

**BAHAREH TAGHIZADEH**  
bahareh.taghizadeh@gmail.com

Isfahan University of Medical Science  
Medical Image and Signal  
Processing Research Center  
Office: (+98) 31 3669-1224  
Cell: (+98) 912 0270729

Date of birth: 15.05.1983  
Female, Single, Iranian

## **RESEARCH EXPERIENCE**

**Postdoctoral researcher at the Medical Image and Signal Processing Research Center, Isfahan University of Medical Science, December 2016-present**

Supervisor: Dr. Hosein Rabbani

Research Subject: Combined analysis of EEG, MRI and SPECT images for localizing seizure focus in epileptic patients

**PhD student researcher at German Primate Center, Jan 2010-December 2016**

German Primate center, Sensorimotor group of the Bernstein Center for Computational Neuroscience (BCCN) in Goettingen, headed by Prof. Dr. Alexander Gail.

Research Subject: Sensorimotor transformations for planning goal directed reach movements.

## **EDUCATION**

**PhD in Neuroscience, Jan 2011- Feb 2015**

Georg-August-Universität Göttingen, Göttingen, Germany

Thesis title: Reference frames for planning reach movement in the parietal and premotor cortices.

Supervisor: Prof. Dr. Alexander Gail

link to the thesis: <https://ediss.uni-goettingen.de/handle/11858/00-1735-0000-0028-86C4-2>

**M.S. in Biomedical Engineering (Bioelectricity), Sep 2006-March 2009**

Amirkabir University of Technology (Tehran Polytechnique), Tehran, Iran

Thesis title: Model for Human Path Planning, Using Model Based Predictive Control.

Supervisor: Prof. Farzad Towhidkhal

**B.S. in Electrical Engineering (Tele-Communication Systems), Sep 2001-July 2006**

Ferdowsi University of Mashhad, Mashhad, Iran.

Thesis title: Implementation of a Monocular Model-Based 3D Tracking System for Augmented Reality.

**Diploma in Mathematics and Physics, Sep 1997- July 2001**

Farzanegan High School, National Organization for Development of Exceptional Talents, Mashhad, Iran.

## RESEARCH INTERESTS

System and Sensorimotor neuroscience, neurorehabilitation, medical devices, cognitive neuroscience, brain stimulation, brain computer interface, biological data analysis, application of basic neuroscience for solving real life problems,

## TECHNICAL AND EXPERIMENTAL SKILLS

- In vivo recording in behaving monkey (using multi-channel matrix, simultaneously in two areas)
- Analyzing high dimensional neural data (dimensionality reduction, encoding, decoding, filtering, ...)
- Analyzing movement trajectories and other behavioral data
- Design and implementation of psychophysical experiments (for human and non-human primates)
- Behavioral training of non-human primates
- Spike sorting and analysis (online and offline)
- Recording EMG signals (using surface and implanted electrodes)
- Bio-statistics, Simulations, Genetic algorithm, Neural networks (familiar with soft computing techniques and system identification)
- Programming microcontroller and digital signal processor

## SCHOLARSHIPS AND GRANTS

- Postdoctoral research grant from the Presidency of Islamic Republic of Iran, National Elites Foundation, 2016-present
- PhD scholarship by German Primate Center, 2010-2016.
- Travel grant from Göttingen Graduate School for Neurosciences, Biophysics, and Molecular Biosciences (GGNB) to attend the 14th FENS forum, 2014.

## JOURNAL PUBLICATIONS

- **Taghizadeh B** and Gail A (in preparation) Dynamic and scalable object-centered encoding of the reach goal in parietal reach region and dorsal premotor cortex.
- Morel P, Ferrea E, **Taghizadeh-Sarshouri B**, Cardona Audí JM, Ruff R, Hoffmann K-P, Lewis S, Russold M, Dietl H, Abu-Saleh L, Schroeder D, Krautschneider W, Meiners T, Gail.A (2016) Long-term decoding of movement force and direction with a wireless myoelectric implant. *J. Neural Engineering* 13(1):016002. DOI: 10.1088/1747-2560/13/1/016002
- Westendorff, S, Kuang, S, **Taghizadeh, B**, Donchin, O, Gail, A, (2015) Asymmetric generalization in adaptation to target displacement errors in humans and in a neural network model. *J. Neurophysiology* 113(7): 2360-2375. DOI: 10.1152/jn.00483.2014
- **Taghizadeh B** and Gail A (2014) Spatial task context makes short- latency reaches prone to induced Roelofs illusion. *Front. Hum. Neurosci.* 8:673. DOI: 0.3389/fnhum.2014.00673.
- Pourreza H, Pourreza-Shahri R, Fazeli S, **Taghizadeh B** (2008) Automatic detection of eggshell defects based on machine vision. *Journal of Animal and Veterinary Advances.* 7(10):1200-1203.

