

Personal details

Full name Mostafa Charmi
Nationality: Iranian
Date of birth: 30 Aug. 1973
Place of birth: Zanjan, Iran
Languages: Azeri (Native), Persian (Fluent), English (Advance)
Cell Phone: +98(912)341-5986
Fax: +982433052760
Email: Charmi.Mostafa@znu.ac.ir, Mostafa.Charmi@gmail.com
On the web :

Homepage :
https://www.znu.ac.ir/members/charmi-mostafa/en
Google scholar:
https://scholar.google.com/citations?view_op=list_works&hl=en&hl=en&user=RLzfhikAAAAJ&sortby=pubdate
Researchgate :
https://www.researchgate.net/profile/Mostafa-Charmi-2
Web of science:
https://www.webofscience.com/wos/author/record/1597365

Academic Qualifications:

PhD in Biomedical Engineering, Tarbiat Modares University (TMU), Tehran, Iran.
Thesis entitled "Segmentation of the Brain tissue in Diffusion Tensor MRI Images" which was supervised by Dr. Ali. Mahlooji Far.

M.S. in Electrical and Computer Engineering, Sharif University of Technology (SUT), Tehran Iran.
Thesis entitled "Studying the Dynamics of EEG Signal with Entropic Methods and its Application in Anesthesia" which was supervised by Dr. M. B. Shamsollahi.

B.S. in Electrical and Computer Engineering, Babul University of Technology (BUT), Babul, Iran.

Supervisor of projects:

PhD:

- People tracking and re-identification from non-overlapping multi-camera with semantic attributes
- Secure data transmission with an evolutionary approach based on chaos theory
- Prediction of robbery occurrence potential from video images
- Uncertain feature extraction for face recognition and verification in images and videos

MSc:

- Human heart rate estimation from video images.
- Design and simulation of analog to information convertor based on RMPI architecture
- Human activities recognition in indoor volleyball game.
- Increasing classification accuracy of EEG signals using logical combination of classifiers by applying a genetic algorithm and small decision trees.
- Persian sign language words recognition using depth video images from Kinect.
- Design & implementation of a marker-based infrared optical tracking system.
- Out-of-plane deformation measurement of plate buckling by using digital fringe projection technique.
- Design and manufacture of wireless eye tracking device attached to head
- Design & manufacture a blood pressure Holter by using electrocardiogram & photoplethysmography signals.
- Design & manufacture of electrical stimulus belt in order to stimulate the muscles of the waist to prevent and improve hunchback.
- Design & implementation of mouse motion analysis software in Morris water maze.
- Design & implementation of mouse motion analysis software in open field maze.
- Improvement of mouse activities recognition
- Indoor positioning by using mobile phone and Wi-Fi networks
- A spatio-temporal model of tumor immunotherapy, considering the role of hypoxia and adenosine.
- Salient Object Segmentation using Closed-loop Control
- Heart rate estimation from iPPG image
- Modeling and simulation the role of nitric oxide in the generation of long-term potentiation (LTP) in a tripartite synapse
- Improving face recognition process in distinguishing identical twins with the differentiation enhancement approach using identifying robust similarity-resistant features
- Discrimination of vitiligo lesion from healthy skin in digital images using Markov random fields model
- Improving face recognition process in distinguishing identical twins with the differentiation enhancement approach using identifying robust similarity-resistant features
- Modeling and simulation the role of nitric oxide in the generation of long-term potentiation (LTP) in a tripartite synapse

- Heart rate estimation from iPPG image
- Determination of partial discharge (PD) fault type using pattern recognition algorithms
- Salient Object Segmentation using Closed-loop Control
- Proposing novel image quality metrics for evaluating optical coherence tomography images
- A spatio-temporal model of tumor immunotherapy, considering the role of hypoxia and adenosine
- Integrated approach for compression and steganography of medical images using chaotic systems in E-healthcare
- Non-invasive assessment of intracranial pressure using photoplethysmography
- Designing and implementing a platform for the prevention, early detection and treatment management of the breast cancer
- Automatic mammography report generation using deep learning methods
- Comparing the diagnostic accuracy of panoramic and bitewing images in identifying suspicious cases of periodontal disease using machine learning
- Knowledge extraction and utilization in automatic mammography report generation
- Design and Development of a Non-Invasive Transabdominal Photoplethysmography System for Acquisition and Extraction of Fetal Heart Rate Information
-
  -
  -

