

Alireza Vard

A) Personal Information

- **Ph.D. in Computer Engineering**
- **Assistant Professor** at Department of Biomedical Engineering, Isfahan University of Medical Sciences
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- **Tel:** +98 31 37923859
- **Address:** Department of Biomedical Engineering, School of Advanced Technologies in Medicine, Isfahan University of Medical Sciences, Isfahan, 81746, Iran

B) Professional and Academic Activities

- **Assistant Professor at Department of Biomedical Engineering**, Isfahan University of Medical Sciences, Isfahan, Iran (Feb 2014 – Present)
- **Head of Department of Biomedical Engineering**, Isfahan University of Medical Sciences, Isfahan, Iran (Feb. 2017 – Present)
- **Head of the Center for Information Technology** at School of Advanced Technologies in Medicine, Isfahan University of Medical Sciences, Isfahan, Iran. (Sept. 2013 – Feb. 2017)
- **Member of Medical Signal and Image Processing Research Council Research Center** at Isfahan University of Medical Sciences, Isfahan, Iran. (Sept. 2014 – Present)
- **Visiting Researcher**, Biomedical Imaging Group Rotterdam, Erasmus MC University, Rotterdam, Netherlands. (Jun. 2016 – Sept. 2016)
- **Visiting Researcher**, Chair for Computer Aided Medical Procedures & Augmented Reality, Technical University of Munich (TUM), Munich, Germany. (September 2018)

C) Educational History

- **Ph.D. in Computer Engineering**, University of Isfahan, Isfahan, Iran. (July 2012)
- **M.Sc. in Computer Engineering**, University of Isfahan, Isfahan, Iran. (August 2007)
- **B.Sc. in Software Engineering**, University of Isfahan, Isfahan, Iran. (May 2003)

D) Honors

- ☑ **First rank in Ph.D.**, Computer Engineering, University of Isfahan. (My GPA is “**19.51/20**” which is the highest GPA among all Ph.D. graduates in history of computer engineering, University of Isfahan)
- ☑ **First rank in M.Sc.**, Computer Engineering, University of Isfahan, Isfahan
- ☑ **Second rank in B.Sc.**, Software Engineering, University of Isfahan, Isfahan

E) Research Activities

1- Theses

- PhD thesis: “Segmentation and Object Extraction in Texture Images Using Adaptive Active Contour Models” (**Grade: 19.61/20**)
- M.Sc. thesis: “Improvement of Tracking Methods Performance based on Active Contour Models in Texture Environments” (**Grade: 19/20**)
- B.Sc. project: “Design and Implementation of Management Information System (MIS) for Organization of Planning and Research of Isfahan Municipality” (**Grade: 20/20**)

2- Publications

2-1- ISI Journal papers

1-Alireza Vard, Ahmad Reza Naghsh Nilchi and Payman Moallem, “Object Detection and Image Segmentation using Texture Pressure Energy in Parametric Active Contour Models,” *Journal of the Chinese Institute of Engineers*, Vol. 31, No. 4, pp. 649-657, Jun. 2008. (**IF = 0.395**)

2-Alireza Vard, Payman Moallem and Ahmad Reza Naghsh Nilchi, “Texture-Based Parametric Active Contour for Target Detection and Tracking,” *International Journal of Imaging Systems and Technology*, Vol 19, No. 3, pp.187–198, Sept. 2009. (**IF = 1.139**)

3-Alireza Vard, Amirhassan Monadjemi, Kamal Jamshidi and Naser Movahhedinia, “Fast texture energy based image segmentation using Directional Walsh–Hadamard Transform and parametric active contour models,” *Expert Systems with Applications*, Vol. 38, No. 9, pp. 11722-11729, Sept. 2011. (**IF = 3.928**)

4-Alireza Vard, Kamal Jamshidi and Naser Movahhedinia, “Small object detection in cluttered image using a correlation based active contour model,” *Pattern Recognition Letters*, Vol. 33, No. 5, pp. 543-553 April 2012. (**IF = 1.995**)

5-Alireza Vard, Kamal Jamshidi and Naser Movahhedinia, “An automated approach for segmentation of intravascular ultrasound images based on parametric active contour models,” *Australasian Physical & Engineering Sciences in Medicine* Vol.35, No.2, pp. 135-150, 2012. (**IF = 1.171**)

