
Education

- **Ph.D. Student** 2012- present: Physics department, Oklahoma State University, USA. (GPA:3.87/4.00)
- **M.Sc.** 2006-2009: in Medical Physics, Mashhad University of Medical Sciences (MUMS), Iran.

Thesis: Automated Detection of Diabetic Retinopathy Vascular Lesions (Microaneurysms) in Fluorescein Angiography by Image Processing Methods. (Score: 20/20)

- **B.Sc.** 2000-2004: in Physics, Teacher Training University of Tehran, Iran.

Thesis: Semi-automatic Method for Detection of Kidney in Renography. (Grade: 19.89/20)

Research Experience

- Programming “an automated screening system” for automated diagnosis of diabetic retinopathy by image processing methods **in MATLAB** for first time in Iran.
- Programming “retinal landmark segmentation” for automated detection of Microaneurysms by image processing toolbox **in MATLAB**.
- Working as a research assistant (RA) in Image Processing Lab, Research Center for Medical Physics and Biomedical Engineering department, Shiraz University of Medical Sciences (2009-10).
- Working as a RA in Eye Image Analysis Research Group, Mashhad University of Medical Sciences; since 2008 July.

Teaching Experience

- ✚ Working as a teacher assistant (TA) for Physics of undergraduate level in Oklahoma State University since Sep. 2012.
- ✚ Teaching, Department of Physics Engineering, Azad University - Takestan, 2010-2011.
- ✚ Working as a TA for Image processing programming in M.Sc. 2006-2008.
- ✚ Working as a TA for applied mathematics and physics for radiology students, School of Para medicine in Mashhad University of Medical Sciences, 2005-2008.
- ✚ Working as a TA in physics laboratory for medical students in Medical Physics department of Mashhad University of Medical Sciences, 2006-2008.
- ✚ Working as a TA for electromagnetic, Mathematics and Physics in B.Sc. (2002-04).


Research Interests

- ❖ **Biomedical optical imaging**
- ❖ **Image processing and imaging**
 - ✓ Mathematical methods for image processing and reconstruction algorithms
 - ✓ Image processing methods of MRI/NMR imaging
 - ✓ Methods for clinical PET/SPECT imaging and image processing
- ❖ **Biophysics**
- ❖ **Eye Research**
 - ✓ **Vision research:** Neuroscience of vision, Image coding in retinal neurons, Color vision, Foveation
 - ✓ **Fluorescein Angiography and Color fundus photo:** Vascular detection, Retinal landmark detection, Detection of Microaneurysm and Hemorrhage

Workshop Participation

2011: European School of Medical Physics (ESMP) CERN, France-Swiss

- ✚ Week 1: Medical Imaging (Radiology and Ultrasound)

 Week 2: Medical Imaging (Nuclear Medicine and MRI)

 Week 3: Medical Computing

2007: fMRI

Instructor: Dr. M. Ashtari (from New York, USA)

Patents

1. [M. Tavakoli](#), M.H. Bahreyni, H.R. Pourreza, T. Banaee, A.R. Mehdizadeh. **Segmentation of Microaneurysms in Diabetic Retinopathy in Fluorescein Angiography Retinal Images Using Radon Transform.** Iranian patent; No. 65729; (Revised).
2. A.R. Mehdizadeh, [M. Tavakoli](#). **Identification of People Base on Detection of Vascular Network in Retina.** Iranian patent; No. 65046; 17 July 2010.
3. A.R. Mehdizadeh, [M. Tavakoli](#). **Segmentation of Semicircular Pattern and Parametric Identification of That in Images Using Radon Transform.** Iranian patent; No. 65146; 14 June 2010.
4. A.R. Mehdizadeh, [M. Tavakoli](#), M.H. Bahreyni. **Automated Detection of First Signs of Diabetic Retinopathy in Fundus Images.** Iranian patent; No. 65583; 7 June 2010.
5. A.R. Mehdizadeh, [M. Tavakoli](#). **Segmentation of Crossing Pathways with High Level of Complexity in Images Using Radon Transform.** Iranian patent; No. 64407; 26 April 2010.

Journal Publications

1. [M. Tavakoli](#), R. Pourreza, N. Kehtarnavaz. “**Computationally efficient optic nerve head detection in retinal fundus images,**” published in *Biomedical Signal Processing and Control*, 11, 63-73, 2014. [[PDF](#)]
2. [M. Tavakoli](#), R. Pourreza, H.R. Pourreza, A.R. Mehdizadeh, T. Banaee, M.H. Bahreini. “**A complementary method for automated detection of microaneurysms in fluorescein angiography fundus images to assess diabetic retinopathy,**” published in *Pattern Recognition*, 46(13), 2740–2753, 2013. [[PDF](#)]
3. H.R. Porreza, M.H. Bahreyni, A.R. Mehdizadeh, R. Pourreza, [M.Tavakoli](#). “**Automated Detection of Microaneurysm in Color Fundus Using Local Radon Transform,**” published in *Iranian Journal of Medical Physics*, 2009. [[Abstract](#)]
4. [M. Tavakoli](#), A. R. Mehdizadeh, R. Pourreza, T. Banaee, M. H. Bahreyni, H. R. Pourreza. “**Early Detection of Diabetic Retinopathy in Florescent Angiography Retinal Images Using Image Processing Methods,**” published in *Iranian Journal of Medical Physics*, 2010. [[Abstract](#)]
5. [M. Tavakoli](#), M. H. Bahreyni, F. Kalantari, R. Pourreza. “**Morphological and Non-morphological Methods of Retinal Blood Vessel Detection Applied on Fluorescein Angiography Images to Evaluate Diabetic Retinopathy**” submitted in *IEEE Transactions on Information Technology in Biomedicine*, 2014.