Field of interests:

- Biomedical signal processing
- Medical Image analysis and processing
- Image processing
- Computer Vision
- Deep learning
- Secure data transmission

Membership in the scientific communities:

- Iranian society for biomedical engineering
- Iranian society of machine vision and image processing
- Iranian society of nondestructive testing

Journal Papers:

1. Maryam Zolfaghari Nezhad, Mostafa Charmi, "Numerical analysis of complete period-adding structures in a novel chaotic system for message encoding", Scientific Reports Issue 2026-09-11, PP. 1-15
2. Elnaz Babaee Ghazvini, Mehdi Boostani, Mostafa Charmi, Kamran Avanki, "Robust image quality evaluation in optical coherence tomography of skin using

global, region-independent metrics", Scientific Reports Issue 2026-06-08, PP. 1-35

3. Mahsa Asghari, Kooshak Mohsenvand, Taha Ohadi, Mostafa Charmi, Alireza Moradi, "Remote battery evaluation by secondary speckle patterns", Measurement, Issue 244 (2025-02-28) PP. 1-9
4. Elahe Ghiyabi, Abazar Arab Ameri, Mostafa Charmi, "Mathematical modeling of hypoxia and adenosine to explore tumor escape mechanisms in DC-based immunotherapy", Scientific Reports, *Issue* 14 (2024-05-15) *PP.* 1-16
5. Shima Pouyan, **Mostafa Charmi,** Ali Azarpeyvand, Hossein Hassanpoor, "Propounding first artificial intelligence approach for predicting robbery behavior potential in an indoor security camera", IEEE ACCESS, Accepted 2023.

6. Mahnaz Moghaddam, **Mostafa Charmi**, Hossein Hassanpoor, "A robust attribute-aware & real-time multi-target multi-camera tracking system using multi-scale enriched features and hierarchical clustering", Journal of Real-Time Image Processing Vol. 20 Issue 3(2023) PP. 1-14.

7. Maryam Zolfaghari-Nejad, **Mostafa Charmi**, Hossein Hassanpoor, "A new chaotic system with only non-hyperbolic equilibrium points: Dynamics and its engineering application", Complexity Vol. 2022 (2022) PP. 1-16.

8. Morteza Moradi, Farhad Bayat, **Mostafa Charmi**, "A Salient Object Detection Framework using Linear Quadratic Regulator Controller', Journal of Visual Communication and Image Representation Vol. 79 (2021)

9. Seyyedeh Shokoufeh Mousavi, **Mostafa Charmi**, Hossein Hassanpoor, "A distinctive landmark-based face recognition system for identical twins by extracting novel weighted features", Computers & Electrical Engineering Vol. 97 (2021) PP. 1-17.

10. Maryam Zolfaghari-Nejad, Hossein Hassanpoor, **Mostafa Charmi**, "Numerical analysis of a novel 3D chaotic system with period-subtracting structures", International Journal of Bifurcation and Chaos Vol. 31 Issue 11 (2021) PP. 1-18.

11. Mahnaz Moghaddam, **Mostafa Charmi**, Hossein Hassanpoor, "Jointly Human Semantic Parsing and Attribute Recognition with Feature Pyramid Structure in EfficientNets", IET Image Processing (2021).

12. Seyyedeh Shokoufeh Mousavi, **Mostafa Charmi**, Hossein Hasanpoor, "Recognition of Identical Twins Based on the Most Distinctive Region of the Face: Human Criteria and Machine Processing Approaches", Multimedia Tools and Applications *Vol.* 80 (2021) *PP.* 1-38.

13. Seyedeh Somayyeh Mousavi, Mohammad Firouzmand, **Mostafa Charmi**, Mohammad Hemmati, Maryam Moghadam, and Yadollah Ghorbani, "Blood Pressure Estimation from Appropriate and Inappropriate PPG Signals Using A Whole-Based Method", Biomedical Signal Processing and Control *Vol.* 47 (2019) *PP.* 196-206.

