



Fardin Abdali-Mohammadi

Curriculum Vitae

*Associate Professor of Computer Engineering
Medical Doctor (GP)*

Summary

Research Interest

Artificial Intelligence and Machine Learning in Health & Medical Informatics.

- { Deep Neural Networks
- { Convolutional Neural Networks
- { Federation Learning

Biomedical signal & image processing.

- { ECG signal processing
- { EEG signal processing
- { IMU signal processing

Data Mining & Genetic Programming.

Professional Skills

Python Programming.

- { Python 2/3, Django ORM
- { DEAP: Distributed Evolutionary Algorithms in Python
- { Strong experience with Core Python and NumPy, Django, Panda and Flask
- { Strong experience in using different python libraries like matplotlib, Pandas, Numpy, TensorFlow, Keras, Scikit-Learn etc.

Android Development.

- { Kotlin, Java
- { (Intent)Services, Android SDK, Android Studio, Broadcast Receivers
- { Content Providers, Core Java, Dagger, Flutter
- { Google Play Services, Gradle, Kotlin, MVP/MVVM, GitLab
- { OkHttp, Sqlite, Wear OS SDK, JSON, XML

Developing Tools, Environments, and Frameworks.

- { Laravel, Apache Kafka, PHP, RESTful Web Service
- { Database: NoSQL and MySQL
- { Git
- { Operating System: Ubuntu Server, Windows 11, Windows Server

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Scientific Programming.

{ Matlab
{ R
{ Programming Languages: C++, Java

Familiar with Arduino Modules.

Latex.

Profiles

Personal Webpage: <http://abdali.ir>

Razi Webpage: <http://razi.ac.ir/~fardin.abdali>

Google Scholar: <https://scholar.google.com/citations?user=d8uF078AAAAJ>

ORCID: <https://orcid.org/0000-0002-6691-680X>

ResearchGate: https://www.researchgate.net/profile/Fardin_Abdali-Mohammadi

Linkedin: <https://www.linkedin.com/in/fardin-abdali/>

Education

- | | | |
|-----------|---|---|
| 2012-2020 |  | Medical Doctor, Kermanshah University of Medical Science , Kermanshah, Iran.
General Practitioner |
| 2011-2012 |  | Visiting Researcher, École Polytechnique Fédérale de Lausanne (EPFL) , Lausanne, Switzerland. |
| 2007-2012 |  | Doctor of Philosophy(PhD), University of Isfahan , Isfahan, Iran.
Software Engineering |
| 2001-2003 |  | Master of Science, Amirkabir University of Technology , Tehran, Iran.
Software Engineering |
| 1997-2001 |  | Bachelor of Science, Sharif University of Technology , Tehran, Iran.
Software Engineering |

Experience

Academic

2020-Present **Associate Professor**, Razi University, Kermanshah, Iran.

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2012–2020 **Assistant Professor**, Razi University, Kermanshah, Iran.

Professional Activity:

- { Technical Committee member, 25th Iranian Computer Olympiad
- { Scientific Committee member, 25th Iranian Computer Olympiad
- { Scientific Committee member, 24th Iranian Computer Olympiad
- { Ellite Researcher of the Computer Engineering Department
- { Advisor of the Computer Students' Scientific Association, Razi University
- { Supervision of PhD and MSc Students
- { Head of Biomedical Data Analysis Laboratory, Razi University
- { Teaching some PhD and MSc Courses in Razi University e.g.
 - Fundation of Neuroscience
 - Advanced Data Mining
 - Advanced Database Systems
 - Special Topcis in Information systems
 - Advanced Requirement Engineering
 - Theory of Language and Automata
 - Stochastic Process
 - Technical Language

2004–2007 **Lecturer**, Lorestan University, Khorram Abad, Iran.

Other

2002–2003 **Developer**, Iran Telecommunication Research Center, Tehran, Iran.

