Sajad Mohamadzadeh, Ph.D.

Associate Professor at the University of Birjand

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Department of Electrical and Computer Eng., University of Birjand, University Blvd., Birjand, Southern Khorasan, Iran

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Academic Professions

➢ Head of Electrical Engineering Department, University of Birjand, Birjand, Iran, 2018 to 2021.
➢ Director of Research, University of Birjand, Birjand, Iran, 2017 to 2018.
➢ Visiting Scholar, School of Engineering Science, Simon Fraser University, Vancouver, Canada, 2015
➢ Vice-President for IEEE's Student Branch at the University of Birjand

Ph.D. and M.Sc. Thesis and B.Sc. Final Project

➢ Ph.D. Thesis: "Using Sparse Representation in Content-based Image and Video Retrieval", 2016. Advisor: Prof. Hassan Farsi
➢ M.Sc. Thesis: "Image Retrieval based Adaptive Wavelet Transform", 2012. Advisor: Prof. Hassan Farsi
➢ B.Sc. Final Project: "Object Recognition by Using Electric Field", 2010, Advisor: Prof. S. Mohanna.

Research Interests

➢ Image and Video Processing	➢ Video Summarization
➢ Image and Video Retrieval	➢ Object Tracking
➢ Sparse Representation	➢ Digital Signal Processing (speech, image, video)
➢ Deep Neural Network	➢ Bioinformatics
➢ Medical Image Processing	➢ Ad-Hoc Network
➢ Heuristic Optimization Algorithms (GA, PSO, ACO)	

Teaching and Working Experiences

Associate professor at the University of Birjand   2021- present

Assistant professor at the University of Birjand   2015- 2021

Advisor of Ph.D. and M.Sc. Theses:
- Video object tracking using deep learning
- Social groups detection in video using suitable feature selection and intelligent algorithm
- Emotion detection through identifying facial features
- Object retrieval based on speeded up robust feature
- Detection and identifying motion in video using a combination of features
- image retrieval using deep learning
- Detection and classification of breast and colon cancer using deep learning
- Improvement of hand gesture recognition using a deep learning-based approach
- Improve the quality of satellite images of panchromatic and multispectral using image fusion techniques
- Pixel level image fusion algorithms in multi-sensor imaging systems
- Image retrieval using image segmentation
- Image restoration using wavelet transform
- Images fusion on digital images to improve the quality of images using Laplacian pyramid and wavelet transform

➢ Conducted weekly teaching sessions, laboratories, compiled and graded assignments and exam papers for the following courses:
- Electronic circuits 1, lecturer at Birjand University, winter/spring 2012-2022
- Electronic circuits 2, lecturer at Birjand University, winter/spring 2012-2022
- Electronic 1, lecturer at Birjand University, winter/spring 2012-2022
- Signals and systems, lecturer at Birjand University, winter/spring 2013-2022
- Image processing, lecturer at Birjand University, winter/spring 2014, 2021, 2022
- Synthesis filter, lecturer at Birjand University, winter/spring 2013-2014
- Designing communication systems, lecturer at Birjand University, winter/spring 2013-2022
- Pulse technique, lecturer at Birjand University, winter/spring 2013-2014
- Circuits lab, lecturer at Birjand University, winter/spring 2012-2019

➢ Held weekly teaching sessions:
- MATLAB programing in Signal, Image and Video Processing, Birjand University-Birjand, 2012-2022

Reviewer

➢ IET Image Processing Journal
➢ IET Computer Vision
➢ IEEE Access
➢ MDPI Journals
➢ Journal of Information System and Telecommunication
➢ Tabriz Journal of Electrical Engineering

Honors

- ➢ Top researcher award at the University of Birjand in 2022
- ➢ Top young researcher award at the University of Birjand in 2022
- ➢ Top researcher at the University of Birjand in 2020
- ➢ Member of the National Elite Foundation since 2014
- ➢ Selected as an exceptional talents student in 2010 and 2012.
- ➢ Top student award at the University of Birjand in 2016.