6- Zahra Saeedizadeh, Alireza Mehri, Ardeshtir Talebi, Hossein Rabbani, Omid Sarrafzadeh and Alireza Vard, “Automatic Recognition of Myeloma Cells in Microscopic Images using Bottleneck algorithm, Modified Watershed and SVM Classifier,” *Journal of Microscopy*, Vol. 261, No. 1, pp. 46–56, 2016. (**IF = 1.692**)

7- Alieh Ahdi, Hossein Rabbani, Alireza Vard, “Mosaicing of 3D OCT Images of Macula and Optic Nerve Head,” *Computers in Biology and Medicine* Vol. 91, pp. 277–290, 2017. (**IF = 1.836**)

8- Mohammadreza Momenzadeh, Alireza Vard, Ardeshtir Talebi, Alireza Mehri Dehnavi, Hossein Rabbani, “Computer-Aided Diagnosis Software for Vulvovaginal Candidiasis Detection from Pap smear Images,” *Microscopy Research and Technique*, Vol. 81, Issue 1, pp. 13–21, 2018. (**IF = 1.147**)

9- Alireza Vard, “A New Combining Active contour Model for Segmenting Textured Image with Low Contrast and High Illumination Variations,” *Multimedia Tools and Applications*, Vol.77, Issue 15, 2018, pp. 20021–20042. (**IF = 1.530**)

2-2-Indexed Journal Papers:

- 1-** Alieh Ahdi, Hossein Rabbani, **Alireza Vard**, “Registration of optical coherence tomography (OCT) of optic nerve head and fundus images using speeded-up robust features (SURF) and random sample consensus (RANSAC) algorithms,” *Journal of Isfahan Medical School*, Vol. 33, No. 360, pp. 2026-2036, Jan 2016. **(Indexed in Scopus)**
- 2-** Soheil Nabavi, Alireza Mehri Dehnavi, **Alireza Vard**, Soheil Mohammad pour, “Quantitative analysis of contrast sensitivity to improve visual acuity and reduce optical aberrations,” *Journal of Isfahan Medical School*, Vol. 34, No. 391, pp. 816-822, Sept. 2016. **(Indexed in Scopus)**
- 3-** Narjes Ghane, **Alireza Vard**, Ardeshir Talebi, Pardis Nematollahy, “Classification of Effective Cells in Diagnosis of Chronic Myeloid Leukemia (CML) Using Semi-automatic Image Processing of Microscopic Images,” *Journal of Isfahan Medical School*, Vol. 34, No. 405, pp. 1304-1310, Jan. 2017. **(Indexed in Scopus)**
- 4-** Narjes Ghane, **Alireza Vard**, Ardeshir Talebi, Pardis Nematollahy, “Segmentation of White Blood Cells From Microscopic Images Using a Novel Combination of K-Means Clustering and Modified Watershed Algorithm,” *Journal of Medical Signals & Sensors*, Vol. 7, No. 2, pp. 92-101, April 2017. **(Indexed in PubMed and Scopus)**
- 5-** Hadis Golmohammadi, **Alireza Vard**, Ardeshir Talebi, “Segmentation of Effective Cells in Multiple Myeloma Cancer Using Deformable Models and K-Means Clustering,” *Journal of Isfahan Medical School*, Vol. 35, No. 448, pp. 1276-1282, Nov. 2017. **(Indexed in Scopus)**
- 6-** Soheil Nabavi, Alireza Mehri Dehnavi, Alireza Vard, Soheil Mohammad pour, “A Quantitative Investigation on the Effect of Edge Enhancement for Improving the Visual Acuity in Different Levels of Contrast,” *Journal of Biomedical Physics & Engineering*, Vol. 8, No.1, pp. 97-106, 2018 **(Indexed in PubMed and Scopus)**
- 7-** Vida Kabiri, **Alireza Vard** and Mostafa Najafi, “Claustrophobiagame: design and development of a new virtual reality game for treatment of claustrophobia,” *submitted to Journal of Medical Signals & Sensors*, August 2018, Vol. 8, No.4, pp. 231-237, 2018. **(Indexed in PubMed and Scopus)**

2-3-Conference Papers:

- 1-** **Alireza Vard**, P. Moallem, A. R. Naghsh Nilchi, “Applying Texture Pressure Energy to the Active Contour Models for Tracking Texture Object in the Texture Background,” *In Proceeding of 4th Iranian Conference on Machine Vision and Image processing*, Ferdowsi University of Mashhad, Mashhad, Iran, Vol. 1, pp. 349-356, Feb. 2007.
- 2-** Ashin Gharibi, Mohammad Reza Sehhati, **Alireza Vard**, Mohammad Reza Mohebian, “Identification of gene signatures for classifying of breast cancer subtypes using protein interaction database and support vector machines,” *In Proceeding of 5th International Conference on Computer and Knowledge Engineering (ICCKE)*, Mashhad, Iran, pp. 195-200, Oct. 2015.