Awards

- 2019 Ellite Researcher of Computer Engineering and Information Technology Dep., Faculty of Engineering, Razi University, Iran
- 2009 Distinguished PhD Student, University of Isfahan, 3rd rank.
- 2004 Distinguished Lecturer, University of Applied Science and Technology (Lorestan Branch)

Publication

Journals

- August 2025 Majid Sepahvand ,Maytham N. Meqdad, Fardin Abdali-Mohammadi, **Enhancing Single-Lead ECG Arrhythmia Classification via Multi-Teacher Decomposed Feature Distillation**, Computer Methods in Biomechanics and Biomedical Engineering, Vol. .
DOI: 10.1080/10255842.2025.2542947
- July 2025 Majid Sepahvand, Maytham N. Meqdad, Fardin Abdali-Mohammadi, **Multi-Teacher Knowledge Distillation via Tucker-Guided Representation Alignment and Adaptive Feature Mapping**, Journal, Accepted. In Press.
DOI: 10.21203/rs.3.rs-7184025/v1

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- July 2025 Maytham N. Meqdad, Fardin Abdali-Mohammadi, Seifedine Kadry, **Human Identification through Iris Recognition Based on Genetic Algorithm and Machine Learning**, International Journal on Engineering Applications, Vol. 13.
DOI: 10.15866/irea.v13i2.24379
- December 2024 Fatemeh Ghasemi, Majid Sepahvand, Maytham N. Meqdad, Fardin Abdali-Mohammadi, **Synthetic Photoplethysmogram (PPG) Signal Generation Using a Genetic Programming-Based Generative Model**, Journal of Medical Engineering & Technology, Vol. 48.
DOI: 10.1080/03091902.2024.2438150
- November 2024 Majid Sepahvand, Maytham N. Meqdad, Fardin Abdali-Mohammadi, **State-of-the-art in human activity recognition based on inertial measurement unit sensors: survey and applications**, International Journal of Computers and Applications, Vol. 47.
DOI: 10.1080/1206212X.2024.2426501
- October 2024 Abbas Ali Hassan, Fardin Abdali-Mohammadi, **Automatic Extraction of Medical Latent Variables from ECG Signals Utilizing a Mutual Information-Based Technique and Capsular Neural Networks for Arrhythmia Detection**, Computers, Materials & Continua, Vol. 81.
DOI: 10.32604/cmc.2024.053817
- April 2024 Bahare Andayeshgar, Fardin Abdali-Mohammadi, Majid Sepahvand, Afshin Almasi, Nader Salari, **Arrhythmia detection by the graph convolution network and a proposed structure for communication between cardiac leads**, BMC Medical Research Methodology, Vol. 24.
DOI: 10.1186/s12874-024-02223-4
- July 2024 Majid Sepahvand, Maytham N. Meqdad, Fardin Abdali-Mohammadi, **Fault tolerance challenges in wearable computing for vital applications: a survey**, Journal of Medical Engineering & Technology, Vol. 48.
DOI: 10.1080/03091902.2024.2371789
- June 2024 Majid Sepahvand, Fardin Abdali-Mohammadi, Maytham N. Meqdad, **Leveraging bone age assessment via a novel joint decomposition teacher-student learning paradigm from X-ray images**, Computer Methods in Biomechanics and Biomedical Engineering, Vol. 12.
DOI: 10.1080/21681163.2024.2360122
- August 2023 Mahya Nikouei, Fardin Abdali-Mohammadi, **A Novel Method for Modeling Effective Connections Between Brain Regions based on EEG Signals and Graph Neural Networks for Motor Imagery Detection**, Computer Methods in Biomechanics and Biomedical Engineering, Vol. 27.
DOI: 10.1080/10255842.2023.2244110