Education

- ➢ **Ph.D.** in Communications Engineering, Department of Electrical and Computer Engineering, University of Birjand, Birjand, Iran, 2016
- ➢ **M.Sc.** in Communications Engineering, Department of Electrical and Computer Engineering, University of Birjand, Birjand, Iran, 2012
- ➢ **B.Sc.** in Communications Engineering, Department of Electrical and Computer Engineering, University of Sistan & Baloochestan, Zahedan, Iran, 2010

Publications

Journals

1. Notghimoghadam, S.M., Farsi, H., Mohamadzadeh, S., "Object detection by a hybrid of feature pyramid and deep neural networks," Journal of Electrical and Computer Engineering Innovations (JECEI), 2022, http://dx.doi.org/10.22061/jecei.2022.9012.567.
2. Dorrani, A., Farsi, H., **Mohamadzadeh, S.**, "Deep learning in vehicle detection using ResUNet-a architecture," Jordan Journal of Electrical Engineering, Vol. 8, No. 2, pp. 165-178, 2022.
3. **S., Mohamadzadeh, S.,** Pasban, S., Zeraatkar-Moghaddam, J., Shafiei, A.K., "Parkinson's disease detection by using feature selection and sparse representation," Journal of Medical and Biological Engineering, Vol. 41, pp.412-421, 2021.
4. Pasban, **S., Mohamadzadeh, S.,** Zeraatkar-Moghaddam, J., Shafiei, A.K., "Infant brain segmentation based on a combination of VGG-16 and U-Net deep neural networks," IET Image Processing, Vol. 14, No. 17, pp. 4756-4765, 2021.
5. Dorrani, A., Farsi, H., **Mohamadzadeh, S.,** "Image edge detection with fuzzy ant colony optimization algorithm," International Journal of Engineering, Vol. 33, No. 12, pp. 2464-2470, 2021.
6. Akbari, A., Farsi, H., **Mohamadzadeh**, S., "Deep neural network with extracted features for social group detection," Journal of Electrical and Computer Engineering Innovations (JECEI), Vol. 9, No. 1, pp. 47-56, 2021.
7. Ruhani, M., Farsi, H., **Mohamadzadeh, S.** Object tracking in video with correlation filter and using histogram of gradient feature, Journal of Soft Computing and Information Technology, Vol. 9, No. 4, pp. 43-55, 2020.
8. Fooladi, S., Farsi, H., **Mohamadzadeh, S.,** "Segmentation of cancer cell in histopathologic images of breast cancer and lesion area in skin cancer images using convolutional neural networks, Medical Journal of Tabriz University of Medical Sciences, Vol. 42, No. 5, 520-528, 2020.
9. Nasiripour, R., Farsi, H., **Mohamadzadeh, S.,** "Saliency detection in eye gaze prediction by using deep learning," Journal of Soft Computing and Information Technology, Vol. 9, No.3, pp. 93-108, 2020. (in Persian)

10. A. Gheitasi, H. Farsi, **S. Mohamadzadeh**, Estimation of hand skeletal postures by using deep convolutional neural networks, International Journal of Engineering, Vol. 33, No. 4, pp. 552-559, 2020.

11. Sezavar, A., Farsi, H., **Mohamadzadeh, S.,** "A modified grasshopper optimization algorithm combined with CNN for content based image retrieval," International Journal of Engineering, Vol. 32, No. 7, pp. 924-930, 2019.

12. Akbari, A., Farsi, H., **Mohamadzadeh, S., "**Social groups detection in crowd by using automatic fuzzy clustering with PSO," Journal of Information Systems and Telecommunication, Vol. 7, No. 3, pp. 215-224, 2019.

13. Nasiripour, R., Farsi, H., **Mohamadzadeh, S., "**Visual saliency object detection using sparse learning," IET Image Processing, Vol. 13, No. 13, pp. 2436 – 2447, 2019.

14. Zamanian, H., Farsi, H., **Mohamadzadeh, S.,** Estimation of optical flow using semantic segmentation and AES deep neural network," Journal of Passive Defence Science and Technology, Vol. 11, No. 1, pp. 51-59, 2020

15. Akbari, A. Farsi, H., **Mohamadzadeh, S.,** "Social groups detection by using support vector machine in video," Journal of Soft Computing and Information Technology, Vol. 8, No. 3, pp. 1-9, 2019. (in Persian)

16. Fooladi, S., Farsi, H., Mohamadzadeh, S., "Detection of malignancy degree in prostate and breast cancers by using deep neural network," Medical journal of Mashhad university of medical sciences, Vol. 61, No. 5, 1178-1187, 2019.

17. Sezavar, A., Farsi, H., **Mohamadzadeh, S.,** "Content-based image retrieval by combining convolutional neural networks and sparse representation," Multimedia Tools and Application, Vol. 78, No. 15, pp.1-18, 2019.

