

## ALIREZA SHIRAZINODEH

### Address:

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### Current

- ❖ M.sc, In Biomedical Engineering (Bio Electric).University of Medical Isfahan, Iran, 2007-2010.
- ❖ M.sc, In Electrical Engineering (Control). University of Sciences and Researches, Tehran, Iran, 2007-2010.
- ❖ PhD, First Rank in Biomedical Engineering. University of Sciences and Researches, Tehran, Iran, 2013.
- ❖ PhD, Outstanding Rank (Rank number: 3) in Biomedical Engineering. , Tehran University of Medical Sciences (TUMS), Tehran, Iran, 2014.
- ❖ **Activities:** Some teaching and researching at some levels, Allameh Tabatabayi University, Tehran, Iran & Assistant of Prof Hossein Ahmadi Noubari in wavelet course in Faculty of Engineering of Tehran University, Iran.
- ❖ Currently teaching "Advanced Engineering Mathematics, Mathematics and Stochastic Problems" in Physics and Biomedical Engineering, Tehran University of Medical Sciences, Iran.

### Areas of Interest and Current Research and Project Implementation:

- ❖ Diffusion Modality Imaging, DTI, HARDI, Brain Modeling, Tractography algorithms.
- ❖ 2D & 3D Elastography, Image modeling and cancer detection.
- ❖ Image reconstruction, local phase features, object tracking, image enhancement.
- ❖ Artificial Neural network classification.
- ❖ Fractal modelling, wavelet transform and contour processing.

### Education:

- ❖ PhD candidate in Biomedical Engineering, Tehran University of Medical Sciences, Iran.
- ❖ MSc. In Biomedical Engineering (Bio Electric in field of Image Processing). Isfahan University of Medical Sciences, Iran.
- ❖ MSc. In Electrical Engineering (Control). University of Sciences and Researches, Tehran, Iran.
- ❖ B.S. Biomedical Engineering (Bio Electric), Faculty of Engineering, University of Sciences and Researches, Tehran, Iran.
- ❖ Pre-University Diploma. In Mathematics and Physics from Esterabadi pre-university Center, Golestan, Iran.

## Professional and Conference Organizational Activities

- ❖ Presenter articles and conference speaker in Biomedical University of Isfahan, 2010.
- ❖ Presenter articles and conference speaker in Icsip china, 2010.
- ❖ Speaker at the conference of medical sciences in Shahid Beheshti University of Medical Sciences, 2009.

## Paper publications:

### From PhD in Biomedical Engineering:

- ❖ Shirazinodeh. A, Faraji.H, Javidi.S, Jafari.A.H, Nazemzadeh.M, Saligheh Rad.H. “Can Local Phase Features Improve Performance of Tractography Algorithm in Noisy Diffusion Images?” submitted in Journal of Biomedical Physics and Engineering. 2021-08-25.
- ❖ Shirazinodeh. A, Saligheh Rad.H. “Improving tractography Reconstruction using Local-phase Features” Accepted in ISMRM 2021 as a digital poster.
- ❖ Shirazinodeh. A, Jafari.A.H, Nazemzadeh.M, Saligheh Rad.H. “Outperforming Tractography Algorithm Based on Fiber Pathway Estimation Using Local Phase Features” submitted in MRM journal.
- ❖ Hadis Faraji, Alireza Shirazinodeh, Bahador Maki Abadi. “A new three-dimensional Elastography using phase based shifted Fourier transform”. Submitted in BSPC-Elsevier.

### -From Master in Biomedical Engineering:

- ❖ Shirazinodeh A, Noubari HA, Rabbani H, Dehnavi AM. “Detection and classification of breast cancer in wavelet sub-bands of fractal segmented cancerous zones”. J Med Signals Sens 2015; 5:162-70. **DOI:** [10.4103/2228-7477.161486](https://doi.org/10.4103/2228-7477.161486)
- ❖ Alireza Shirazinodeh, Hossein Ahmadi Noubari, Alireza Mehri Dehnavi, Hossein Rabbani "Application of Wavelets and Fractal-based Methods for Detection of Microcalcification in Mammograms, A Comparative Analysis Using Neural Network", International conference in signal and information processing conference (ICSIP2010) to be held in Changshu, China, Dec 14-15, 2010. **DOI:** [10.1117/12.913523](https://doi.org/10.1117/12.913523)
- ❖ Alireza Shirazi Nowdeh, Hossein Rabbani Hossein, Alireza Mehri Dehnavi, Ahmadi Noubari, "Detection of Cancerous Zones in Mammograms Using Fractal Modeling and Classification by Probabilistic Neural Network", Indexed in IEEE Section, Proceedings of the 17th Iranian Conference on Biomedical Engineering (ICBME2010) to be held in Isfahan, Iran, Nov 3-4, 2010. **DOI:** [10.1109/ICBME.2010.5704962](https://doi.org/10.1109/ICBME.2010.5704962)

## **Research Projects**

- ❖ Multi-fiber regeneration in brain imaging using mathematical version of the signal distribution function; Evaluation of the Phantom
- ❖ Detection of Microcalcification in digital mammograms by using fractal theory in wavelet domain.
- ❖ Detection of retinoblastoma tumor progression in Ret-cam images using local phase detection algorithms Modeling
- ❖ Heart Rate Regulation during Postural Change from Sitting to Standing, Parameter Identification and Analysis.
- ❖ Apply-The Scientific Laboratory of Calibration and Instrumentation Control of Medical Equipment for Shahid Beheshti University of Medical Science and Health Services.

## **Work Experience**

- ❖ Practical Work Experience in Biomedical Engineering at Ophthalmology Hospital, Tehran, Iran: Supervisor of Medical Equipment and Devices like OCT, Slitlamp, Phaco-machine, Retina Angiography, 2010-2015.
- ❖ Ophthalmology Hospital, Tehran, Iran: In charge of Biomedical Engineering Section, since 2010.

## **Academic and Teaching Activities**

- ❖ Advisor in Master thesis entitled “2D and 3D Elastography by shifted Fourier transform, optical flow and monogenic phase based features.” Islamic Republic Azad University. 2016.
- ❖ Assistant of Dr.Hamidreza Saligheh Rad in Biomedical Engineering group in Advanced Engineering Mathematics course for robotics PhD candidates, Tehran University of Medical Sciences, Tehran, Iran.
- ❖ Work as Teacher Assistant in a graduate Course: “ Wavelets: Principles and Applications” a course in Faculty of Engineering ,Department of Electrical and Computer Engineering, University of Tehran, Tehran, Iran (TA to Prof Hossein Ahmadi Noubari)
- ❖ Member of Teaching Staff, School of Management and Accounting, Allameh Tabatabayi University, Tehran, Iran, Currently teaching Linear Programming and Mathematics.

## **Training Courses**

- ❖ I have high proficiency in working with the following scientific software programs like ExploreDTI
- ❖ MATAB Tool boxes and m files on signal processing, image processing, neural networks, wavelets
- ❖ In writing codes in C, C++.