

DR. HAJAR AHMADIEH KHANESAR



Assistant Professor of Biomedical Engineering School of Advanced Technologies in Medicine, Iran University of Medical Sciences (IUMS)

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Google Scholar:

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ISIRI Scientometrics:

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RESEARCH INTERESTS

- Biological Signal Processing (EEG, ECG)
- Deep Learning & Artificial Intelligence in Medicine
- Computational Neuroscience & Visual Image Reconstruction
- Advanced Fuzzy Logic & Computational Intelligence Systems
- Medical Device Innovation, Standardization, and Commercialization

ACADEMIC APPOINTMENTS

Assistant Professor & Faculty Member 2025 – Present School of Advanced Technologies in Medicine, Iran University of Medical Sciences (IUMS)

Director of the Satellite Incubator Center of the School of Advanced Technologies in Medicine 2026 – Present Iran University of Medical Sciences (IUMS)

- Formulated strategic commercialization plans for medical university research outputs and technological innovations.
- Directed the restructuring and optimization of the medical equipment maintenance and safety frameworks to decrease institutional operational expenditures.
- Served as a Technical Advisor and Reviewer for the university incubator, evaluating biomedical startups and knowledge-based enterprises.
- Fostered relationships with healthcare philanthropists and corporate investors to secure institutional funding for cutting-edge laboratory infrastructure.

EDUCATION

Ph.D. in Biomedical Engineering (Bioelectronics) 2017 – 2023 Amirkabir University of Technology (Tehran Polytechnic).

- Thesis: Design of a Deep Fuzzy System for Visual Image Retrieval Based on Recorded Brain Data

Honors: Ranked 3rd Top Ph.D. Student, Class of 2017

M.Sc. in Biomedical Engineering (Bioelectronics) 2012 – 2015 Tarbiat Modares University.

- Thesis: Fetal ECG Extraction Using Type-2 Adaptive Neuro-Fuzzy Inference Systems

B.Sc. in Biomedical Engineering (Bioelectronics) 2008 – 2012 Shahed University

- Thesis: Design and Construction of an Eyeglass-Mounted Ultrasonic System for Obstacle Detection for the Visually Impaired

Doctor of Business Administration (DBA) 2021 – 2022 University of Tehran

JOURNAL PUBLICATIONS

1. Visual image reconstruction based on EEG signals using a generative adversarial and deep fuzzy neural network Authors: H. Ahmadi, F. Ghassemi, M.H. Moradi Journal: Biomedical Signal Processing and Control (2024) | Ranking: Q1
2. EEG Signals Classification related to Visual Objects using Long Short-Term Memory Network and Nonlinear Interval Type-2 Fuzzy Regression Authors: H. Ahmadi, F. Ghassemi, M.H. Moradi Journal: Brain Topography (2023) | Ranking: Q1
3. A hybrid deep learning framework for automated visual image classification using EEG signals Authors: H. Ahmadi, F. Ghassemi, M.H. Moradi Journal: Neural Computing and Applications (2023) | Ranking: Q1
4. Assessing the Effects of Alzheimer Disease on EEG Signals Using the Entropy Measure: A Meta-analysis Authors: H. Ahmadi, F. Ghassemi Journal: Basic and Clinical Neuroscience (2022) | Ranking: Q3
5. Fetal ECG extraction via type-2 academic neuro-fuzzy inference systems Authors: H. Ahmadi, B. Mohammadzadeh Journal: Computer Methods and Programs in Biomedicine (2017) | Ranking: Q1

CONFERENCE PRESENTATIONS

1. Diagnosis of Heart Disorders by Heart Sound Segmentation (2016) Authors: A. Tavakoli Golpayegani, K. Hasani, H. Ahmadi, K. Bajelani Conference: 3rd National & 1st International Conference on Applied Research in Electrical, Mechanical and Mechatronics Engineering

2. Extraction of Fetal ECG Via Type 2 Adaptive Neuro Fuzzy Inference System (2015) Authors: H. Ahmadi, B. Mohammadzadeh Conference: 22nd Iranian Conference on Biomedical Engineering (ICBME), IROST, Tehran

PROFESSIONAL & EXECUTIVE EXPERIENCE

Technical Project Evaluator & Supervisor 2021 – 2024 (1400 – 1403) Advanced Industries Development Support Fund (Ministry of Industry, Mine and Trade)

- Evaluated technical feasibility, financial risk, and execution milestones of over 15 industrial biomedical engineering projects across Iran for venture financing and low-interest technology credits.

Healthcare Specialist / Medical Equipment Inspector 2013 – 2021 (1392 – 1400) Sanat Noovin Health Company

- Supervised medical device lifecycles, maintenance programming, hospital procurement consultations, and clinical commission protocols.

STANDARDIZATION & PROFESSIONAL SERVICE

National Committee Secretary & Technical Expert 2015 – 2017 Standard Research Institute / Institute of Standards and Industrial Research of Iran (ISIRI) Led and participated in drafting official national and international regulatory standards for medical instruments including:

- INEC TC 62 / IEC TC 62 (Electrical Equipment in Medical Practice) – Executive Secretary & Committee Member.
- Microscopes (Infinity-corrected optical systems) & Cardiac pacemakers labeling standards.
- Ergonomics of human-system interaction (Haptic and tactile interactions framework).
- Medical suction equipment, surgical implants analysis, and diagnostic in-vitro self-testing systems.

PROFESSIONAL MEMBERSHIPS & COMMITTEES

- Certified Technical Supervisor (Medical Devices Regulatory Affairs)
- Member, Intellectual Property Council, Iran University of Medical Sciences (IUMS)
- Member, University Incubator Council, Iran University of Medical Sciences (IUMS)
- Technical Expert for laboratory equipment curriculum design, National Standards Organization
- Executive Secretary, Workshop on "Biological Concepts & Ionizing Radiation Imaging for Biomedical Engineering", IUMS

TECHNICAL SKILLS

- **Biosignal Processing:** Advanced analysis of EEG & ECG signals, fetal signal extraction, and neuromarker discovery for neurodegenerative disorders (Alzheimer's).
- **AI & Computational Modeling:** Deep Learning Frameworks (LSTM, GANs), Image Reconstruction from Neural Data, Adaptive Neuro-Fuzzy Inference Systems (ANFIS), Type-2 Fuzzy Systems.
- **Programming & Software:** MATLAB (Advanced application in neuroscience), Python, R, SPSS, COMFAR (Financial & Economic feasibility analysis).