

About Us

The Neuroscience and Artificial Intelligence Research Group (NAIRG) is a research group at Hamadan University of Medical Sciences (UMSHA) that focuses on the intersection of neuroscience and artificial intelligence (AI). NAIRG was established in 2022 as a part of the Student Research Committee (SRC) of UMSHA and later became affiliated with the **Department of Neuroscience, School of Science and Advanced Technologies in Medicine**.

NAIRG is the only research group of its kind in UMSHA and aims to advance the scientific understanding and applications of neuroscience and AI. The idea belongs to *Mr. Ali Fathi Jouzdani*, who is the founder of NAIRG and the leading member and mentor of the group. *Dr. Arman Gorji*, who, with his strong cooperation, made the group work and progress forward with strength.

Our Focus

- 1) Our main focus at NAIRG is to provide a better understanding of neuroscience and AI and the application of different methods of AI to understand medical diseases, especially neurodegenerative and neuropsychiatric disorders, with the hope of improving predicting their prognosis and monitoring these diseases.
- 2) We have projects on various neuroscience topics, including neurodegenerative diseases, cognitive neurosciences, and neuroimaging. In particular, we conduct experimental neurosciences using electrophysiology and behavioral techniques.

Research Interests:

- Neurosciences
- Neuroimaging
- Computational Neuroscience
- Brain Stimulation
- Electrophysiology
- Behavioral Neuroscience
- Personalized Medicine

The NAIRG is a research group that fosters the development of young and keen researchers who are interested in the nervous system and its related fields. The NAIRG provides an environment where all the members are supported and challenged by mentors who are involved in every stage of every project. The NAIRG assigns each new member an important but manageable project that suits their level of expertise. The NAIRG values mentorship, responsibility, discipline, and punctuality and strives to create a culture of learning and teaching. Members are expected to become future mentors and pass the torch to the next generation of students. This approach has enabled the NAIRG to work on many projects and publish some of them in reputable journals within a span of just over a year. The NAIRG has also become an attractive place for many students in UMSHA who want to join the group and pursue their research interests. The NAIRG owes its success to hardworking mentors, members, and ever-caring supervisors. As a community, we look forward to continually improving and delivering a better understanding of neuroscience and artificial intelligence fields in medicine to help improve people's health everywhere.

Members:



1. Ali Fathi Jouzdani, MD
Medical Intern, Neuroscience and AI Researcher

Founding Member

Leading Mentor

ali.fathi77@gmail.com

a.fathi@edu.umsha.ac.ir

Twitter: @AFathiJouzdani

<https://scholar.google.com/citations?user=BuzRNhkAAAAJ&hl=en>



2. Arman Gorji, MD
Medical Doctor, AI Researcher
Co-Founding Member
Leading Mentor

gorjiarman@gmail.com

gorji.arman@edu.umsha.ac.ir

<https://scholar.google.com/citations?hl=en&user=dIW27eYAAAAJ>

Senior Members:



3. Motahareh Bagheri, MD
Medical intern, Medical Researcher

<https://scholar.google.com/citations?hl=en&user=Zsn4850AAAAJ>



4. Amirali Abotorabi
2^{en} year Medical Student, AI intern



5. Samaneh Safari

Neuroscience PhD student, Neurodegenerative Researcher

<https://scholar.google.com/citations?user=F6ndbFoAAAAJ&hl=en&oi=ao>

Junior Members:



6. Nima Sanati

2^{en} year Medical student, AI Intern



7. Fatemeh Panahabadi

3rd year Medical student, Neuroscience Intern



8. Mohamad Rajabi

3rd year medical student, Neuroscience Intern

Supervisors:

- Neuroscience



Prof Abdolrahman Sarihi

Professor of Physiology; Hamadan University of Medical Sciences, Hamadan, Iran.

sarihi@umsha.ac.ir



Prof Alireza Komaki

Professor of Physiology; Hamadan University of Medical Sciences, Hamadan, Iran.

komaki@umsha.ac.ir

- **Neurotoxicity**



Prof Akram Ranjbar

Department of Toxicology and Pharmacology, School of Pharmacy, Hamadan University of Medical Sciences.