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- September 2023 (Q1) Malihe Mardanpour, Majid Sepahvand, Fardin Abdali-Mohammadi, Mahya Nikouei, Homeyra Sarabi, **Human Activity Recognition based on Multiple Inertial Sensors through Feature-based Knowledge Distillation Paradigm**, Information Science, Vol. 640.
DOI: 10.1016/j.ins.2023.119073
- March 2023 Majid Sepahvand, Fardin Abdali-Mohammadi, **Joint Learning Method with Teacher–Student Knowledge Distillation for On-Device Breast Cancer Image Classification**, Computers in Biology and Medicine, Vol. 155.
DOI: 10.1016/j.combiomed.2022.106476
- January 2023 (Q1) Majid Sepahvand, Fardin Abdali-Mohammadi, Amir Taherkordi, **An Adaptive Teacher–Student Learning Algorithm with Decomposed Knowledge Distillation for On-Edge Intelligence**, Engineering Applications of Artificial Intelligence, Vol. 117.
DOI: 10.1016/j.engappai.2022.105560
- June 2022 (Q1) Maytham N. Meqdad, Fardin Abdali-Mohammadi, Seifedine Kadry, **Meta Structural Learning Algorithm With Interpretable Convolutional Neural Networks for Arrhythmia Detection of Multisession ECG**, IEEE Access, Vol. 10.
DOI: 10.1109/ACCESS.2022.3181727
- August 2022 (Q1) Bahare Andayeshgar, Fardin Abdali-Mohammadi, Majid Sepahvand, Alireza Daneshkhah, Afshin Almasi, Nader Salari, **Developing Graph Convolutional Networks and Mutual Information for Arrhythmic Diagnosis Based on Multi-channel ECG Signals**, International Journal of Environmental Research and Public Health, Vol. 17.
DOI: 10.3390/ijerph191710707
- September 2022 (ISC) Homeyra Sarabi, Fardin Abdali-Mohammadi, **An Ensemble Convolutional Neural Networks for Detection of Growth Anomalies in Children with X-ray Images**, Journal of AI and Data Mining, Vol. 10.
DOI: 10.22044/JADM.2022.11752.2323
- September 2022 (Q1) Majid Sepahvand, Fardin Abdali-Mohammadi, Amir Taherkordi, **Teacher–student knowledge distillation based on decomposed deep feature representation for intelligent mobile applications**, Expert Systems with Applications, Vol. 220.
DOI: 10.1016/j.eswa.2022.117474
- June 2022 (Q2) Maytham N. Meqdad, Fardin Abdali-Mohammadi, Seifedine Kadry, **A New 12-Lead ECG Signals Fusion Method Using Evolutionary CNN Trees for Arrhythmia Detection**, Mathematics, Vol. 10.
DOI: 10.3390/math10111911

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- June 2022 (Q1) Majid Sepahvand, Fardin Abdali-Mohammadi, **Overcoming limitation of dissociation between MD and MI classifications of breast cancer histopathological images through a novel decomposed feature-based knowledge distillation method**, Computers in Biology and Medicine, Vol. 145.
DOI: 10.1016/j.compbimed.2022.105413
- March 2022 (Q1) Farzaneh Meshkat, Fardin Abdali-Mohammadi, **A New In-Air Handwritten Characters Recognition Method Based on Inertial Sensors Position Estimation and Convolutional Neural Network**, Journal of Ambient Intelligence and Humanized Computing, Vol. 14.
DOI: 10.1007/s12652-022-03770-8
- May 2022 (Q1) Majid Sepahvand, Fardin Abdali-Mohammadi, **A novel method for reducing arrhythmia classification from 12-lead ECG signals to single-lead ECG with minimal loss of accuracy through teacher-student knowledge distillation**, Information Sciences, Volume 593.
DOI: 10.1016/j.ins.2022.01.030
- January 2022 (ISC) Majid Sepahvand, Fardin Abdali-Mohammadi, **A New Learning-based Spatiotemporal Descriptor for Online Symbol Recognition**, Journal of AI and Data Mining, Vol. 10, No 1.
DOI: 10.22044/JADM.2022.11150.2262
- December 2021 (Q1) Majid Sepahvand, Fardin Abdali-Mohammadi, **A novel representation in genetic programming for ensemble classification of human motions based on inertial signals**, Expert Systems with Applications, Vol. 185.
DOI: 10.1016/j.jbi.2021.103695
- July 2021 (Q1) Majid Sepahvand, Fardin Abdali-Mohammadi, **A novel multi-lead ECG personal recognition based on signals functional and structural dependencies using time-frequency representation and evolutionary morphological CNN**, Biomedical Signal Processing and Control, Vol. 68.
DOI: 10.1016/j.bspc.2021.102766
- April 2021 (Q1) Ali Yavari, Amir Rajabzadeh, Fardin Abdali-Mohammadi, **Profile-Based Assessment of Diseases Affective Factors Using Fuzzy Association Rule Mining Approach: A Case Study in Heart Diseases**, Journal of Biomedical Informatics, Vol. 116.
DOI: 10.1016/j.jbi.2021.103695
- December 2020 (Q3) Maytham N. Meqdad, Fardin Abdali-Mohammadi, Seifedine Kadry, **Recognizing emotional state of user based on learning method and conceptual memories**, TELKOMNIKA, Vol. 18, No. 06.
DOI: 10.12928/telkomnika.v18i6.16756

