

# Bahador Rousta Jorshary

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## EDUCATION

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*B.Sc. Electrical Engineering – Electronics*

**Khajeh Nasir Toosi University of Technology (KNTU)**, Tehran, IRAN

Sep 2020 – Sep 2025

- GPA: 17.33/20 ( or 3.47/4)
- Thesis Title: Design of a data acquisition system for simultaneous two-stage deep brain stimulation and signal recording
- Supervisor: Dr. Mahdi Aliyari Shoreehdeli
- Relevant Coursework (out of 20):  
Differential Equations (20), Engineering Mathematics (20), Computer Programming (20), Computer Networks II (18.5), Advanced Programming (17.4), Electrical Circuits I (18.4), Digital Circuits II (18.17), Electric Machines I (18.89).

## AWARDS AND HONORS

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- Graduated in the top 5% of class (GPA: 17.33/20, equivalent to 3.47/4.0)
- Ranked in the top 1% among more than 155,000 participants in the Iranian University Entrance Exam for the Bachelor's degree

## RESEARCH INTERESTS

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- Machine Learning for Experimental Science
- Software–Hardware Integration
- Intelligent Embedded & IoT Systems
- Human–Computer Interaction

## RESEARCH AND PROJECTS

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*EDXRF Semi-Quantitative Analysis Software*

Project conducted at **Control System Abzar Nowin (CSAN) Co.**, Tehran, Iran

- Delivered a semi-quantitative EDXRF data processing pipeline integrated with the company's quantitative tools
- Built a full workflow using the Fundamental Parameters method for elemental composition extraction
- Created a reusable Python library enabling scripted analysis workflows
- Designed and implemented a PyQt GUI for configurable analysis and interactive visualization

*Spectra Background Noise Removal API*

Project conducted at **Control System Abzar Nowin (CSAN) Co.**, Tehran, Iran

- Developed an algorithm to remove background noise from X-ray spectra, improving signal quality for semi-quantitative analysis.
- Integrated the algorithm into the existing EDXRF pipeline, enabling more accurate and reproducible elemental composition calculations.

## Bachelor's Final Project

- Designed a GUI platform integrating hardware control, neural signal processing, and behavioral video analysis.
- Implemented real-time DBS (Deep Brain Stimulation) control protocols for experimental studies in mice.
- Developed image-processing pipelines for head/body/skeleton tracking and behavioral quantification.
- Synchronized LFP (Local Field Potential) recordings with video data for multimodal analysis and visualization.

## EXPERIENCES

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### Teaching Experience

- **Computer Programming – Teaching Assistant**

Lecturer: Mr. Mahdi Zamanian

Sep 2022 – Dec 2022

- Guided students through laboratory sessions and problem-solving activities.
- Designed and graded assignments to reinforce programming fundamentals.

### Professional Experience

- **Software Developer**

Control System Abzar Nowin (CSAN) Co, Tehran, Iran

Sep 2022 – Present

- Designed and implemented software tools and GUIs for XRF data analysis workflows

- **Software Developer Intern**

Control System Abzar Nowin (CSAN) Co, Tehran, Iran

Jun 2022 – Sep 2022

- Developed a spectral peak detection tool to identify and analyze elemental excitations

## SKILLS

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- Programming Languages: Python, Java, C, C++, JavaScript, MATLAB
- Frameworks and Tools: OpenCV, Qt, PyTorch, FastAPI, Django, Flask, SQL
- Software Applications: PSpice, Proteus, Altium Designer, Microsoft Office
- Operating Systems: Windows, Linux (Ubuntu)

## MEMBERSHIPS

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IEEE KNTU Student Branch

Aug 2023 – Dec 2023

- Content Coordinator: Organizing conferences and events. Contributed in holding the third International Conference on Electrical Machines and Drivers (ICEMD)

## LANGUAGES

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- Persian: Native
- English: Full professional proficiency
  - IELTS Academic Exam: Overall 8.0 (Listening: 8.5, Reading: 9.0, Writing: 7.0, Speaking: 7.0)

## REFERENCES

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1. Dr. Mahdi Aliyari Shoorehdeli: [aliyari@kntu.ac.ir](mailto:aliyari@kntu.ac.ir)