14. Mehdi Safarpour, Reza Inanlou, **Mostafa Charmi**, Omid Shoaei, Olli Silven, "ADC-Assisted Random Sampler Architecture for Efficient Sparse Signal Acquisition", *IEEE Transactions on Very Large Scale Integration (VLSI) Systems,* Early access on April 2018.

15. Morteza Jahantigh, **Mostafa Charmi**, "Increasing Classification Accuracy of Motor Imagery EEG Signals with Logical Combination of Classifiers and by Applying Genetic Algorithm and Small Decision Trees", Tabriz Journal of Electrical Engineering Vol. 47 Issue 3, PP. 931-938, 2017.

16. Mostafa Charmi, Ali Mahlooji Far, "Assessment of the Log-Euclidean Metric Performance in Diffusion Tensor Image Segmentation", The Iranian Journal of Medical Physics Vol. 7 Issue 2, PP. 21-39. 2010

Conference Papers:

1. **Mostafa Charmi**, Ali Mahlooji Far, "A Nonparametric Statistical Surface Evolution for DTI Segmentation", accepted (as oral presentation) at 2010 International Conference on Image Analysis and Signal Processing (IASP), 9-11 April, 2010, Zhejiang, China.

2. **Mostafa Charmi**, Ali Mahlooji Far, "DTI Segmentation with Log-Euclidean metric in Statistical Surface Evolution Framework", In the Proceedings of the 15th National CSI Computer Conference (CSICC-2010), Tehran, Iran, February 20-22, 2010 pp. 317-321.

3. **Mostafa Charmi**, Mohammad Bagher Shamsollahi, "Studying the Dynamics of EEG Signal with Entropic Methods and its Application in Anesthesia," Published in the Proceedings of the 11th Iranian Conference of Elec. Eng. (ICEE'03), Shiraz Iran, May 6-8, 2003, pp. 317-32

4. **Mostafa Charmi**, Mohammad Bagher Shamsollahi, J. Bruhn, "Neural Complexity Measure Applied to the Measurement of the Electroencephalographic Effects of the Desflurane," Accepted at the Proceedings of the World Congress on Medical Physics and Biomedical Engineering, Sydney, Australia, Aug. 24-29, 2003

5. Mehdi Safarpour, **Mostafa Charmi, "**Capacity Enlargement Of The PVD Steganography Method Using The GLM Technique", 9th International ISC Conference on Information Security and Cryptology, University of Tabriz, Tabriz-IRAN, 13-14 September 2012.

6. Atefeh Shagholi, **Mostafa Charmi**, Hamid Rakhshan, "The Effect of Distance from the Webcam in Heart Rate Estimation from Face Video Images", 2nd international conference on Pattern Recognition and Image Analysis, University of Guilan, Rasht-IRAN, 11-12 March 2015.

7. Atefeh Shagholi, **Mostafa Charmi, "**Performance Comparison between RGB and HSV Color Spaces in Heart Rate Estimation from Face Video Images", 2nd international conference on Pattern Recognition and Image Analysis, University of Guilan, Rasht-IRAN, 11-12 March 2015.

8. Mehdi Safarpour, **Mostafa Charmi**, Siroos Toofan, Mohammad Mehdi Mirloo, Mazaher Rezaei, "tDCS: An Overview on Circuits and Systems', 6th International Conference of Cognitive Science (ICCS 2015), Institute for Cognitive Science Studies & Iran University of Medical Sciences, Tehran-IRAN, 27-29 April 2015

9. Mehdi Safarpour, **Mostafa Charmi**, Siroos Toofan, "Application of Analog to Information Devices in EEG Telemonitoring Systems", 6th International Conference of Cognitive Science (ICCS 2015), Institute for Cognitive Science Studies & Iran University of Medical Sciences, Tehran-IRAN, 27-29 April 2015.

10. Mehdi Safarpour, **Mostafa Charmi**, Siroos Toofan, Hamed Nourbakhsh, "A New Scalable Image Sharing Scheme Based on Compressed Sensing", 7th International Conference on Information & Knowledge Technology, Urmia University, Urmia-IRAN, 26-28 May 2015

11. Samira Nazari, **Mostafa Charmi**, Maryam Hassani , Ghazale Ahmadi, "A Simplified Method in Human to Robot Motion Mapping Schemes", 3rd RSI International Conference on Robotics and Mechatronics (ICRoM 2015), Tarbiat Modares University, Tehran-IRAN, 7-9 October 2015.

