1- Faculty Profile

Ataollah Abbasi, Ph.D.
Assistant Prof. Biomedical Engineering
Computational Neuroscience Laboratory, Department of Biomedical Engineering, Faculty of Electrical Engineering, Sahand University of Technology, Sahand New Town, Tabriz, Iran.
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2- Biosketch

Ataollah Abbasi received the B.Sc. degree in biomedical engineering from Sahand university, Tabriz, in 2003, the M.Sc. degree in biomedical engineering from Sharif university of technology, Tehran, in 2005, and the Ph.D. degree in biomedical engineering from Sharif university of technology, Tehran, in 2010.
From 2003 to 2004, he was a project executer at Jahade daneshgahi of Sharif university of technology. From 2006 to 2010 he was a project manager and designer of first Iranian external pacemaker. From 2004 to 2010 he was an instructor in the electrical engineering faculty at Sharif university of technology.
Since 2010, he has been a faculty member at Sahand university of technology in Tabriz, Iran, and serving as chair of Sahand university of technology Electronic Learning Center from 2010 to present. Currently he is an assistant professor of biomedical engineering at SUT and head of Computational Neuroscience Laboratory (CNLab).
His research interests are Neuroscience (biomedical Signal processing and Modeling of neurological disorders), Cognitive Science, Functional Electrical Stimulation (FES), Brain Computer Interface (BCI), Medical Instrumentation, and Electrical Impedance Tomography (EIT)
He currently teaches graduate courses on Biomedical Signal Processing (BSP), Biological Modeling, Neural Modeling, Electrophysiology, Nervous System, and Medical Instrumentation.

3- Education

- B.Sc., Biomedical Engineering, Faculty of Electrical Engineering, Sahand University of Technology, Tabriz, Iran, 1999-2003.
- M.Sc., Biomedical Engineering, Faculty of Electrical Engineering, Sharif University of Technology, Tehran, Iran, 2003-2005.
- Ph.D., Biomedical Engineering, Faculty of Electrical Engineering, Sharif University of Technology, Tehran, Iran, 2005-2010.

4- Taught Courses

Undergraduate Courses	*Graduate Courses*
• Introduction to Nervous Systems • Medical Instrumentation • Radiology and Radiotherapy Systems • Electronics • Technical Writing	• Biomedical Signal Processing (BSP) • Biological Modeling • Neural Modeling • Electrophysiology • Nervous System • Medical Instrumentation

5- Research and Industrial Projects

- Project executer of automatic quality control unit for Irankhodro production line at Jahade daneshgahi of Sharif University of Technology, Tehran, Iran, 2004.
- Member of cognitive science strategizing committee, Tehran, Iran, 2009.
- Project manager and designer of first Iranian external pacemaker, Tehran, Iran, 2010.
- Administrator of Sahand University of Technology Electronic Learning Center, Tabriz, Iran, 2010.
- Establisher and head of Computational Neuroscience Laboratory (CNLab) of Sahand University of Technology, Tabriz, Iran, 2011.
- Establisher of Cardiovascular Technology Research Center (CTRC) between Sahand University of Technology and Tabriz Medical Science University, Tabriz, Iran, 2012.
- Member of biomedical engineering reviewing committee of ministry of science research and technology, Tehran, Iran, 2012.

6- Journal Papers

- **A. Abbasi**, B. Vosoughi Vahdat, G. Ebarhimi Fakhim, “An inverse solution for 2D electrical impedance tomography based on electrical properties of material blocks,” Journal of Applied Sciences, Vol. 9, Issue 10, pp. 1962-1967, 2009. [PDF][Link]
- **A. Abbasi**, B. Vosoughi Vahdat, “Improving forward solution for 2D block electrical impedance tomography using modified equations,” Scientific Research and Essays, Vol. 5, Issue 11, pp. 1260-1263, 2010. [PDF][Link]
- **A. Abbasi**, B. Vosoughi Vahdat, “A non-iterative linear inverse solution for the block approach in EIT,” Journal of Computational Science, Vol. 1, Issue 4, pp. 190-196, 2010. [PDF][Link]
- Af. Goshvarpour, **A. Abbasi**, Ak. Goshvarpour, “Nonlinear evaluation of electroencephalogram signals in different sleep stages in apnea episodes,” International Journal of Intelligent Systems and Applications, Vol. 5, No. 10, pp. 68-73, 2013. [PDF][Link]
- S. Abbasi, **A. Abbasi**, Y. Sarbaz, “Combination of BK channels opener and Kv4 channels inhibitor for treatment of cerebellar ataxia in mutant med mice,” Journal of Neuropsychiatry and Clinical Neurosciences, Vol. 25, No. 4, pp. E41, 2013. [PDF][Link]
- Ak. Goshvarpour, **A. Abbasi**, Af. Goshvarpour, “Analysis of electroencephalogram signals in different sleep stages using Detrended Fluctuation Analysis,” International Journal of Image, Graphics and Signal

