CV (Curriculum Vitae)

Name: Mahnoosh	
Family: Tajmirriahi	
Date of birth: 1982, September 18	
Title: PhD	
Appointment: Assistant Professor	
Institute: Isfahan University of Medical Sciences	
School: School of Advanced Technologies in Medicine	
Department: Department of Bioelectrics and Biomedical Engineering	
Research Center: Medical Image and Signal Processing Research Center	
work address: Isfahan University of Medical sciences, Isfahan, Iran	
Phone: +983137923872	
Email: mata.riahi@yahoo.com	

Education (Most recent Date ,Degree/ Course, Department / University, Dissertation title)	Ph.D. in Biomedical Engineering, Bioelectric. (Sep. 2018 - Feb. 2022) Isfahan University of Medical Sciences, Isfahan, Iran. **Thesis:** Modeling of Optical Coherence Tomography (OCT) Images Based on Stochastic Differential Equations Supervisors: Dr. Zahra Amini, Dr. Hossein Rabbani GPA: 19.90 /20, Ranked first
Relevant Work Experience (Date, Title, University / Organization, Description)	Instructor of "Electronics II Laboratory", Isfahan University of Technology, Department of Electrical and Computer Engineering, 2009-2010.

	Instructor of "Electronics I Laboratory", Isfahan University of Technology, Department of Electrical and Computer Engineering, 2006 -2017.
Professional Memberships & Qualification (Date, Title, association)	Graduate student membership of Institute of Electrical and Electronics Engineers (IEEE), started from 2021. Secretary of AVICENNA center of excellence

Teaching Interests:
Biomedical image/signal processing and modeling

Email address:
mtriahi2000@amt.mui.ac.ir

Contact settings:
Isfahan University of Medical science
Hezar Jarib Street, Isfahan, Iran
E-mail: mata.riahi@yahoo.com, mtriahi2000@amt.mui.ac.ir

Extra Curricular Activities/ Interest (personal url)	
Research Experience (Date, Title, University / Organization, Description)	***Research Projects:*** *Vowel Enhancement for People with High Frequency Hearing Loss Based on Temporal Coding of Formant Frequencies in the Auditory Nerve* (Role: Co-PI), Supported by Medical Image and Signal Processing Research Center, Isfahan University of Medical Sciences, started in 2017. *Denoising of the Optical coherence Tomography Images using Deep Dictionary Learning* (Role: PI), Supported by Student Research Committee, School of Advanced Technologies in Medicine, Isfahan University of Medical Sciences, 2020. *Modeling of Seizure and Seizure-free EEG Signals Based on Stochastic Differential Equations* (Role: Co-PI), , Supported by Medical Image and Signal Processing Research Center, Isfahan University of Medical Sciences, 2020. *Predicting the outbreak of COVID-19 disease according to various factors using time delay dynamic systems*, Supported by Vice-Chancellery for Research and Technology, Isfahan University of Medical Sciences, started in 2020. *Extraction of Effective Time-frequency Features for Detection of P300 Component from EEG Signal in Patients with Amyotrophic Lateral Sclerosis Using Interpretable Deep Learning Networks* (Role: Co-PI), Supported by Medical Image and Signal Processing Research Center, Isfahan University of Medical Sciences, started in 2022 *P300 Detection Using Time-Frequency Features and Convolutional Neural Networks* (Role: Co-PI), Supported by Medical Image and Signal Processing Research Center, Isfahan University of Medical Sciences, started in 2022. *A Dual Discriminator Fourier Acquisitive GAN for Generating Retinal Optical Coherence Tomography Images* (Role: Co-PI), , Supported by Medical Image and Signal Processing Research Center, Isfahan University of Medical Sciences, started in 2022. *A mixture model based ADMM for denoising of OCT images,* (Role: PI), Supported by Medical Image and Signal Processing Research Center, Isfahan University of Medical Sciences, started in 2022.

Using mixture distributions to improve the performance of innovation models for OCT image processing, (Role: PI), Supported by Medical Image and Signal Processing Research Center, Isfahan University of Medical Sciences, started in 2022.

Contribution of Markov random fields in Generative adversarial networks for synthesis of annotated OCT image, , (Role: PI), Supported by Medical Image and Signal Processing Research Center, Isfahan University of Medical Sciences, started in 2022.

Research Publications:

Tajmirriahi M, Amini Z, Hamidi A, Zam A, Rabbani H. Modeling of retinal optical coherence tomography based on stochastic differential equations: Application to denoising. IEEE Transactions on Medical Imaging. 2021 Apr 14;40(8):2129-41. [ISI, Q1-5%)]

Tajmirriahi M, Amini Z. Modeling of seizure and seizure-free EEG signals based on stochastic differential equations. Chaos, Solitons & Fractals. 2021 Sep 1;150:111104. [ISI, Q1-10%]

Tajmirriahi M, Kafieh R, Amini Z, Rabbani H. A lightweight mimic convolutional auto-encoder for denoising retinal optical coherence tomography images. IEEE Transactions on Instrumentation and Measurement. 2021 Apr 9;70:1-8.. [ISI, Q1-5%]