- May 2020 (Q4) Ahmed Albasri, Fardin Abdali-Mohammadi and Abdolhossein Fathi, **Electroencephalography Feature Enhancement Based on Electrode Activity Ratio for Identification**, Journal of Mechanics in Medicine and Biology, Vol. 20, No. 04.
DOI: 10.1142/S0219519420500116
- April 2020 (Q1) Sara Valikhani, Fardin Abdali-Mohammadi, Abdolhossein Fathi, **Online Continuous Multi-stroke Persian/Arabic Character Recognition by Novel Spatio-temporal Features for Digitizer Pen Devices**, Neural Computing and Applications, Vol. 32.
DOI: 10.1007/s00521-019-04225-6
- December 2020 (Q3) Fardin Abdali-Mohammadi, Maytham N. Meqdad, Seifedine Kadry, **Development of an IoT-based and cloud-based disease prediction and diagnosis system for healthcare using machine learning algorithms**, IAES International Journal of Artificial Intelligence, Vol. 09, No. 04.
DOI: 10.11591/ijai.v9.i4.pp766-771
- July 2019 (Q1) Ahmed Albasri, Fardin Abdali-Mohammadi and Abdolhossein Fathi, **EEG Electrode Selection for Person Identification Thru a Genetic-Algorithm Method**, Journal of Medical Systems, Vol. 43, No. 9.
DOI: 10.1007/s10916-019-1364-8
- September 2019 (Q1) Mohammad Feli, Fardin Abdali-Mohammadi, **12 Lead Electrocardiography Signals Compression by a New Genetic Programming Based Mathematical Modeling Algorithm**, Biomedical Signal Processing and Control, Vol. 54, No. 00.
DOI: 10.1016/j.bspc.2019.101596
- February 2019 (Q2) Mohammad Feli, Fardin Abdali-Mohammadi, **A Novel Recursive Backtracking Genetic Programming-based Algorithm for 12-lead ECG Compression**, Signal, Image and Video Processing, Vol. 13, No. 00.
DOI: 10.1007/s11760-019-01441-4
- September 2019 (ISC) Majid Sepahvand, Fardin Abdali-Mohammadi, **A Meta-heuristic Model for Human Micro Movements Recognition Based on Inertial Sensors**, Tabriz Journal of Electrical Engineering, Vol. 49, No. 1.
doi:
- March 2019 (Q2) Leila Yousofvand, Abdolhossein Fathi, Fardin Abdali-Mohammadi, **Person Identification Using ECG Signal's Symbolic Representation and Dynamic Time Warping Adaptation**, Signal, Image and Video Processing, Vol. 13.
DOI: 10.1007/s11760-018-1351-4
- January 2019 Majid Sepahvand, Fardin Abdali-Mohammadi, **A Deep Learning-Based Compression Algorithm for 9-DOF Inertial Measurement Unit Signals Along With an Error Compensating Mechanism**, IEEE Sensors Journal, Vol. 19, No. 02.
DOI: 10.1109/JSEN.2018.2877360

