

Maryam Saidi

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RESEARCH INTERESTS

- Computational Neuroscience
- Biological System Modeling
- Mathematical Biology
- Human motor control

EDUCATION

- **PhD** Sep. 2016 – July. 2021
Tarbiat Modares University – Tehran, Iran,
Advisor: Seyed Mohammad Firoozabadi
Major: Biomedical Engineering, Minor: Bioelectric (G.P.A: 17.75/20.0)
Thesis Title: *Modeling the Effect of Transcranial Direct Current Stimulation (tDCS) on memory*
- **Master of Science** Sep. 2009 – Jan. 2012
Amirkabir University of Technology (Tehran Polytechnic) – Tehran, Iran,
Advisors: Farzad Towhidkhan, and Shahriar Gharibzadeh
Major: Biomedical Engineering, Minor: Bioelectric (G.P.A: 17.44/20.0)
Thesis Title: *Modeling of Visual and Proprioceptive Multisensory Integration under Training Process*
- **Bachelor of Science** Sep. 2005 – Sep. 2009
Amirkabir University of Technology – Tehran, Iran
Advisor: Dr. Ali Maleki
Major: Biomedical Engineering, Minor: Bioelectric (G.P.A: 18.76/20.0)
Thesis Title: *Design and Manufacture of an Accelerometer-based System for Measuring, Gathering, and Estimating Body Posture and Ambulation*
- **Bachelor of Science** Sep. 2005 – July 2011
Amirkabir University of Technology – Tehran, Iran
Major: Electrical Engineering, Minor: Control (G.P.A: 17.94/20.0)
Thesis Title: same as the B.Sc. in Bioelectric

PUBLICATIONS

Journal Articles:

1. M. Saidi, F. Towhidkhan, F. Lagzi and S. Gharibzadeh, "The Effect of Proprioceptive Training on Multisensory Perception under Visual Uncertainty", *Journal of Integrative Neuroscience*, Vol. 11, No. 4, 2012.
2. M. Saidi, F. Towhidkhan, S. Gharibzadeh and A. A. Lari, "A Biologically Inspired Neural Model for Visual and Proprioceptive Integration Including Sensory Training" *Journal of Integrative Neuroscience*, Vol 12, No. 4, 2013.
3. M. Saidi, H. Hassanpoor, A. A. Lari; " Proposed new signal for real-time stress monitoring: Combination of physiological measures." *Amirkabir International Journal of Electrical & Electronics Engineering*, Vol. 49, No. 1, 2017.
4. H. Hassanpoor, M. Saidi "An Investigation into the Effective Role of Astrocyte in the Hippocampus Pattern Separation Process: Computational Modeling Approach," *Journal of theoretical biology* 487 (2020): 110114.
5. M. Saidi, M. Firoozabadi, "Glial cells have more important role in tDCS-induced brain activities rather than neurons", *Med Hypotheses* , Vol 153, NO. 4, 2021.

6. M. Saidi, Y. M. Marghi, and A. Maleki, "Piezoelectric Accelerometer: A Sensor in Serving for Healthcare." *Iran's Monthly Magazine on Healthcare and Medical Engineering*, Vol. 8, No. 95, 2009 (In Persian).
7. M. Saidi, Z. Bahmani 2, M. Daneshi Kohan, Stress Detection through Thermal Facial Images Inspired by Characteristics of Psychophysiological Signals, *Journal of Military Medicine*, Vol. 19, No. 1, 2017 (In Persian).
8. M. Saidi, A. Mohammadian, M. Daneshi, Z. Seyedsalehi, Automatic credibility assessment screening using discriminate analysis of skin conductance response and photo plethysmograph signals, *JSDP*, Vol. 13, No. 3, 2017. (In Persian).
9. M. Saidi, M. Firoozabadi, "Effects of transcranial Direct Current Stimulation (tDCS) on cortical activity: Neuron-Astrocyte computational modeling study", *Iranian Journal of Biomedical Engineering* 13, no. 4 (2019). (In Persian).