## SELECTED CONFERENCE CONTRIBUTIONS

- Taghizadeh B., Gail A., “Object-centered representations in monkey parietal reach region and dorsal premotor cortex”, 44th Annual meeting of Society for Neuroscience, Washington D.C., USA, 2014.
- Taghizadeh B., Gail A., “Object-centered spatial encoding in monkey parietal reach region and dorsal premotor cortex”, 14th FENS forum, Milan, Italy, 2014.
- Taghizadeh B., Gail A., “Object-centered representations in monkey parietal reach region and dorsal premotor cortex”, 43rd Annual meeting of Society for Neuroscience, San Diego, USA, 2013.
- Taghizadeh B., Gail A., “Object-centered representations in monkey parietal reach region and dorsal premotor cortex”, Bernstein Conference (BC13), Tuebingen, Germany, 2013.
- Taghizadeh B., Gail A., “Alloentric planning of immediate reach movement is prone to induced Roelofs illusion”, 10th Goettingen meeting of German Neuroscience Society, Goettingen, Germany, 2013.
- Taghizadeh B., Gail A., “Object-centered reach planning is subject to the induced Roelofs effect”, 5th Annual Primate Neurobiology meeting, Tuebingen, Germany, 2012.
- Marghi Y.M, Taghizadeh B, Towhidkhah F, A predictive human-inspired path planning method based on the dynamic wane expansion neural network (DWENN), 19th Iranian Conf. of Biomedical Engineering, (pages: 250 - 254), DOI: 10.1109/ICBME.2012.6519691, Iran, 2012.
- Taghizadeh B., Gail A., “Induced Roelofs effect in reaching”, Bernstein Conference (BC11), Freiburg, Germany, 2011.
- H.R. Pourreza, M. Ameli, A.M .Nayebi, S. Fazeli, B. Taghizadeh, “Automatic Detection of Eggshell Defects Based on Image Processing,” 4th International Conference on Integrated Systems for AGRI-FOOD Production, SIPA'05, Timisoara, Romania, November 24-26, 2005.
- H. Sarbishei, B. Taghizadeh, T. Nazari, M. Tayarani, T. Kahookar Toosi, “On the Competitive Reinforcement Learning for Predator and Prey”, 7th Conference on Intelligent Systems, KNT University, Tehran, Iran, 2005.

## TEACHING AND ADVISING EXPERIENCES

### **Sensorimotor Group, German Primate center (University of Goettingen)**

Supervision of one lab rotation student, 2014

Supervision of three internship students, 2011-2013

### **Department of Biomedical Engineering, Amirkabir University of Tehran (Tehran Polytechnique)**

Teacher assistant for "Modeling of Biological Systems" graduate course, Winter semester 2007 and Summer semester 2008.

## RELEVANT PROFESSIONAL AND RESEARCH EXPERIENCES

**Student representative of Sensorimotor Group, 2011-2014. Goettingen, Germany**

Colloquium organizer: Organizer/co-organizer of several talks within the framework of PhD colloquium series in the German Primate Center.

**Student Research Assistant, Bina Pardaz Shargh Co., 2004-2006, Mashhad, Iran**

Team member for the following projects:

Project: Design and implementation of a virtual studio tracking system (Proposed and Approved in Islamic Republic of Iran Broadcasting (IRIB))

Project: Design and implementation of an image based automatic eggshell defect detector system.

Supervisor: Dr. Hamidreza Pourreza

**Student Group Leader, 2004-2005, Mashhad, Iran**

Digital Signal Processors Lab., Ferdowsi University of Mashhad, School of Engineering

Project: Design and implementation of a minimum board for the TMS320c25 digital signal processor.

Supervisor: Dr. Alireza Seyedein

**Industrial Trainee, Summer 2004, Mashhad, Iran**

Bina Pardaz Shargh Co., Mashhad, IRAN.

**Student Researcher, 2002-2004, Mashhad, Iran**

Robotic Lab., Ferdowsi University of Mashhad.

Example project: Design and implementation of a path tracker robot which was presented to the Intelligent Systems Exhibition, 5<sup>th</sup> Conference on Intelligent Systems, Mashhad, Iran, 2002.

## **COMPUTER SKILLS**

- Programming languages  
Extensive experience in MATLAB, C++, C, Assembly; Familiar with Python and R
- Example software  
NI Labview, Plexon online and offline sorter, Corel Draw, Open Bugs, Orcad

## **SELECTED COURSES/ WORKSHOPS**

- Trans cranial magnetic and electrical stimulation - 2013
- Team Work and Leadership Competencies in Academia and Beyond - 2013
- Scientific integrity and the responsible conduct of research - 2012
- EUPRIM-Net Course on General Primate Biology - 2011
- NWG course on analysis and models in neurophysiology - 2010

## **LANGUAGES**

Persian (Native), English (Full professional proficiency), German (Elementary level)