi University of Technology, based on GPA and 3rd in control focused students
- Admitted to National Organization for Development of Exceptional Talent

Volunteer Experience

Served as Executive Committee:

- The 3rd International Conference on Electrical Machines and Drives (ICEMD 2023)
- The 6th International Conference on Millimeter Wave Terahertz Technologies (MMWATT 2023)

Served as a member of IEEE Cultural Branch Iran Section at K.N. Toosi University of Technology:

- Volunteer photographer and executive committee member at Jadi Python Workshop for young students. April-2023

Served as Mentor:

- Open Doors Day for high school students at K.N. Toosi University of Technology. July-2024

Skills

Artificial Intelligence

- Machine Learning
 - Supervised Learning
 - Unsupervised Learning
 - Reinforcement Learning
 - Computer Vision
- Deep Learning
 - Convolutional Neural Networks (CNNs)

Programming Languages

- Python
- C/C++
- html / CSS
- SQL

MATLAB

- System identification toolbox,
- Neural network fitting
- Simscape
- Simulink
- Fuzzy Logic Toolbox
- PID Tuner App

Software

- SolidWorks
- Altium Design
- Arduino IDE
- Proteus
- PSpice
- COMSOL Multiphysics
- CodeVision AV

Language Proficiency

English: Full professional proficiency

Persian: Native

Courses & Certificate

Python for Data Science and Machine Learning Bootcamp

August 2024

- Udemy

Signal Processing Problems, solved in MATLAB and in Python

August 2024

- Udemy

Applied Electronics for Robotics

June 2023

- ARAS (Advanced Robotics and Automated System) | Hi-Tech Robotic Solutions Group

Introduction to the Internet of Things and Embedded Systems

August 2023

- Coursera

Computational Neuroscience

September 2023

- Neuromatch International Academy

Hobbies

Mountaineering

- Climbed Mount Alam Kuh (4,848 m) and Mount Sabalan (4,811 m): Received commendation from the Iran Federation of Mountaineering

Amateur Pianist

References

Available upon Request