18. Fooladi, S., Farsi, H., **Mohamadzadeh, S.,** "Detection and classification of skin cancer using deep learning," Journal of Birjand University of Medical Sciences, Vol. 26, No. 1, pp. 1-10, 2019. (In Persian)

19. Zamanian, H., Farsi, H., **Mohamadzadeh, S.,** "Improvement in accuracy and speed of image semantic segmentation via convolution neural network encoder-decoder," Journal of Information Systems and Telecommunication, Vol. 6, No. 3, 2018.

20. Sezavar, A., Farsi, H., **Mohamadzadeh, S.,** "Content-based image retrieval using deep convolutional neural networks," Tabriz Journal of Electrical Engineering, Vol. 48, No. 4, 2018. (In Persian)

21. Farsi, H., Nasiripour, R., **Mohamadzadeh, S.**, "Eye gaze detection based on learning Automata by using SURF Descriptor," Journal of Information Systems and Telecommunication, Vol. 6, No. 1, pp. 41-49, 2018.

22. Farsi, H., Nasiripour, R., **Mohamadzadeh, S.**, "Improved generic object retrieval in large scale database By SURF descriptor," Journal of Information Systems and Telecommunication, Vol. 5, No. 2, pp. 128-137, 2017.

23. Farsi, H., Sahragard, E., **Mohammadzadeh, S.**, "Image restoration by variable splitting based on total variant regularizer," Journal of Artificial Intelligence & Data Mining (JAIDM) , Vol. 6, No. 1, pp. 13-33, 2018.

24. **Mohamadzadeh, S.**, Farsi, H., "Content Based Video Retrieval Based on HDWT and Sparse Representation," Image Analysis and Stereology, Vol. 35, No. 2, pp. 67-80, 2016.

25. **Mohamadzadeh, S.**, Farsi, H., "Content based image retrieval system via sparse representation," IET Computer Vision, 2016, Vol. 10, No. 1, pp. 95–102, 2016.

26. Nasiripour, R., Farsi, H., **Mohamadzadeh, S.**, "Object Matching and Retrieval by Using Speeded Up Robust Features With Free-Training," Journal of Computing and Security, Vol. 2, No. 2, pp. 141-153, 2015.

27. Gholampour, M., Farsi, H., **Mohamadzadeh, S.**, "Fusion infrared and visible images using optimal weights," Journal of Information Systems and Telecommunication, Vol. 3, No. 3, pp. 173-181, 2015.

28. **Mohamadzadeh, S.**, Farsi, H., "Image retrieval using color-texture features extracted from Gabor-Walsh wavelet pyramid," Journal Information System Telecommunication, Vol. 2, No. 1, pp. 31–40, 2014.

29. Farsi, H., **Mohamadzadeh, S.**, "Combining Hadamard matrix, discrete wavelet transform and DCT features based on PCA and KNN for image retrieval," Majlesi Journal Electronic Eng., Vol. 7, No. 1, pp. 9–15, 2013.

30. Farsi, H., **Mohamadzadeh, S.**, "Colour and texture feature-based image retrieval by using Hadamard matrix in discrete wavelet transform," IET Image Processing, Vol. 7, No. 3, pp. 212-218, 2013.

31. Farsi, H., **Mohamadzadeh, S.**, "Image retrieval using neural network and texture feature," American Journal of Scientific Research, No. 76, pp.44-49, 2012.

Conference

1. Mehrdad Rohani , Hasan Farsi , **Sajad Mohamadzadeh**, Elham Mohseni Dehnavi., Image fusion for the aim of improving image quality with combination of LP and DWT, Third National Conference on New Researches in Engineering and Applied Sciences, 2021.

2. Notghi-Moghaddam, S.M., Farsi, H., **Mohamadzadeh, S.**, "The problem of scaling in object detection and the use of addition interaction modules and automated interaction modules to detect objects," Third National Conference on New Researches in Engineering and Applied Sciences, Ayatollah Borujerdi University, 2021.

