

Hengameh Mirzaalian Dastjerdi

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Education

- Postdoc fellow. Harvard Medical School and Brigham and Women's Hospital, Boston, USA, 2014-present.
- Ph.D. School of Computing Science, Simon Fraser University, BC, Canada, 2009-2014.
- M.S. School of Electrical Engineering, Isfahan University of Technology, Isfahan, Iran, 2006.
- B.S. School of Electrical Engineering, Isfahan University of Technology, Isfahan, Iran, 2003.
- High School Diploma. Mathematics and Physics, Farzanegane-Amin High School NODET (*National Organization for Development of Exceptional Talents*), Isfahan, Iran, 1999.

Invention Disclosure Patent

- Hengameh Mirzaalian, Michael Wels, Michael Kelm, Michael Suhling, Tobias Heimann, Fast and Robust 3D Vertebrae Segmentation using Statistical Shape Model. Siemens Corporate Research and Technologies, Germany, 2012.

Publications

Book

- **H. Mirzaalian** and Others, "Complete Solution of a First Course in Probability of Sheldon Ross", Daneshpa-jooan and Arkan, Isfahan, Iran, 2001 (10th Edition is available-In persian).
- **H. Mirzaalian**, T. K. Lee, and G. Hamarneh, "Dermoscopy Image Analysis (Chapter 1)", CRC Press, 2015.

Peer Reviewed Conferences

- **H. Mirzaalian**, M. Wels, T. Heimann, M. Kelm, M. Suhling. "Robust and Fast 3D Vertebra Segmentation using Statistical Shape Models", **IEEE EMBS**, 2013.
- **H. Mirzaalian**, G. Hamarneh, and T. K. Lee, "Uncertainty-based Feature Learning for Skin Lesion Matching using a High Order MRF Optimization Framework", **MICCAI**, 2012.
- **H. Mirzaalian**, G. Hamarneh, and T. K. Lee, "Streak-Detection in Dermoscopic Color Images using Localized Radial Flux of Principal Intensity Curvature", **MMBIA**, 2012.

- **H. Mirzaalian**, G. Hamarneh, A. Saad, “Motion Correction of Dynamic PET Images by Conforming to Regional Tracer Kinetics”, **MMBIA**, 2012.
- **H. Mirzaalian**, G. Hamarneh, B.HajGhanbari, W. Darlene, “3D Shape Analysis of the Knee Extensor and Flexor Muscles in Patients with COPD using Mesh Projection-based Features”, **MICCAI MeshMed**, Toronto, 2011.
- **H. Mirzaalian**, G. Hamarneh, “Vessel Scale Selection using MRF Optimization”, **IEEE Computer Vision and Pattern Recognition (IEEE CVPR)**, 2010 (acceptance rate 27%).
- **H. Mirzaalian**, G. Hamarneh, and T. Lee. “Graph-based Approach to Skin Mole Matching Incorporating Template-Normalized Coordinates”, **IEEE Computer Vision and Pattern Recognition (IEEE CVPR)**, USA, 2009 (acceptance rate 22%).
- **H. Mirzaalian**, M. R. Ahmadzadeh, S. Sadri, “Pectoral Muscle Segmentation on Digital Mammograms by Non-Linear Diffusion Filtering”, **IEEE Pacific Rim Conference on Communications, Computers and Signal Processing (IEEE PACRIM)**, pp: 581-584, Canada, 2007.
- **H. Mirzaalian**, M. R. Ahmadzadeh, S. Sadri, M. Jafari, “Pre-processing Algorithms on Digital Mammograms”, **IAPR Conference on Machine Vision Applications (IAPR MVA)**, pp: 118-121, Japan, 2007.
- **H. Mirzaalian**, M. R. Ahmadzadeh, S. Sadri, M. Jafari, “Various Applying of Wavelet Transform in Digital Mammograms for Detecting Masses and Microcalcifications”, **IAPR Conference on Machine Vision Applications (IAPR MVA)**, pp: 351-354, Japan, 2007.
- **H. Mirzaalian**, M. R. Ahmadzadeh, F. Kolahdouzan, “Breast Contour Detection on Digital Mammograms”, **IEEE International Conference on Information and Communication Technologies: From Theory To Applications (IEEE ICTTA)**, pp: 1804-1808, Syria, 2006.
- F. Kolahdouzan, M. R. Ahmadzadeh, **H. Mirzaalian**, “Pectoral Muscle Segmentation on Digital Mammograms”, **International Conference on Computer and Communication Engineering (ICCCE)**, pp:65-70, Malaysia, 2006.

Journal

- **H. Mirzaalian**, G. Hamarneh, and T. K. Lee, “MRF-based Hair Disocclusion in Dermoscopic Images using Dual-Channel Quaternion Tubularness Filters”, **IEEE TIP**.
- **H. Mirzaalian**, G. Hamarneh, and T. K. Lee, “Spatial Normalization of Human Back Images for Dermatological Studies”, **IEEE TITB**, 2013.
- **H. Mirzaalian**, M. R. Ahmadzadeh, A. Hekmatnia, F. Kolahdouzan, “Computer Aided Diagnosis in Digital Mammography”, **Iranian Journal of Radiology**, Iran, 2005.
- F. Kolahdouzan, M. R. Ahmadzadeh, A. Hekmatnia, **H. Mirzaalian**, “Wavelet Transform Application in Digital Mammogram”, **Iranian Journal of Radiology**, Iran, 2005.