12. Rezvan Anvari, Atefeh Shagholi, **Mostafa Charmi, "**Extraction of Heart Rate and Systole-Diastole Blood Pressures with the Processing of Barometer Video Images", 9th Iranian Conference on Machine Vision and Image Processing (MVIP 2015), Shahid Beheshti University, Tehran-IRAN, 18-19 November 2015.

13. Mahdis Zarkoob, Mehdi Safarpour, **Mostafa Charmi, "**Design and Implementation of an EMG controlled Neuro-Prosthetic Robotic Arm", 4th Basic & Clinical Neuroscience Congress (BCNC 2015), Iranian Cellular and Molecular Research Center & Iranian Neuroscience Society, Tehran-IRAN, 23-25 December 2015.

14. Dina Armandi, **Mostafa Charmi, "**Accuracy Comparison of 3D Harris and Cuboid Detectors in Human Activity Recognition in Weizmann Dataset", The 3rd National and 1st International Conference on Applied Researches in Electrical, Mechanical, and Mechatronics Engineering, Malek-Ashtar University of Technology & University of Applied Science and Technology, Tehran-IRAN, 17-18 February 2016.

15. Behnam Bastan Bostanabad, **Mostafa Charmi, "**Persian Sign Language Identification using Kinect V2 and Dynamic Time Warping Algorithm", The 24th Iranian Conference on Electrical Engineering (ICEE 2016), Shiraz University, Shiraz-IRAN, 10-12 May 2016.

16. Mehdi Safarpour, Mahmoud JozTavasoli, **Mostafa Charmi,** Siroos Toofan, "Jitter Noise Alleviation Through Parallel Sampling and Averaging", The 1st International Conference on New Research Achievements in Electrical and Computer Engineering, Tehran-IRAN, 12 May 2016.

17. Alireza Shamshiri, **Mostafa Charmi**, Hossein Hassanpour, Alireza Karimian Study, simulation and production of effective electric waves in reducing low back pain and strengthen back muscles 20th Annual Iranian Congress of Physical Medicine, Rehabilitation and Electrodiagnosis Iranian Association of Physical Medicine, Rehabilitation & Electrodiagnosis, Tehran-IRAN, 1 - 3 March 2017.

18. Mohsen Taghavi, **Mostafa Charmi**, Meysam Karami, Kamal Modammadi Asl Mouse motions analysis in open field maze with MATLAB image processing toolbox and App designer 6th Basic & Clinical Neuroscience Congress (BCNC 2017) Iranian Cellular and Molecular Research Center & Iranian Neuroscience Society, Tehran-Iran, 20 - 22 December 2017.

19. Ali Akbar khalili, **Mostafa Charm**i, Mostafa Yargholi, *Design and implementation of a head-mounted eye gaze tracking system based on low cost cameras*, 6th Basic & Clinical Neuroscience Congress (BCNC 2017) Iranian Cellular and Molecular Research Center & Iranian Neuroscience Society, Tehran-Iran, 20-22 December 2017.

20. Mohsen Taghavi Lakani, **Mostafa Charmi**, Meysam Karami Jozami, Kamal Modammadi Asl, "Mouse motions analysis in open field maze with MATLAB image processing toolbox and App designer*"*, 6th Basic & Clinical Neuroscience Congress (BCNC 2017).

21. Meysam Karamii Jozami, **Mostafa Charmi**, Mohsen Taghavi Lakani, Kamal Mohammadi Asl, "Design and Implementation of an Application Software for Analyzing Mouse Motions in Morris Water Maze*"*, 25th National and 3rd International Iranian Conference on Biomedical Engineering (ICBME 2018), Iranian Society of Biomedical Engineering, Amirkabir University of Technology, Shahabdanesh University, Qom-Iran, 28 - 30 November 2018.

