

EDUCATION

Sep 2022— **Degree:** Master of Science in Statistical Physics and Complex Systems
Mar 2025 **Where:** Shahid Beheshti University, Tehran, Iran
GPA: 18.5 of 20 (**Second** Rank)

Sep 2018— **Degree:** Bachelor of Science in Physics
May 2022 **Where:** Shahid Beheshti University, Tehran, Iran
GPA: 17.3 of 20 (**First** Rank)

RESEARCH INTEREST

- Biological Physics
- Complex Systems
- Data Science
- Cognitive Science
- Computational physics
- ML & AI

RESEARCH EXPERIENCE

Jan 2024— **Project:** Autism Brain Network Topology (Persistent Homology)
Present **Where:** Shahid Beheshti University, Tehran, Iran
Advisor: Prof. Reza Jafari

- Applied Topological Data Analysis (Persistent Homology) to analyze brain network differences in Autism Spectrum Disorder (ASD) vs. controls, identifying significant variations in connected components and loops.
- Developed a novel node removal method to pinpoint the frontoparietal subnetwork (FPN) as exhibiting the most substantial structural changes in ASD.
- Trained a machine learning model using extracted topological features, successfully discriminating between ASD and control groups and predicting age groups.

Dec 2023— **Project:** Segmentation of Coronary Arteries Using Deep Learning
Present **Where:** Shahid Rajaei Heart Hospital, Tehran, Iran
Advisor: Mehdi Yousefzadeh

- Collected and processed medical data from the hospital, working with DICOM files to identify and label vessels and catheters.
- Developed custom augmentation techniques to enhance data quality and improve segmentation accuracy.

Aug 2022— **Project:** Abnormality Detection in Head CT Scan Reports using Text Mining
Oct 2022 **Where:** Imam Hossein Hospital Research Council, Tehran, Iran
Advisor: Mehdi Yousefzadeh

- Conducted text mining and preprocessing on radiology reports to detect abnormalities.

PUBLICATIONS

- Mohammadi, M.S., Shahrokhi, S., **Mozaffari, M.** et al. Nonlinear optical response of IMIP ionic liquid-stabilized magnetic graphene oxide sheets. J Mater Sci: Mater Electron 33, 13224–13233 (2022).

HONORS AND AWARDS

- Admitted to the master's program through **the Exceptional Talent initiative** for top students (2022).
- Top 1%** in nationwide university entrance exam in Iran (2018).

SKILLS

Computing

- Python (Advanced)
- Bash/Linux (Intermediate)
- HTML, CSS (Elementary)
- C++ (Intermediate)
- Adobe Illustrator (Advanced)
- \LaTeX (Advanced)
- Git (Intermediate)
- Adobe Photoshop (Intermediate)
- Microsoft Office Suite: Word, Excel, PowerPoint (Advanced)

Languages

- Persian (Native)
- English (Fluent)
- French (Beginner)

WORK EXPERIENCE

- Jul 2024—
Present

Position: Python Instructor
Where: Ostadbank, Tehran, Iran

 - Teaching Python object-oriented programming, machine learning, and AI to students, focusing on real-world applications and mini projects.
- Jun 2023—
Present

Position: Python Instructor
Where: Picha Club, Tehran, Iran

 - Instructing pre-teens and teens in Python fundamentals, algorithms, and Tkinter.
 - Guiding students through game development projects.

TEACHING EXPERIENCE

Position: Teaching Assistant
Where: Department of Physics, Shahid Beheshti University, Tehran, Iran
Courses:

- Complex Systems Physics (Jan 2025 – Jul 2025)
 - Complex Networks and Graph Theory (Jan 2025 – Jul 2025)
 - Stochastic Processes (Jan 2024 – Jul 2024)
- Foundations of Numerical Simulations (Sep 2023 – Jan 2024)
 - Complex Systems Physics (Sep 2023 – Jan 2024)
 - Analytical Mechanics (Sep 2022 – Jan 2023)

CERTIFICATIONS

- Machine Learning Specialization, Coursera (2023).
- Neural Networks and Deep Learning, Coursera (2022).
- Quantum Computing and Implementation in Python, Qorpi Engineering Workgroup – KNTU Innovation Center (2022).
- Quantum Information and Computers, Interdisciplinary Schools, Sharif University of Technology (2021).

CONFERENCES & SCHOOLS ATTENDED

- Nov 2024—
Nov 2024

Where: Shahid Beheshti University, Tehran, Iran
Title: fMRI Image Processing With CONN Toolbox

 - Gained hands-on experience in preprocessing, denoising, and connectivity analysis for resting-state and task-based fMRI using the CONN toolbox.
- Sep 2024—
Sep 2024

Where: Shahrood University of Technology, Semnan, Iran
Title: 5th National Conference on Quantum Information and Computing

 - Attended presentations on the latest advancements in quantum information theory and quantum computing.
- Oct 2023—
Dec 2023

Where: School of Biological Sciences, IPM, Tehran, Iran
Title: The School of Evolutionary Dynamics of Cells and Viruses

 - Participated in lectures and discussions on evolutionary dynamics in cells and viruses.
 - Explored theoretical models and their biological applications.
- Jul 2023—
Jul 2023

Where: Institute for Advanced Studies in Basic Science, Zanjan, Iran
Title: The 28th Special School on Topics in Physics

 - Engaged in advanced discussions on topics like condensed matter physics, quantum mechanics, and biosensing technologies.

PERSONAL INFORMATION

- Gender: Female
- Nationality: Iranian
- Date of Birth: Aug. 10th, 2000

REFERENCES

- Reza Jafari**, Professor of Physics, Department of Physics and Institute for Cognitive Science and Brian, Shahid Beheshti University, Tehran, Iran.

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