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- February 2018 Fardin Abdali-Mohammadi, Amir Poorshamam, **Automatic Optic Disc Center and Boundary Detection in Color Fundus Images**, Journal of AI and Data Mining, Vol. 6, No. 1.
DOI: 10.22044/jadm.2017.967
- August 2017 Behzad Hejrati, Abdolhossein Fathi, Fardin Abdali-Mohammadi, **A New Near-lossless EEG Compression Method Using ANN-based Reconstruction Technique**, Computers in Biology and Medicine, Vol. 87.
DOI: 10.1016/j.compbiomed.2017.05.024
- January 2017 Behzad Hejrati, Abdolhossein Fathi, Fardin Abdali-Mohammadi, **Efficient Lossless Multi-channel EEG Compression Based on Channel Clustering**, Biomedical Signal Processing and Control, Vol. 31.
DOI: 10.1016/j.bspc.2016.08.024
- September 2017 Majid Sepahvand, Fardin Abdali-Mohammadi, Farhad Mardukhi, **Evolutionary Metric-Learning-Based Recognition Algorithm for Online Isolated Persian/Arabic Characters, Reconstructed Using Inertial Pen Signals**, IEEE Transactions on Cybernetics, Vol. 47, No. 9.
DOI: 10.1109/TCYB.2016.2633318
- July 2016 Pendar Alirezazadeh, Abdolhossein Fathi, Fardin Abdali-Mohammadi, **Effect of Purposeful Feature Extraction in High-dimensional Kinship Verification Problem**, Journal of Computing and Security, Vol. 3, No. 3.
doi:
- July 2016 Abdolhossein Fathi, Pendar Alirezazadeh, Fardin Abdali-Mohammadi, **A New Global-Gabor-Zernike Feature Descriptor and its Application to Face Recognition**, Journal of Visual Communication and Image Representation, Vol. 38.
DOI: 10.1016/j.jvcir.2016.02.010
- July 2016 Minoo Rashidpour, Fardin Abdali-Mohammadi, Abdolhossein Fathi, **Fall Detection Using Adaptive Neuro-Fuzzy Inference System**, International Journal of Multimedia and Ubiquitous Engineering, Vol. 11, No. 4.
DOI: 10.14257/ijmue.2016.11.4.10
- September 2015 Fardin Abdali-Mohammadi, Vahid Bajalan, Abdolhossein Fathi, **Toward a Fault Tolerant Architecture for Vital Medical-Based Wearable Computing**, Journal of Medical Systems, Vol. 39.
DOI: 10.1007/s10916-015-0347-7
- November 2015 Abdolhossein Fathi, Fardin Abdali-Mohammadi, **Camera-based Eye Blinks Pattern Detection for Intelligent Mouse**, Signal, Image and Video Processing, Vol. 9.
DOI: 10.1007/s11760-014-0680-1