Ranjbar@umsha.ac.ir

- **Artificial intelligence and Biomedical engineering**



Dr Sajjad Farashi

Assistant professor, Biomedical Engineering; Autism Spectrum Disorders Research Center, Hamadan University of Medical Sciences, Hamadan, Iran.

s_farashi@umsha.ac.ir

Publications

A. Published papers

- Hosseinzadeh M, Gorji A, Fathi Jouzdani A, Rezaei SM, Rahmim A, Salmanpour MR. Prediction of Cognitive Decline in Parkinson's Disease Using Clinical and DAT SPECT Imaging Features, and Hybrid Machine Learning Systems. *Diagnostics*. 2023 May 10;13(10):1691.
- Daneshvar A, Jouzdani AF, Firozian F, Asl SS, Mohammadi M, Ranjbar A. Neuroprotective effects of crocin and crocin-loaded niosomes against the paraquat-induced oxidative brain damage in rats. *Open Life Sciences*. 2022 Sep 14;17(1):1174-81.
- Bagheri Z, Larki-Harchegani A, Pourmoslemi S, Nili-Ahmadabadi A, Bakhtiari E, Safarpour H, Fathi Jouzdani A, Shamsizadeh M. The antimicrobial and healing effect of *Scrophularia striata* Boiss hydroalcoholic extract on first-and second-grade pressure wounds in patients with brain and spinal cord injury: a randomized clinical trial. *Evidence-Based Complementary and Alternative Medicine*. 2022 Nov 28;2022.
- Khodavysi M, Kheiripour N, Ghasemi H, Soleimani-Asl S, Jouzdani AF, Sabahi M, Ganji Z, Azizi Z, Ranjbar A. How can nanomicelle-curcumin modulate aluminum phosphide-induced neurotoxicity?: Role of SIRT1/FOXO3 signaling pathway. *AIMS neuroscience*. 2023;10(1):56.

B. Conferences

- Jouzdani AF, Gorji A, Hosseinzadeh M, Rahmim A, Salmanpour MR. Prediction of Cognitive Decline in Parkinson's Disease using Deep and Handcrafted Radiomics Features. In *EUROPEAN JOURNAL OF NUCLEAR MEDICINE AND MOLECULAR IMAGING* 2022 Sep 1 (Vol. 49, No. SUPPL 1, pp. S195-S196). ONE NEW YORK PLAZA, SUITE 4600, NEW YORK, NY, UNITED STATES: SPRINGER.
- Salmanpour MR, Hosseinzadeh M, Sanati N, Jouzdani AF, Gorji A, Mahboubisarighieh A, Maghsudi M, Rezaei SM, Moore S, Bonnie L, Uribe C. Tensor Deep versus Radiomics Features: Lung Cancer Outcome Prediction using Hybrid Machine Learning Systems.
- Gorji A, Jouzdani AF, Sanati N, Hosseinzadeh M, Mahboubisarighieh A, Rezaei SM, Maghsudi M, Moore S, Bonnie L, Uribe C, Ho C. PET-CT Fusion Based Outcome

Prediction in Lung Cancer using Deep and Handcrafted Radiomics Features and Machine Learning.

C. Preprint

- Gorji A, Jouzdani AF. PerPsych: An iPadOS-based Open-source Neuropsychological Software for Time Perception Assessment.

Contact us:

Address: Department of Neuroscience, School of Science and Advanced Technologies in Medicine, Hamedan University of Medical Sciences, Shahid Fahmideh St, Hamadan, Iran.

Postal Code: 6517838736

Contact number: +98 81 38381796; +98 912 8959068

Email: nairresearchgroup@gmail.com; nairg.research@gmail.com