3. Banan, A., Farsi, H., **Mohamadzadeh, S.**, "Robust digital watermarking using DWT, SWT and Arnold transform," Third National Conference on New Researches in Engineering and Applied Sciences, Ayatollah Borujerdi University, 2021. (In Persian)

4. S. Pasban**,** J. Zeraatkar-Moghaddam, **S. Mohamadzadeh**, A.K. Shafiei, "Medical image segmentation with salt and pepper noise using rule-based fuzzy system," 6th International Conference on Applied. Research in Electrical, Mechanical and Mechatronics Eng., Malek-Ashtar University of Technology, Ayatollah Borujerdi University, 2020. (In Persian)

5. A.K. Shafiei, S. Pasban, **S. Mohamadzadeh, "**Guidelines for pre-testing in Tehran stock exchange based on machine learning," 6th International Conference on Applied. Research in Electrical, Mechanical and Mechatronics Eng., Malek-Ashtar University of Technology, 2020. (In Persian),

6. Nasiripour, R., Farsi, H., **Mohamadzadeh, S.**, "Visual saliency object detection based on the superpixel method and using a combination of low and high level features," 6th International Conference on Applied. Research in Electrical, Mechanical and Mechatronics Eng., Malek-Ashtar University of Technology, 2020. (In Persian)

7. Rahamti, A., Farsi, H., **Mohamadzadeh, S.,** Image encryption by using chaos mapping to increase information security," 4th National Conference of New Achievements in Electrical, Computer and Industrial Engineering, Esfarayen, Iran, Oct 2018 (In Persian)

8. Ruhani, M., Farsi, H., **Mohamadzadeh, S.,** "Object detecting and tracking in video by using correlation filter and histogram of oriented gradients feature, 4th National Conference of New Achievements in Electrical, Computer and Industrial Engineering, Esfarayen, Iran, Oct 2018(In Persian)

9. Sezavar, A., Farsi, H., **Mohamadzadeh, S.,** Havangi, R., "Adaptive particle filter for color object tracking in video sequence," 4th National Conference of New Achievements in Electrical, Computer and Industrial Engineering, Esfarayen, Iran, Oct 2018 (In Persian)

10. Abbasi, Z., Farsi, H., **Mohamadzadeh, S**., "Image segmentation for content-based image retrieval," 3th Conference on Swarm Intelligence and Evolutionary Computation, Bam, Iran, March 2018. (In Persian)

11. Gheitasi, A., Farsi, H., **Mohamadzadeh, S**., "Hand gesture detection in human interaction by using convolutional neural networks," 3th Conference on Swarm Intelligence and Evolutionary Computation, Bam, Iran, March 2018. (In Persian)

12. Fooladi, S., Farsi, H., **Mohamadzadeh, S**., "Using deep neural networks in breast cancer detection," 3th Conference on Swarm Intelligence and Evolutionary Computation, Bam, Iran, March 2018. (In Persian)

13. Azhari, M., Farsi, H., **Mohamadzadeh, S.,** "Multi-Focus image fusion by using fuzzy logic in DCT domain," 6th Iranian Joint Congress on Fuzzy and Intelligent Systems, Kerman, Iran, Feb 2018. (In Persian)

14. Ruhani, M., Farsi, H., **Mohamadzadeh, S.,** "Action detection and recognition in sport match by using smart combination of features," 6th Iranian Joint Congress on Fuzzy and Intelligent Systems, Kerman, Iran, Feb 2018. (In Persian)

15. Sezavar, A., Farsi, H., **Mohamadzadeh, S.,** "Using deep learning for retrieving biodiversity images**,"** 4th National Conference on Information Technology Computer and Telecommunication, Torbat, Iran, July 2017. (In Persian)

16. Nasiripour, R., Farsi, H., **Mohamadzadeh, S.**, "Iris recognition system by using MLP Neural Network based on SIFT," 4th National Conference on Information Technology Computer and Telecommunication, Torbat, Iran, July 2017. (In Persian)

17. Nasiripour, R., Farsi, H., **Mohamadzadeh, S.**, "Biometric recognition and retrieval by using PSO," 4th National Conference on Information Technology Computer and Telecommunication, Torbat, Iran, 2017. (In Persian)

18. Sezavar, A., Farsi, H., **Mohamadzadeh, S., "**Classification of prostate pathology images and detecting of cytologic grading by using deep learning," 3th National Conference on Technology of Electrical and Computer Engineering, Tehran, Iran, 2017. (In Persian)

19. Mohseni, E., Farsi, H., **Mohamadzadeh, S., "**Using multi-exposure image fusion," 3th National Conference on Technology of Electrical and Computer Engineering, Tehran, Iran, 2017. (In Persian)

