

Mina Jamshidi Idaji

Curriculum Vitae

Research Interests

Signal/Image Processing (with biomedical and neuroscience applications), Network Science, Machine Learning, Brain-Computer Interface, and Applied Mathematics in signal processing (Statistical Methods, Optimization Theory, Multilinear Algebra, and Graph Theory)

Research and Academic Experiences

- 12/2017–present **Doctoral Researcher**, MPI for Human Cognitive and Brain Sciences
- 02/2017–06/2017 **Research Assistant**, Biomedical Signal and Image Processing Laboratory (BiSIPL), under Supervision of Dr. S. Hajipour and Prof. M.B. Shamsollahi
→ Research area: Source localization and denoising of epileptic EEG data with a graphic user interface (GUI).
- 09/2014–08/2016 **Research Assistant**, Biomedical Signal and Image Processing Laboratory (BiSIPL), EE Dept., Sharif University of Technology, Tehran, Iran
→ Research area: *Higher order* and *vector-based* Event Related Potential (ERP) analysis, higher order feature reduction techniques; unsupervised P300 speller
- Summer 2013 **Research Intern**, Medical Image and Signal Processing Research Center (MISP), Isfahan University of Medical Sciences, Isfahan, Iran
→ Research area: Optic Disc segmentation in retinal images.
- Ad-hoc Reviewer IEEE Transactions on Biomedical Engineering (TBME), IEEE Transactions on Neural Systems and Rehabilitation Engineering (TNSRE)

Education

- 12/2017–present **PhD**, Max Planck Institute for Human Cognitive and Brain Science, Leipzig, Germany, **Dr. Vadim Nikulin**, **Prof. Dr. Arno Villringer**
Machine Learning Group, Technical University Berlin, Berlin, Germany, **Prof. Dr. Klaus-Robert Müller**
PhD Thesis Multivariate Methods for Quantification of Nonlinear Interactions in Human Brain
- 09/2014–08/2016 **M.Sc., Biomedical Engineering (Bioelectric)**, EE Dept., **Sharif University of Technology (SUT)**, Tehran, Iran
M.Sc. GPA: **18.65/20 (German scoring: 1,5)** (29 credits), University GPA:16.2/20, Dept. GPA: 16.35/20
Master Thesis Detection of Event Related Potential Using Tensor Decomposition
M.Sc. Supervisor **Prof. Dr. M.B. Shamsollahi**
- 09/2009–09/2014 **Dual B.Sc., Electrical Engineering and Pure Mathematics**, **Isfahan University of Technology (IUT)**, Isfahan, Iran
- Bachelor Thesis A Survey of Graph-based Image Segmentation Methods

B.Sc. Supervisor [Dr. Saeid Sadri](#) and [Dr. Raheleh Kafieh](#)

B.Sc. GPA: **18.55/20 (German scoring: 1,4)** (185 credits), University
GPA:14.54/20, ECE Dept. GPA: 15.26/20, EE students GPA:16.32/20

09/2005–08/2009 **High school**, Farzanegan-e-Amin Highschool, [NODET](#) (National Organization for Development of Exceptional Talents), Isfahan, Iran

Publications

- **M. Jamshidi Idaji**, K.R. Müller, G. Nolte, B. Maess, A. Villringer, V.V. Nikulin, “Nonlinear Interaction Decomposition (NID): A Method for Separation of Cross-frequency Coupled Sources in Human Brain,” *NeuroImage*, 2020. DOI: [j.neuroimage.2020.116599](https://doi.org/10.1016/j.neuroimage.2020.116599)
- **M. Jamshidi Idaji**, M.B. Shamsollahi, S. Hajipour Sardoui, “Higher Order Spectral Regression Discriminant Analysis (HOSRDA): A Tensor Feature Reduction Method for ERP Detection,” *Pattern Recognition* 70 (2017) 152-162. DOI: [10.1016/j.patcog.2017.05.004](https://doi.org/10.1016/j.patcog.2017.05.004)
- **M. Jamshidi Idaji**, H. Rabbani, Z. Amini, R. Kafieh, A. Ommani, V. Lakshminarayanan, “Automatic Detection of the Optic Disc of the Retina: A Fast Method,” *J Med Sign Sence* 2016; 6:57-63

Technical Skills

Programming Python, MATLAB, C/C++, JAVA (familiar)
Type Setting \LaTeX , Microsoft Office
O.S. OSX, Linux, Windows

Teaching Experience

- July 2020 **Tutor**, Max Planck School of Cognition, MEEG preprocessing with Python (C)
June 2020 **Tutor**, [Neuromatch Academy](#), Computational Neuroscience
2015–2016 **Teaching Assistant** at Sharif University of Technology, EE Dept.
- Tensor Decomposition and Matrix Factorization with Application to Signal Processing - Instructed by: Dr. S. Hajipour, Fall2016 (A,D)
- Digital Signal Processing (with MATLAB)- Instructed by: Prof. Dr. M.B. Shamsollahi, Fall2015 & Fall2016 (C)
2012–2014 **Teaching Assistant** at Isfahan University of Technology, ECE Dept.
- Wireless Communication - Instructed by: [Dr. M.J. Omid](#), Fall2013 & Spr2014 (B,D)
- Communication Circuits - Instructed by: Prof. Dr. S. Sadri, Fall 2013 (B)
- Signals and Systems - Instructed by: [Dr. B. Nazari](#), Fall 2012 (B,D)

→ Responsibilities: (A) Designing problems - (B) Holding problem solving sessions/Office hours
- (C) Hands-on sessions - (D) Grading homeworks and projects

Languages

English Full Proficiency
German B2/C1
Persian Native

Membership

- 12/2020- present [0-year student](#) at Max Planck School of Cognition
12/2017-present International Max Planck Research School NeuoroCom ([IMPRS NeuoroCom](#))
2020-Present IEEE Member
2010-2020 IEEE Student Member

Honors and Awards

- 03/2017 Receiving [IMPRS NeuroCom](#) funding for persueing the PhD
→ Every year only 3-4 candidates can receive this funding through the application and interview procedure.
- 09/2015-09/2016 Mowafaghian Research Fellowship for Graduate Students, Djavad Mowafaghian Research Center of Intelligent Neuro-Rehabilitation Technologies, Sharif University of Technology (SUT), Tehran, Iran
→ The scholarship is annually awarded to 5 distinguished graduate research projects at SUT in neuro-rehabilitation related fields. The duration of the scholarship is 1 year and it provides financial support for the project as well as living costs.
- 08/2014 Honorary admission to master's program at Sharif University of Technology (SUT) as an Exceptional Talent (without need to take part in nationwide entrance exam)
→ Each year, SUT grants honorary admission of graduate level programs to a very limited number of students with distinguished academic performance.
- Class of 2013 Ranked 6th among 100 EE undergraduate students and 3rd in communication group, Isfahan University of Technology, Isfahan, Iran
- 08/2012 DAAD Scholarship for one month German summer course in Germany, Berlin
- 07/2009 Ranked 491th (top 0.1%) in the Nationwide Mathematics and Physics University Entrance Exam (among more than 270,000 contestants in the country) and accepted for studying two majors in bachelor studies

Volunteer Activity

- 2009-2017 Volunteer Activist, Kherad-Sepahan NGO (Projects of reading promoting and providing high-quality education to pupils in poor regions of Iran)

Referees

Dr. Vadim Nikulin (nikulin@cbs.og.de)
Prof. Dr. Arno Villringer (villringer@cbs.og.de)
Further referees can be provided upon request.

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