Processing, Vol. 5, No. 12, pp. 49-55, 2013. [PDF][Link]

- Ak. Goshvarpour, **A. Abbasi**, Af. Goshvarpour, N. Karamloo, F. Ghorbani "Effects of music on cardiac functioning in young women and men," Applied Medical Informatics, Vol. 33, No. 4, pp. 40-49, 2013. [PDF][Link]

- A. Biniaz, M. Shamsi, **A. Abbasi**, "A novel fast fuzzy C-means clustering technique for segmentation of human brain magnetic resonance images," Turkish Journal of Fuzzy Systems, Vol. 4, No. 1, pp. 34-47, 2013. [PDF][Link]

- S. Abbasi, **A. Abbasi**, Y. Sarbaz, "Introducing treatment strategy for cerebellar ataxia in mutant med mice: Combination of acetazolamide and 4-aminopyridine," Computer Methods and Programs in Biomedicine, Vol. 113, Issue 2, pp. 697-704, 2014. [PDF][Link]

- A. Biniaz, **A. Abbasi**, "Fast FCM with spatial neighborhood information for brain MR image segmentation," Journal of Artificial Intelligence and Soft Computing Research, 2013. *(In Press)*

- A. Biniaz, **A. Abbasi**, "Segmentation and edge detection based on modified ant colony optimization for iris image processing," Journal of Artificial Intelligence and Soft Computing Research, 2013. *(In Press)*

- A. Biniaz, **A. Abbasi**, "Unsupervised ACO: Applying FCM as a supervisor for ACO in medical image segmentation," Journal of Intelligent and Fuzzy Systems, 2013. *(In Press)*

- S. Abbasi, **A. Abbasi**, Y. Sarbaz, A. Ebrahimi, "Analysis spectrum of normal and ataxia Purkinje cell output and classification using artificial neural network," Journal of Neuropsychiatry and Clinical Neurosciences, 2013. *(In Press)*

7- Conference Papers

- **A. Abbasi**, M. Jahed, "Combination of Farina and Merletti model with Reynolds model for surface EMG in water environment and investigation of its accuracy," 13th Iranian Conference on Biomedical Engineering (ICBME), Tehran, Iran, pp. 421-428, 21-22Feb. 2007 (In Persian). [PDF][Link]

- **A. Abbasi**, F. Pashakhanlou, B. Vosoughi Vahdat, "Error propagation in non-iterative EIT block method," IEEE International Symposium on Signal Processing and Information Technology, pp. 678-681, 15-18Dec. 2007. [PDF][Link]

- **A. Abbasi**, B. Vosoughi Vahdat, "A new numerical method for solving 2D electrical impedance tomography inverse problem," 14th International Congress on Computational and Applied Mathematics (ICCAM), Turkey, pp. 103, 29Sep.-2Oct. 2009. [PDF][Link]

- Z. Ahmadi, **A. Abbasi**, F. Farnood-Ahmadi, "Effective parameters on short range photogrammetry system designed for biomedical applications," 2th Congress on Eshragh Geomatics science, Bojnurd, Iran, 27-29Jul. 2012 (In Persian). [PDF][Link]

- A. Biniaz, **A. Abbasi**, M. Shamsi, "Review of segmentation of human brain MRI: methods, clinical applications, advantageous, and disadvantageous," 1th Isfahan International Conference on Electrical Engineering, Isfahan, Iran, 22-23Aug. 2012 (In Persian). [PDF][Link]

- A. Biniaz, **A. Abbasi**, M. Shamsi, "Fast FCM algorithm for brain MR image segmentation," 6th International Conference on Fuzzy Information and Engineering, Babolsar, Iran, 25-26Oct. 2012. [PDF][Link]

- A. Biniaz, **A. Abbasi**, "Fast FCM with gaussian spatial information for MR image segmentation: gsFFCM," 6th International Conference on Fuzzy Information and Engineering, Babolsar, Iran, 25-26Oct. 2012. [PDF][Link]

- M. Bakhshali, M. Shamsi, **A. Abbasi**, "Putamen segmentation in brain MR images by fuzzy clustering method," 6th International Conference on Fuzzy Information and Engineering, Babolsar, Iran, 25-26Oct. 2012. (In Persian). [PDF][Link]

- A. Biniaz, **A. Abbasi**, M. Shamsi, "Improvement on spatial data and time of segmentation of brain MRI by FCM," National Congress on Electrical, Computer, and Information Technology Engineering, Mashhad, Iran, pp. 120-124, 7-9Nov. 2012 (In Persian). [PDF][Link]