Tajmirriahi M, Amini Z, Rabbani H, Kafieh R. An Interpretable Convolutional Neural Network for P300 Detection: Analysis of Time Frequency Features for Limited Data. IEEE Sensors Journal. 2022 Mar 14;22(9):8685-92. [ISI, Q1-10%]

Tajmirriahi M, Amini Z, Kafieh R, Rabbani H, Mirzazadeh A, Javanmard SH. Statistical inference of COVID-19 outbreak: Delay distribution effect in EQIR modeling of epidemic. Journal of Medical Signals and Sensors. 2022 May 14;12(2):95-107.. [ISI,Q2)]

Tajmirriahi M, Kafieh R, Amini Z, and Lakshminarayanan V. A Dual Discriminator Fourier Acquisitive GAN for Generating Retinal Optical Coherence Tomography Images, IEEE Transactions on Instrumentation and Measurement. 2022 (Accepted). [ISI, Q1-5%]

Saeedizadeh N, Tajmirriahi M, Haghani A, Amini Z, Khalili Pour E, Riazi-Esfahani H, Fadakar K, Kafieh R, Rabbani H. A Device-independent, Shape Preserving Retinal Optical Coherence Tomography Image Alignment Method Using TV-Unet, IEEE Transactions on Instrumentation and Measurement. 2022 (Accepted). [ISI, Q1-5%]

Tajmirriahi M, Amini Z, Rabbani H. Logarithmic Moments for Mixture of Symmetric Alpha Stable Modelling. IEEE Signal Processing Letters. 2022 Dec 5;29:2527-31.

	Conference papers: *Tajmirriahi M, Shayegh F. Modified formant tracking system based on vowel encoding in midbrain. 1th International on New Research Achievements in Electrical & Computer Engineering, Amirkabir University of Technology, IEEE, 2016.* *Tajmirriahi M, Rostamian R, Amini Z, Hamidi A, Zam A, Rabbani H. Mixture of Symmetric Stable Distributions for Macular Pathology Detection in Optical Coherence Tomography Scans. The Engineering in Medicine and Biology Conference (EMBC), IEEE, 2022.* *Tajmirriahi M, Rostamian R, Amini Z, Hamidi A, Zam A, Rabbani H. Stochastic Differential Equations for Automatic Quality Control of Retinal Optical Coherence Tomography images. The Engineering in Medicine and Biology Conference (EMBC), IEEE, 2022.* ***Invited Book Chapters:*** *Z. Amini , R. Kafieh, M. Tajmirriahi, Z. Parsons, H. Rabbani, Application of enface image registration/alignment to introduce new ocular imaging biomarkers, Book Chapter: Photo Acoustic and Optical Coherence Tomography Imaging Volume 2 : Fundus Imaging for the Retina, Institute of Physics Publishing 2022.* *F. Hajizadeh, R. Kafieh, M. Tajmirriahi, Introduction to Optical Coherence Tomography, Book Chapter: Atlas of Ocular Optical Coherence Tomography, Springer, 2nd Edition, 2023.*
Grants & Awards (Date, Name, Significant info, Amount)	The first rank among PhD students in Biomedical Engineering, Isfahan University of Medical Sciences, Iran, 2022. Member of talent office of Isfahan University of Medical Sciences, 2018-2022 Rank 332 (in the region 1) and rank 364 (in the whole country) in the national university entrance exam in Iran (konkoor) in the field of Mathematics. Member of talent office of Amirkabir University of Tehran, 2000-2005. The first rank in the Ph.D. entrance exam in Iran (Ministry of Health and Medical Education) in the field of Bioelectric
Research Interests (Research area)	Biomedical Signal and Image Processing Ocular Image Modeling and Processing

	Statistical Modeling of Biomedical Signals
	Pattern Recognition, Machine Learning, Deep Learning
	Generative Modeling of Biomedical Signals
Presentations & Poster Sessions (Bibliographic format)	Poster Sessions of 2022 44th Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC), *Mixture of Symmetric Stable Distributions for Macular Pathology Detection in Optical Coherence Tomography Scans* Poster Sessions of 2022 44th Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC), *Stochastic Differential Equations for Automatic Quality Control of Retinal Optical Coherence Tomography Images* Oral presentation of National conference of research achievements of Covid 19 in Iran, Isfahan University of medical sciences 2020, *Statistical inference of COVID-19 outbreak: Delay distribution effect in EQIR modeling of epidemic* Oral presentation of 1th International on New Research Achievements in Electrical & Computer Engineering, Amirkabir University of Technology, IEEE, 2016. *Modified formant tracking system based on vowel encoding in midbrain*
Patents (Date, Item, Number)	Retinal optical coherence tomography device with real-time automatic quality control, Iran, 2023, Number: 108728
Teaching Experience	"Biological Signal Processing", Isfahan University of Medical Sciences, Isfahan, 2018-2021. "Advanced Topics in Biomedical Signal Processing", Isfahan University of Medical Sciences, Isfahan, 2019-2021. "Advanced Topics in Biomedical Signal Modeling", Isfahan University of Medical Sciences, Isfahan, 2019-2021 "Brain Computer Interfaces", Isfahan University of Medical Sciences, Isfahan, 2020-2022 "Pattern Recognition", Isfahan University of Medical Sciences, Isfahan, 2022.