22. Masoud Eskandari, **Mostafa Charmi**, Omid Rahmani, "Investigation and Compensation of Nonlinear Factors Affecting Optical Three Dimensional Scanner", The 5th Iranian International Nondestructive Testing Conference (IRNDT 2018), Iranian Society for Nondestructive Testing (IRNDT) , Tehran-Iran, 4 - 5 November 2018.

23. Seyedeh Somayyeh Mosavi, Mohammad Hemmati, **Mostafa Charmi**, Maryam Moghadam, Mohammad Firouzmand, Yadollah Ghorbani, "Cuff-Less Blood Pressure Estimation Using Only the ECG Signal in Frequency Domain", The 8th International Conference on Computer and Knowledge Engineering (ICCKE 2018), Ferdowsi University of Mashhad, Mashhad-Iran, 25 October 2018.

24. Seyedeh Somayyeh Mousavi, **Mostafa Charmi**, Mohammad Firouzmand, Mohammad Hemmati, Maryam Moghadam, Yadollah Ghorbani, "Cuff-Less Blood Pressure Estimation Using Only the Photoplethysmography Signal by A Frequency

Whole-based Method", 4th Iranian Conference on Signal Processing and Intelligent Systems (ICSPIS 2018), Amirkabir University of Technology, Tehran-Iran, 25 - 27 December 2018.

25. Seyyedeh Somayyeh Mousavi, **Mostafa Charmi**, Mohammad Firouzmand, Mohammad Hemmati, Maryam Moghadam, "A New Approach Based on Dynamical Model of The ECG Signal to Blood Pressure Estimation", The 4th International conference on Pattern Recognition and Image Processing (IPRIA 2019), Iranian Society of Machine Vision and Image Processing, Tehran-Iran, 6 - 7 March 2019.

26. Morteza Moradi, Farhad Bayat, **Mostafa Charmi**, "Concept-Aware Web Image Compression Based on Crowdsourced Salient Object Detection", The 5th International Conference on Web Research (ICWR 2019), University of Science & Culture, Tehran-Iran, 24 - 25 April 2019.

27. Mohsen Taghavi Lakani, **Mostafa Charmi**, Kamal Mohammadi Asl, "Software Design for Mouse Motion Analysis in MATLAB", The 27th Iranian Conference on Electrical Engineering (ICEE 2019), Yazd University, Yazd-Iran, 30 April - 2 May 2019.

28. Reza Heydari Goudarzi, Seyedeh Somayyeh Mousavi, **Mostafa Charmi**, "Using imaging Photoplethysmography (iPPG) Signal for Blood Pressure Estimation", 11th Iranian Conference on Machine Vision and Image Processing (MVIP 2020), Iranian Society of Machine Vision and Image Processing , Qom-Iran, 19 - 20 February 2020.

29. Shima Pouyan, **Mostafa Charmi**, Ali Azarpeyvand, Hossein Hassanpoor, "Significantly improving human detection in low resolution images by retraining YOLOv3", The 26th Computer Society International Computer Conference, Computer Society of Iran, Tehran-Iran, 3 - 4 March 2021.

30. Reza Heydari Goudarzi, Seyedeh Somayyeh Mousavi, **Mostafa Charmi**, "Introducing a New Feature Extraction Method for Non-Contact Blood Pressure Estimating Through iPPG Signals Extracted using G-R Method from Video Images of Different Facial Regions", The 5th international conference on Pattern Recognition and Image Analysis (۲۰۲۱) , University of Kashan, Kashan-Iran, 28 - 29 April 2021.

Honor/Awards:

- 1993: Awarded Mounbusho scholarship from Japan government

Computer Skills:

- Programming**:** C**,** Visual C#, Python
- Open Source Soft wares: OpenCV, EMGU, AForg
- Soft wares: MATLAB, MATCAD
- Operating systems: Window, Linux

Position held:

- Dean of the electrical engineering department with 33 faculty members & 1000 graduate and undergraduate students (Dec 2017-Dec 2019)

List of Completed and Ongoing Research Projects

- The project titled "Mathematical modeling of the role of astrocytic AQP4 and Kir4.1 channels in astrocyte-neuron interactions in the etiology of autism" was commissioned by the Iran National Science Foundation, with the project running from 1405.

Member of scientific committees:

- Bioimaging conference
- Iranian conference on biomedical engineering