- A. Biniaz, Z. Ahmadi, **A. Abbasi**, "Segmentation of brain MRI by ACO meta-heuristic," National Congress on Electrical, Computer, and Information Technology Engineering, Mashhad, Iran, pp. 125-129, 7-9Nov. 2012 (In Persian). [PDF][Link]

- A. Biniaz, **A. Abbasi**, M. Shamsi, A. Ebrahimi, "Fuzzy c-means clustering based on Gaussian spatial information for brain MR image segmentation," 19th Iranian Conference on Biomedical Engineering (ICBME), Tehran, Iran, pp. 154-158, 20-21Dec. 2012. [PDF][Link]

- A. Shirazi, **A. Abbasi**, "Applying genetic algorithm for optimizing parameters in a cognitive model used for data coding in human brain hippocampus," 11th Iranian Conference on Intelligent Systems (ICIS 2013), Tehran, Iran, pp. 1-7, 27-28Feb. 2013 (In Persian). [PDF][Link]

- B. Nobarian, S. Daneshvar, **A. Abbasi**, "Image fusion of MRI and PET by combining YCBCR and wavelet models," 1th Iranian Conference on Pattern Recognition and Image Processing, Birjand, Iran, pp. 99-104, 6-8Mar. 2013 (In Persian). [PDF][Link]

- S. Abbasi, **A. Abbasi**, Y. Sarbaz, "Spectral analysis of purkinje cell output," 5th International Conference of Cognitive Science (ICCS 2013), Tehran, Iran, pp. 1, 7-9May. 2013. [PDF][Link]

- P. Ghaderyan, **A. Abbasi**, M.H. Sedaaghi, "Providing a feasible seizure prediction algorithm for implantable devices," 5th International Conference of Cognitive Science (ICCS 2013), Tehran, Iran, pp. 20, 7-9May. 2013. [PDF][Link]

- A. Shirazi, **A. Abbasi**, "Modification of coding of human brain data based on cognitive method," 5th International Conference of Cognitive Science (ICCS 2013), Tehran, Iran, pp. 20, 7-9May. 2013. [PDF][Link]

- S. Abbasi, R. Derakhshanfar, **A. Abbasi**, Y. Sarbaz, "Classification of normal and abnormal lung sounds using neural network and support vector machines," 21st Iranian Conference on Electrical Engineering (ICEE 2013) Mashhad, Iran, 14-16May. 2013. [PDF][Link]

- P. Ghaderyan, **A. Abbasi**, M.H. Sedaaghi, "Linear features, principal component analysis, and support vector machine for epileptic seizure prediction progress," 21st Iranian Conference on Electrical Engineering (ICEE 2013) Mashhad, Iran, 14-16May. 2013. [PDF][Link]

8- Academic Teaching Experience

- Islamic Azad University-Tehran Janat-Abad Sama Branch, undergraduate courses, 2 semesters, 2003-2004.

- Islamic Azad University-Tehran Olom Tahghighat Branch, undergraduate courses, 2 semesters, 2003-2004.

- Sharif University of Technology, undergraduate courses, 8 semesters, 2005-2008.

- Islamic Azad University-Tabriz Branch, graduate and undergraduate courses, 4 semesters, 2006-2007.

- Sahand University of Technology, graduate and undergraduate courses, all semesters, 2010 to present.