Conference

- **H. Mirzaalian**, G. Hamarneh, “Automatic Globally-Optimal Pictorial Structures with Random Decision Forest Based Likelihoods For Cephalometric X-Ray Landmark Detection”. **ISBI Challenge**, China, 2014.
- **H. Mirzaalian**, G. Hamarneh, and T. K. Lee, “Back Atlas for Tracking Pigmented Skin Lesions”. **Annual UBC and CIHR Skin Research Day**, Canada, 2010.
- **H. Mirzaalian**, G. Hamarneh, and T. K. Lee, “Skin Mole Matching Incorporating Template-Normalized Coordinates”. **Annual UBC and CIHR Skin Research Day**, Canada, 2009.
- A.M. Ardekani, **H. Mirzaalian**, K. Jabbari, “Luminous rings”, **National Student Physics Conference**, Iran, 1997.

Technical Report

- **H. Mirzaalian**, G. Hamarneh, and T. K. Lee, “Spatial Normalization of Human Back Images for Dermatological Studies” (IEEE Journal).

Awards Received

- Ebco Eppich Graduate Scholarship, 2013.
- SFU Travel Award, 2013.
- SFU Graduate Fellowship, Fall 2012.
- European Commission scholarship, 2012.
- SFU Travel Award, 2011.
- Ebco/Eppich Graduate Scholarships in Intelligent Systems.
- European Commission scholarship, 2011.
- SFU Graduate Fellowship, Summer 2011.
- SFU Travel Award, 2010.
- CIHR Skin Research Training Center scholarship, 2009.
- BCCA/MSFHR Infrastructure grant supported studentships, 2009.
- SFU Travel Award, 2009 (500\$).
- Graduate Research Assistant (GRA): Medical Image Analysis Lab (MIAL), School of Computing Science, Simon Fraser University, British Columbia, Canada, (2008-Current).
- Selected in *National Scientific Student’s Organization of Electrical Engineering* as the best student’s thesis of the year, Iran, 2007.
- Grant from Iran Telecommunication Research Center for M.Sc. Thesis Amirkabir University of Technology , Tehran, Iran, 2006 (6,500,000 Iranian Rials).
- Selected in Modern Technology group of *12th Razi Research Festival on Medical Science* (In this festival, Nominated student receive award from the President of the country), 2006.
- A member of the *Outstanding Foundation Group*, Iran, 2006.
- Fellowship of *Isfahan University of Technology*, Isfahan ,Iran 2000-2003.
- Entering in *Exceptional Talents Group in Isfahan University of Technology*, Isfahan, Iran, 2000-2003.
- Entering in *Farzanegan Amin School Secondary and High School*, Affiliated to NODET (*National Organization for Developing Exceptional Talents*), Isfahan, Iran, 1995.
- Nominated for training period of *Physics Olympiad* as one of 500 student among 700,000 participated students (1998).
- Nominated for training period of *Computer Olympiad* as one of 500 student among. 700,000 participated students (1998).

Skills

- Programming Languages: Matlab, C/C++ (itk), Verilog.
- Soft wares: Latex, Microsoft Office, OrCAD, Softwares to work on FPGA (Active HDL, ModelSim).
- Operating Systems: Windows, Linux.

Research Experiences as Course Projects

- Shape Analysis:
 - Streak-Detection and Classification in Dermoscopic Images, 2011.
 - Diagnosis Supraspinatus Muscle Disorders Using Spherical Harmonics and Wavelet Transform Descriptors, 2009.
- Motion Correction:
 - Motion Correction on Dynamic Positron Emission Tomography, 2009.
- Matching:
 - Mole matching on Dermoscopic Images, 2008-2009.
- Image Processing and Segmentation:
 - Hair Disocclusion in Dermoscopic Images, 2011.
 - Computer Aided Diagnosis in Mammography, 2004-2006.
- Image Analysis:
 - Optimization Approaches for Computer Vision and Medical Image Analysis, 2009.
- Others:
 - Combination of *Data compression* and *Data encryption*, 2005.
 - Applications of coding in Orthogonal Frequency Division Multiplexing (OFDM), 2005.

Employment History

- Internship at SIEMENS corporate research, Germany, 2012.
- Internship at MCKESSON, Canada, 2012.
- Member of council of research in Medical Image and Signal Processing Research, Center, Isfahan, Iran, (2007-08).

Activities

- Being the reviewer in:
 - Medical Image Computing and Computer Assisted Intervention (MICCAI), 2014.
 - International Journal of Computer Assisted Radiology and Surgery (IJCARS), 2014.
 - Iranian Journal of Electrical and Computer Engineering (IJECE), 2011.
 - 13th Iranian Student conference on Electrical Engineering, Isfahan University of Technology, 2010.
 - 10th Iranian Student conference on Electrical Engineering, Isfahan University of Technology, 2007.

- Organizing the physics workshops for high school talents at *National Org. for Development of Exceptional Talents* (NODET), 2001.
- Invited talks:
 - Medical Image and Signal Processing Research Center, Isfahan University of Medical Sciences, Iran, 2014.

References

- **Dr. Ghassan Hamarneh** (hamarneh@cs.sfu.ca)
 - Medical Image Analysis Lab, Simon Fraser University, BC, Canada.
- **Dr. Tim Lee** (tlee@bccrc.ca)
 - Cancer Control Research, BC Cancer Agency, BC, Canada.