3- Membership in Research Groups:

- ✓ Head of research group in "Game & Treatment" at Department of Biomedical Engineering, Isfahan University of Medical Sciences (Apr. 2016 – Present)
- ✓ Head of research group in "Software Development for Medical Image Processing" at Department of Biomedical Engineering, Isfahan University of Medical Sciences (Jan. 2014 – Present)
- ✓ Member of research group in "Microscopy Image Processing" at Department of Biomedical Engineering, Isfahan University of Medical Sciences (Mar. 2013 – Present)
- ✓ Member of research group in "Intravascular ultrasound (IVUS) Image Processing" at Department of Computer Engineering, University of Isfahan (Mar. 2011 – Mar. 2012)

F) Teaching Experiences

1- Graduate

- “Special Topics in Biomedical Engineering (Game Design)” (Spring 2017).
- “Advanced Digital Image Processing”(Fall 2013,Fall 2014, Spring 2015, Spring & Fall 2016, Fall 2017)
- “Special Topics in Biomedical Engineering (software development for medical image processing)” (Spring 2015, Spring & Fall 2016 and Spring 2018).
- “Digital Image Processing” (Spring 2014).
- “Digital Signal Processing” (Fall 2013, Spring 2014, Fall 2014, Fall 2015 and Spring & Fall 2017, Spring 2018 & Fall 2018).
- “Seminar” (Fall 2014, Spring 2015, Spring 2016, Spring 2017 and Spring 2018)
- “Fundamental Programming in MATLAB” (Fall 2015, Fall 2016 and Spring & Fall 2017, Fall 2018)

2- undergraduate

- “Engineering Mathematics” (Spring 2008 to Fall 2010)
- “Computer Architecture” (Spring 2008)
- “Computer Programming (C++)” University of Isfahan (Fall 2007)
- “ Introduction to Computer” (Spring 2008)
- Teaching Assistant “Software Engineering” (Fall 2004 to Fall 2005)

G) Practical Experiences

- ✓ Supervisor of the project “Design and Development of a Software Game for Treatment of Claustrophobia” (Jan 2017 – Present)
- ✓ Supervisor of the project “Design and Development of a Software Game for Treatment of Acrophobia” (Mar. 2017 – Present)
- ✓ Software developer and researcher in the project “Border extraction and calcified plaque detection in intravascular ultrasound (IVUS) images” (Mar. 2011 – Mar. 2012)

- ✓ Software developer and researcher in the project “Design and implementation of a software system for detecting and extracting of buildings from satellite images” (Sept. 2012– Sept. 2014)
- ✓ Software developer and researcher in the project “Analysis, design and implementation of management information system (MIS) for organization of planning and research of Isfahan municipality” (May 2002 – May 2003)
- ✓ Software developer and researcher in the project “Analysis, design and implementation of a database for the contract bureau of Isfahan municipality” (Sept. 2001 – Apr. 2002)

H) Software & Programming Language Skills

- 1- Visual C++
- 2- Python
- 3- MATLAB
- 4- OpenCV
- 5- Qt

I) Research Interests

- ✓ Medical Image Processing
- ✓ Development of Medical Image Processing Software
- ✓ Pattern Recognition and Deep learning
- ✓ Computer Vision
- ✓ Applications of Virtual and Augmented Reality in Medicine

J) References

- **Prof. Dr. Hossein Rabbani**, Department of Biomedical Engineering, Isfahan University of Medical Sciences, Isfahan, Iran. Email: h_rabbani@med.mui.ac.ir
- **Prof. Dr. Saeid Sadri**, Department of Electrical and Computer Engineering, Isfahan University of Technology, Isfahan, Iran. Email: sadri@cc.iut.ac.ir
- **Prof. Dr. Kamal Jamshidi**, Department of Computer Engineering, University of Isfahan, Isfahan, Iran. Email: jamshidi@eng.ui.ac.ir
- **Prof. Dr. Naser Movahedinia**, Department of Computer Engineering, University of Isfahan, Isfahan, Iran. Email: naserm@eng.ui.ac.ir