9- Students and Theses

Name	Thesis Title	Research Area	Degree	Year
Ali Rahimpour	Brain spike detection algorithms	Neuroscience, Modeling	B.Sc.	Jul.2012
Amin Asgharzadeh	Matlab GUI for image deformation from natural to emotional positions	Cognitive Science, Programming	B.Sc.	Jul.2012
Matin Hosseinzadeh	Brain computer interface models, systems and applications	BCI, Neuroscience	B.Sc.	Jul.2012
Bahareh Mohseni	Recording methods of brain signals: comparison, advantageous, and limitations	Neuroscience, Signal Processing	B.Sc.	Aug.2012
Abbas Biniaz	Multiple sclerosis MRI segmentation using intelligent algorithms	Neuroscience, Image Processing	M.Sc.	Sep.2012
Amir Golzarfar	Design and implementation of a stereo imaging system for facial surgical analyzing	Instrumentation	M.Sc.	Sep.2012
Majid Delkhosh	Effect of cellphones' wave on brain activity and cognitive tasks	Neuroscience, Cognitive Science	B.Sc.	Sep.2012
Abbas Chabok	Symptoms of neurological disorders	Neuroscience	B.Sc.	Sep.2012
Asghare Yousefi	Medical devices on ophthalmology	Instrumentation	B.Sc.	Sep.2012
Asma Shirazi	Optimization of human brain data coding based on a cognitive approach	Cognitive Science, Modeling	M.Sc.	Oct.2012
Zahra Ahmadi	Designing a system for automatic ptosis recognition by short range photogrammetry	Instrumentation	M.Sc.	Dec.2012
Anahita Bakhtyari	Multi-focus images fusion using multi-resolution methods	Image Processing	M.Sc.	Dec.2012
Elham Najib	New steps on telemedicine: devices and techniques	Instrumentation	B.Sc.	Dec.2012
Mohamad S. Mohamadnia	Standards for hospitals and health care centers	Instrumentation	B.Sc.	Feb.2013
F. Zareie, P. Khalili	Designing of automatic brachial blood pressure stabilizer	Instrumentation	B.Sc.	Feb.2012
Omid Ghanbari	Comprehensive guidelines for endoscopy	Instrumentation	B.Sc.	Feb.2013
Mahin Mahmoodpur	Mind reading machines	Cognitive Science	B.Sc.	Mar.2013
Maryam G. Mohseni	Lasik surgery: excimer and other devices	Instrumentation	B.Sc.	Mar.2013
Ashkan Maheryan	Review of signal processing researches on physionet EEG signals	Signal Processing	B.Sc.	Jul.2013
Hamed Davatgar	The neuromuscular junction and skeletal muscle	Neuroscience	B.Sc.	Agu.2013
Peyvand Ghaderyan	Seizure prediction using EEG signal processing and SVM algorithm	Neuroscience, Signal Processing	M.Sc.	Agu.2013
Fatemeh Ahmadyan	Sources and fields in bioelectricity	Neuroscience	B.Sc.	Agu.2013
Saman F. Soltani	Action potential generation and propagation	Neuroscience	B.Sc.	Agu.2013
Mehri Ebrahimi	Functional electrical stimulation methods and devices	Neuroscience, Instrumentation	B.Sc.	Agu.2013
Mohammad Rousta	Parkinson diseases recognition by real time handwriting	Neuroscience, Signal Processing	M.Sc.	Sep.2013
H. Mohammadi, N. A. Hagh	Recent works on external pacemaker	Instrumentation	B.Sc.	Sep.2013
Chamnaz Ghaffarzadeh	Respiration rate and sleep disorders relationship	Neuroscience, Signal Processing	B.Sc.	Sep.2013
Sahar Bagheri	Biological clock functioning	Cognitive Science	B.Sc.	Sep.2013
Hamid Khaleghi	Medical device maintenance in hospital operation room	Instrumentation	B.Sc.	Sep.2013
Mehdi Hosseinzadeh	Intelligent detection of Alzheimer's disease in its early stages by motor dysfunctions	Neuroscience, Signal Processing	M.Sc.	Sep.2013
K. F. Beigi, S. Kazemi	Design of a datalager setup controlling by sms for telemedicine applications	Instrumentation	B.Sc.	Sep.2013
Mehri Poursoltan	Vector analysis for computational neuroscience application	Neuroscience	B.Sc.	Oct.2013
Elham E. Mohajeri	Bioelectric potentials in body	Neuroscience	B.Sc.	Oct.2013
Behjat Mohammadi	Research on creative thinking	Cognitive Science	B.Sc.	Oct.2013
Mani Moatamedi	Application of different cognitive task	Cognitive Science	B.Sc.	Nov.2013
Mohammad Ghasemi	Impulse propagation on human body	Neuroscience	B.Sc.	Dec.2013
Omid Roohi	Role of channels on bioelectric potentials in body	Neuroscience	B.Sc.	Jan.2014

10- Honors, Recognition and Outstanding Achievements for Teaching and Research

- First rank of Ph.D. entrance exam in biomedical engineering in Sharif University of Technology in 2005.
- The best idea for Ph.D. thesis in Iranian presidential Idea Bank competition in 2008.
- The fourth place medal in Robocup Iran-Open 2012, Senior Demo league, Team Name: Brain Force, Team members: **A. Abbasi**, H. Abdollah-zadeh, F. Gharemanian, 2012.
- Bronze Medal for innovation and invention of "Full automatic machine suitable for gluing the whole in stone" from Malaysian Association of Research Scientists (MARS), Team members: **A. Abbasi**, H. Abdollah-zadeh, F. Gharemanian, 2012.
- Inventor of "Data Logger controlling system" registration No. 79545, by: S. Kazemi, **A. Abbasi**, A. Jafarnezhad, 2013.

11- Research Interests

- Neuroscience (biomedical signal processing and modeling of neurological disorders)
- Cognitive Science
- Functional Electrical Stimulation (FES)
- Brain Computer Interface (BCI)
- Medical Instrumentation
- Electrical Impedance Tomography (EIT)

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