20. Nasiripour, R., Farsi, H., **Mohamadzadeh, S.**, "Object Retrieval by Using New Features in Corel Database," 4th National Conference and 2th International Conference on applied Research in Electrical, Mechanical and Mechatronics Engineering, Tehran, Iran, 2017. (In Persian)

21. Nasiripour, R., Farsi, H., **Mohamadzadeh, S.**, "Eye iris retrieval by using PSO clustering," 4th National Conference and 2th International Conference on applied Research in Electrical, Mechanical and Mechatronics Engineering, Tehran, Iran, Feb 2017. (In Persian)

22. Elnady, A., **Mohamadzadeh, S.,** Menon, C., "Image processing approach to generate a control signal to drive an exoskeleton for upper extremity rehabilitation," IEEE Canadian Conference on Electrical and Computer Engineering, Vancouver, Canada, 2016.

23. Sezavar, A., Farsi, H., **Mohamadzadeh, S., "**Image retrieval by using deep learning," 4th International Conference on Applied Research in Computer Engineering and Image Processing, Tehran, Iran, Dec 2016. (In Persian)

24. Farsi, H., **Mohamadzadeh, S.**, "Image retrieval based on color and texture features by using Hadamard wavelet pyramids," 12th Iranian Conference on Intelligent Systems, Bam, Iran, Feb 2014. (In Persian)

25. Farsi, H., Zahedinia, M., **Mohamadzadeh, S.**, "Data hiding in color images using image interpolation method," 12th Iranian Conference on Intelligent Systems, Bam, Iran, Feb 2014. (In Persian)

26. Nasiripour, R., Farsi, H., **Mohamadzadeh, S.**, "Object retrieval system by using a query image and without learning," The 6th Conference on Information and Knowledge Technology, 2014. (In Persian)

27. Gholampour, M., Farsi, H., **Mohamadzadeh, S., "**Image fusion by using principal component analysis and coloring of them**,"** 4th International Conference On Information Technology Management, Communication and Computer, June 2014. (In Persian)

28. Golestanian, M., Ghazizade, R., **Mohamadzadeh, S.**, "A fast convergence solution for distance vector routing (DVR) using Hidden Markov Model (HMM)," 20th Iranian Conference of Electrical Engineering (ICEE2012), Tehran, Iran, 2012.

Accomplished Projects

➢ Study on speech, image and video processing
➢ Study and implementation of deep neural network ([1], [2], [4], [6], [10], [11], [14], [16], [17], [19], [20], [31] as journal publications, and [11], [12], [15] as conference proceedings.
➢ Study on heuristic optimization techniques (GA, PSO, ACO) [5], 12], [19], [23] as journal publications.
➢ Study and implementation of image retrieval using MATLAB [11], [17], [20], [22], [24], [25], [26], [28], [29], [30] as journal publications, and [10], [15], [17], [20], [21], [23], [24], [26] as conference proceedings..
➢ Study and implementation of sparse representation using MATLAB [1], [13], [17], [24], [25] as journal publications.
➢ Implementation of object retrieval [22], [26] as journal publications, and [20], [26] as conference proceedings.
➢ Implementation of object detection [13] as journal publications, and [2], [6], [8] as conference proceedings.
➢ Implementation of object tracking [7] as journal publications, and [8], [9] as conference proceedings.
➢ Implementation of image fusion using MATLAB [27] as journal publications, [1], [13], [19], [27] as conference proceedings.

➢ Implementation of video retrieval and summarization using MATLAB [24] as journal publications.

Technical Skills

➢ **Technical Software:** Expert in '**MATLAB**', NI LabVIEW, NS2, Python, and 'C'.

Language Proficiency

➢ **Persian:** Native
➢ **English:** Fluent
➢ **Arabic :** Fair

Scientific Societies

➢ IEEE student member

References

➢ Prof. Hassan Farsi, University of Birjand, Electrical and Computer Eng. Dept., Birjand, Iran. h.farsi@birjand.ac.ir
➢ Prof. Seid Mohamad Razavi, Birjand University, Electrical and Computer Eng. Dept., Birjand, Iran. (smrazavi@birjand.ac.ir)
➢ Prof. Seid Hamid Zahiri, Birjand University, Electrical Eng. Dept. Birjand, Iran, (shzahiri@yahoo.com)
➢ Prof. Carlo Menon, Professor, Chair in Biomedical and Mobile Health Technology, Department of Health Sciences and Technology, ETH Zurich, Zurich, SWITZERLAND, carlo.menon@hest.ethz.ch (https://www.carlomenon.it/)