Conference Articles:

1. M. Saidi, F. Towhidkhah, F. Lagzi and S. Gharibzadeh, "A Neural Model of Multisensory Integration Including Proprioception Attention under Visual Uncertainty" *The 19th Iranian Conference on Biomedical Engineering, Iran*, 2012.
2. M. Saidi, A. A. Lari and F. Towhidkhah, "Comparison of Visual and Proprioceptive Training on Multisensory Perception Using a New Designed Setup," *The 21th Iranian Conference on Electrical Engineering, Iran*, 2013.
1. M. Saidi, A. A. Lari "Brain-based and objective parameters for measuring the quality of leadership in the project management processes", International conference on Management, Accounting and Economic Science, 2015.
2. M. Saidi, H. Hassanpoor, A. Tavakoli, "Using Brain-based Dimensions of SCARF model into Process of Iranian Excellent of Project Management", International Conference of Cognitive Science, 2015.
3. M. Saidi, R. Kaveh, etc. "Mental Arousal Level Recognition Competition on the Shared Database , 27th Iranian Conference on Electrical Engineering (ICEE2019)
4. Y. M. Marghi, M. Saidi, and A. Maleki, "Intelligent Gait Analysis Using Thin, Convenient, and Inexpensive Accelerometer-Based Device," *The 18th Annual International Conference on Mechanical Engineering, Iran*, 2010 (In Persian).
5. M. Saidi, Y. M. Marghi, and A. Maleki, "Design and Manufacture of a Portable Measuring Device for Capturing Gait Kinematic Information by Employing MEMS-based Accelerometer," *The 16th Iranian Conference on Biomedical Engineering, Iran*, 2009 (In Persian).
6. M. Saidi, S. Torabi, M. Danesh, S. Rezaia and A. Sharifi, "Native Implementation of Data Recording in Lie Detectoin and Analyze of Number Test Data", *The 21th Iranian Conference on Electrical Engineering, Iran*, 2013 (In Persian).
7. M. Saidi, H. Hassanpoor, A. A. Lari, M. Nikfarjam "Designing and implementation of biofeedback system through combing the features of Galvanic skin response and photoplethysmograph" *The first Iranian Conference on Psychological Health, Iran*, 2014 (In Persian).
8. M. Saidi, R. Kaveh, A. Mohammadian, M. Tabatabai," Extraction of heart rate signal from video images in real applications by improved motion enhancement method in image", *27th Iranian Conference on Electrical Engeneer 2019* (In Persian)..
9. M. Saidi, M. Firoozabadi, "Biological model of tDCS on EEG signal", *5th The 21th Iranian Conference on Bioelectromagnetics (ICBEM2019)* (In Persian).
10. K. Shahi, A. Mohammadian, R.kaveh, M. Saidi, "Multi-modality data (physiological signals and thermal images) of individuals to provide continuous indicators of different levels of mental arousal
- 1.

Book Chapters

1. Cooperation in providing materials for a book entitled "Concept and Principles of FPGA," fall 2008 (In Persian).

Patents

1. M. Saidi, Y. M. Marghi, A. Maleki and M. Farokhzadi "Body Kinematic Data Capturing System", Iran Patents' Registration Office, Dec 2010.

- M. Saidi, A. A. Lari, "Skin preparation (for electrode) Device", Iran Patents' Registration Office, Dec 2010.

TEACHING & WORK EXPERINCES

- Biomedical Engineering Group, Shahrood University of Technology,** [Fall 2019 – Present]
 - Introduction to Medical Engineering
 - Rehabilitation Special Topics in Medical Engineering
 - Bioelectric phenomena
 - Electrical protection Hospital equipment
- Data Science Group, Atynegar, Research Center,** [November 2018 – Present]
 - Senior Researcher/Project Manager
- Bio-signal Processing Group, Research Center of Khaje Nasirodin Tossi (RCDAT)** [November 2010 – Present]
 - Senior Researcher/Project Manager/ Group Manager
 - Reviewer of Signal and Data Processing Journal
- Biomedical Engineering Department, Amirkabir University of Technology**
 - Modeling of Biological Systems (master course), TA [Fall 2011]
 - Electrical Circuits I & II (undergraduate course), TA [Fall 2009, Spring, Fall 2010, Spring 2011]
 - Electronics Lab (I), Laboratory Instructor [Spring, Fall 2010, Spring, Fall 2011, Spring 2012]
- Student Affairs Office, Amirkabir University of Technology**
 - Electrical Circuits I & II, Tutor [Fall 2009, Spring 2010]
 - Linear Control Systems, Tutor [Fall 2010]
 - Pulse Technique, Tutor [Spring 2011]
 - Electronics I & II, Tutor [Spring 2011]
- Biomedical Systems Group, Research Center for Science and Technology in Medicine (RCSTIM)**
 - Trainee [summer 2008]