Abstract Publications

1. 2011 Oct 23-30th: **Radon Transform Technique for Linear Structures Detection: Application to Vessel Detection in Fluorescein Angiography Fundus Images.** [M. Tavakoli](#), M. H. Bahreyni, H. R. Pourreza, T. Banaee, A. R. Mehdizadeh, R. Pourreza,. Accepted at the 2011 IEEE MIC in Valencia, Spain. [[PDF](#)]
2. 2011 Oct 23-30th: **Automated Optic Nerve Head Detection in Fluorescein Angiography Fundus Images.** [M. Tavakoli](#), M. H. Bahreyni, H. R. Pourreza, T. Banaee, A. R. Mehdizadeh, R. Pourrez. Accepted at the 2011 IEEE MIC in Valencia, Spain. [[PDF](#)]
3. 2011 Sep 7th: **Automated Detection of Diabetic Retinopathy Vascular Lesions (Microaneurysms) in color fundus Images by Image Processing Methods.** [M. Tavakoli](#), T. Banaee, , R. Pourreza, M. H. Bahreyni, A. R. Mehdizadeh, H. R. Pourreza. Presented in "2nd congress in eye and vision science", Tehran, Iran.
4. 2010 Feb 10-13th: **Automated Computer Diagnosis of Diabetic Retinopathy Related Vascular Lesions, in Color Fundus Images, Using Radon Transform.** A. Mehdizadeh, H.R. Pourreza, [M. Tavakkoli](#). Presented in ATTD 2010 "Advanced Technologies & Treatments for Diabetes", Basel, Switzerland.

Meysam Tavakoli

- 2010 Feb 10-13th: **Automated Computer Detection of Micro-aneurysms in Fluorescein Retinal Angiography: A Part of Second Step toward Automated Diabetic Retinopathy Screening.** [M. Tavakkoli](#), A. Mehedizdeh, H.R. Pourreza. Presented in ATTD 2010 "Advanced Technologies & Treatments for Diabetes", Basel, Switzerland.
- 2010 Oct 7th: **Automated Detection of Diabetic Retinopathy Vascular Lesions (Microaneurysms) in Fluorescein Angiographic Images by Image Processing Methods.** T. Banaee, [M. Tavakoli](#), A. R. Mehdizadeh, R. Pourreza, M. H. Bahreyni, H. R. Pourreza. Presented in "1st congress in eye and vision science", Tehran, Iran.
- 2010 Oct 27-28th: **Automated Detection of Retinal Landmarks in Color Fundus Images Using Radon Transform and Morphological Functions.** [M. Tavakoli](#), T. Banaee, R. Pourreza, M. H. Bahreyni, H. R. Pourreza. *Presented in 6th Iranian Machine Vision and Image Processing, Isfahan 2010.*
- 2010 Oct 27-28th: **A Semi-automatic Method for Detection of Kidney in Renography,** M. Rahmatpoor, H. Rajabi, F. Babapoor, [M. Tavakoli](#), F. Kalantari. *Presented in 6th Iranian Machine Vision and Image Processing, Isfahan 2010.*
- 2009 May 26-27th: **Automated Detection of the Optic Nerve Head Based on Mean Variance and Template Matching in Retinal Images.** [M. Tavakoli](#), M. H. Bahreyni, F. Kalantari, R. Pourreza. *Presented in 8th Iranian Congress of Medical Physics, Tehran 2010.*
- 2009 May 26-27th: **Comparison of Morphological and Non-morphological Methods in Automated Detection of Retinal Blood Vessels.** [M. Tavakoli](#), M. H. Bahreyni, F. Kalantari, R. Pourreza. *Presented in 8th Iranian Congress of Medical Physics, Tehran 2010.*

Honors & Awards

- Full fund scholarship from Oklahoma State University (OSU), Dept. of Physics, **2012**.
- Trainee grant for 3 weeks: European School of Medical Physics (ESMP) CERN, **2011**.
- Trainee grant for IEEE Medical Imaging Conference, Valencia, Spain, **2011**.
- Ranked 1st between M.Sc. students (entrance in date of 2006) with GPA of **17.07** out of 20 from Medical Physics department in Mashhad University of Medical Sciences in **2009**.
- My thesis was accepted as the most beneficiary and best work among M.Sc. students in Medical Physics department in Mashhad Medical School with **the highest thesis score (20 out of 20)**, in **2009**.
- Achieving **third position** in admission exam entering M.Sc. program in the Medical Physics among more than 2100 students in Iran (With **complete score (100%)** in Mathematics), **2006**.
- Ranked **top 5%** of Average Rank in the all four years of the B.Sc. period (**2000-2004**).
- Ranked **top 1%** in the Physics & Mathematics Undergraduate program Entrance Exam in Iran in **2000**.
- Honorable mention by Young Scholars Club for being accepted in 200 top students in *14th Iran Physics Olympiad* between 12,000 brilliant talent students, **2000**.
- Honorable mention by Young Scholars Club for being accepted in 150 top students in *17th Iran Mathematics Olympiad* between 15,000 brilliant talent students, **1999**.

Software Knowledge

- MATLAB programming (intermediate level)
- Simulink programming (intermediate level)
- Microsoft Office such as Word, Power Point
- Statistical Software such as SPSS
- Programming C++ (Introductory level)
- Mont Carlo simulation "MCNP-4C" (familiar)
- Graphical softwares such as Photoshop
- Gate and Geant simulation (familiar)

Reviewer of Professional Journals

- IEEE Transactions on Medical Imaging
- IEEE Transactions on Automation Science and Engineering