- December 2015 Pendar Alirezazadeh, Abdolhossein Fathi, Fardin Abdali-Mohammadi, **A Genetic Algorithm-Based Feature Selection for Kinship Verification**, IEEE Signal Processing Letters, Vol. 22, No. 12.
DOI: 10.1109/LSP.2015.2490805
- March 2015 Hanieh Lobabi-Mirghavami, Fardin Abdali-Mohammadi, Abdolhossein Fathi, **A Novel Grammar-Based Approach to Atrial Fibrillation Arrhythmia Detection for Pervasive Healthcare Environments**, Journal of Computing and Security, Vol. 2, No. 2.
doi:
- Feb 2015 Abdolhossein Fathi, Fardin Abdali-Mohammadi, **Improving Face Recognition Systems Security Using Local Binary Patterns**, Journal of Computing and Security, Vol. 2, No. 1.
doi:
- Oct 2014 Fardin Abdali-Mohammadi, Abdolhossein Fathi, **Fuzzy Expert Ants to Speed up Big TSP Problems Using ACS**, Journal, Vol. 3, No. 3.
DOI: 10.18495/COMENGAPP.V3I3.68
- June 2013 Fardin Abdali-Mohammadi, Abdolhossein Fathi, Mojtaba Salehi, **ANTSREC: A Semantic Recommender System Based on Ant Colony Meta-Heuristic in Electronic Commerce**, International Journal of Advanced Science and Technology, Vol. 56.
doi:
- June 2013 Abdolhossein Fathi, Ahmad Reza Naghsh-Nilchi, Fardin Abdali-Mohammadi, **Automatic Vessel Network Features Quantification Using Local Vessel Pattern Operator**, Computers in Biology and Medicine, Vol. 43, No. 5.
DOI: 10.1016/j.compbiomed.2013.01.011
- September 2012 Fardin Abdali-Mohammadi, Naser Nematbakhsh, Mohammad Ali Nematbakhsh, **WSDATool: A Novel Web Service Developer Assistance Tool Using a New Complementary Service Publishing Method**, Modern Applied Science, Vol. 6, No. 9.
DOI: 10.5539/mas.v6n9p42
- September 2012 Fardin Abdali-Mohammadi, Naser Nematbakhsh, Mohammad Ali Nematbakhsh, **Toward Next Generation Web Service Technology Overlay Network: A Quantitative Approach**, International Journal of u- and e- Service, Science and Technology, Vol. 5, No. 3.
doi:
- June 2012 Fardin Abdali-Mohammadi, Naser Nematbakhsh, Mohammad Ali Nematbakhsh, **Empower Service Directories With Knowledge**, Knowledge-Based Systems, Vol. 30.
DOI: 10.1016/j.knosys.2012.01.010

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Books

- 2006 Fardin Abdali-Mohammadi, Abolhossein Fathi, Younes Farhadnia, **Socket Programming in TCP/IP Networks**, (In Persian), 212 pages, Edition 1.
ISBN: 964-8120-88-9
- 2006 Fardin Abdali-Mohammadi, Abolhossein Fathi, **Web Programming**, (In Persian), 211 pages, Edition 1.
ISBN: 964-8120-87-0

Interests

Research Interests

- Inertial Measurement Unit (IMU) Signal Processing
- Medical Informatics
- Electronic Health Systems
- Artificial Intelligence and Machine Learning
- Biomedical Signal and Image Processing
- Health Informatics
- Mobile Health

Life Interests

- Piano
- Running
- Poetry
- Chess
- Microprocessor programming

Students

PhD

- 2019–2024 **Maytham N. Meqdad**, Razi University, Kermanshah.
Multiple Lead Cardiac Arrhythmia Detection by Signal Correlations
- 2018–Present **Pegah Ganjkhani**, Razi University, Kermanshah.
Simplified Deep Learning in Internet of Medical Things.
- 2017–2023 **Majid Sepahvand**, Razi University, Kermanshah.
Decomposed Knowledge Distillation from Teacher to Student for Scalable Fusion of Wearable Sensors.
- 2015–2019 **Ahmad Albasri**, Razi University, Kermanshah.
Biometric Identification Based-on Brain EEG Signals and Electrodes Energy Ratio Using Relaxation & Imagination Moods.

Master

- 2015–2017 **Majid Sepahvand**, Razi University, Kermanshah.
Persian Alphabet and Numerals Recognition Using Signals Extracted From a Pen Equipped With Accelerometer and Magnetometer Sensors.
- 2012–2014 **Vahid Bajalan**, Islamic Azad University, Kermanshah.
A Fault Tolerance Framework for Vital Medical Devices.
- 2017–2019 **Mohammad Feli**, Razi University, Kermanshah.
An ECG Compression Method Using the Genetic Programming Based Prediction.

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