AWARDS & HONORS

- First Rank Student of Biomedical Engineering Department of Amirkabir University of Technology, Received award every year from Feb. 2005 to Aug. 2009.
- Eligible for studying directly in a Master of Science program at Amirkabir University of Technology without taking the National University Entrance Exam, Iran, 2009.
- Best thesis in Bachelor of Science, in Biomedical Engineering – Bioelectric, Amirkabir University of Technology, 2009.
- Honors student in Bachelor of Science, Amirkabir University of Technology, Fall 2005 & Spring 2006 (Only 10 students awarded each semester from entire school).
- Qualified for the "Dual Degree" Program, carried out by Amirkabir University of Technology in both Biomedical Engineering and Electrical Engineering majors, Tehran, Iran, 2006.
- Ranked 399th among nearly 300,000 participants in the National University Entrance Exam for Bachelor of Science, Iran 2005.

RESEARCH EXPERIENCES

- Practical Researches Based on EEG Signals**
 - *Preparing setup and recording EEG signals to extract ERP, winter 2010.*
 - *Applying different methods including filtering, ICA, PCA and etc to improve ERP, winter 2010.*
 - *Extracting P300 component to recognize the subject knowledge of stimulus, winter 2010.*
 - *Extracting N170 component to evaluate the attention, winter 2011.*
- Practical Researches Based on FNIR Signals**
 - *Collecting dataset of FNIR signal in ling protocol ,2017-Present.*
 - *Using FNIR signal to measure Cognitive load in deception, 2017-Present.*
- Practical Researches Based on Peripheral Signals (including respiration, skin resistance and etc)**
 - *Preparing setup and recording peripheral signals to evaluate subject stress, 2011-Present*
 - *Using several feature extraction and classifying methods to determine subject stress, 2012--Present*
 - *Designing biofeedback algorithm from heart pulse and skin resistance signals, 2013.*
- Practical Researches Based on Thermal imaging**
 - *Converting thermal imaging videos to signals, 2010*
 - *Processing signals from thermal imaging videos and using several feature extraction and classifying methods to determine subject stress, 2013--Present*
- Practical researches based on microcontroller and microprocessor

- *Working on AVR, CPLD, FPGA, DSP and PLC in several projects.*
- *Design and manufacturing a prototype of a talking blood pressure measurement device by AVR (2008)*
- *Design and manufacturing a digital frequency meter by CPLD (2007)*
- *Improve and manufacturing a multi signals recorder system (2011-2012)*
- **Modeling and simulation**
 - *Compressing ECG signal with interbeat, intrabeat and interlead cohesions, winter 2010.*
 - *Sound recognition of different individuals by neural network, spring 2010.*
 - *Mechanical Simulation of Human Respiratory System in simulink, winter 2010.*
 - *Walking modeling based on accelerometer data collected from the hip, summer 2009.*
 - *Simulation of Bone Mass Density Measurement system with Quantitative Ultrasound In GUI(Matlab toolbox), summer 2008*

COMPUTER & PROGRAMMING SKILLS

- **Programming:** C/C++, Assembly, Python, and MATLAB.
- **Engineering Software:** Conversant with MATLAB (Simulink, cftool, fdatool, sptool, imtool, mpc design tool, and FIS), PSPICE (OrCAD), HSPICE, Altium Designer, LabVIEW, Codevision, AVR Studio, and Proteus.
- **Other Software:** SPSS, Photoshop, CorelDraw, ProShow Gold and etc.

Language

- **English:** IELTS: 6 Listening 5.5 Writing: 6 Speaking: 6 Reading: 6 (2014)