Mina Jamshidi Idaji

Curriculum Vitae

✉ *jamshidi@cbs.mpg.de*
minajamshidi.github.io

Research Interests

Signal/Image Processing (esp. Biomedical), Machine Learning, Network Science

Brain Data, Brain Network, Brain-Computer Interface

Research Experience and Academic Services

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** (29 credits), mean University GPA:16.2/20, Dept. GPA: 16.35/20 in class of 2016

Master Thesis	Detection of Event Related Potential Using Tensor Decomposition (can be accessed in Persian here)
M.Sc. Supervisor	Prof. Dr. M.B. Shamsollahi
09/2009–09/2014	**Dual B.Sc., Electrical Engineering and Mathematics**, Isfahan University of Technology (IUT), Isfahan, Iran
Bachelor Thesis	A Survey of Graph-based Image Segmentation Methods
B.Sc. Supervisor	Prof. Dr. Saeid Sadri and Dr. Raheleh Kafieh
	B.Sc. GPA: **18.55/20** (185 credits), mean University GPA:14.54/20, ECE Dept. GPA: 15.26/20, EE students GPA:16.32/20 in class of 2014
09/2005–08/2009	**High school diploma**, Farzanegan High school (NODET), Isfahan, Iran

Technical Skills

→ Proficiency: (A) Proficient, (B) Good (C) Touched/limited experience

Programming	Python (A/B), MATLAB (A), C/C++ (C/B), JAVA (C), R (C)
Python Package	Scipy/Numpy (A), Scikit-Learn (B), Pytorch(C/B), Pandas (C), Multiprocessing (B), Joblib (C)
IDE	PyCharm (A), Jupyter Notebook (A), Spyder (C), Atom (C), IntelliJ (C)
Concepts	Digital Signal Processing (A), Pattern Recognition (A), Network Science (B/A), (multi-)linear algebra (A), Deep Learning (C), Statistics (C/B), Classical image Processing (B/C), Object-oriented Programming (B/C), Data Structures and Algorithms (C/B)
Neuroimaging	Electrophysiology (EEG/MEG/ECoG) (A/B)
	MNE Python (A), Scipy signal (A), MATLAB signal processing toolbox (A), EEGLab (A/B), Brainstorm (B)
O.S.	OSX, Linux, Windows
Graphics	Adobe Illustrator, Inkscape
Other tools	Git (B/A)
	LaTeX, Keynote, Microsoft Office

Selected Publications

→ Go to Google Scholar for all publications

- **M. Jamshidi Idaji**, J. Zhang, T. Stephani, A. Villringer, V.V. Nikulin, "Harmoni: a Method for Eliminating Spurious Interactions due to the Harmonic Components in Neuronal Data", in preparation
- J. Zhang, **M. Jamshidi Idaji**, A. Villringer, V.V. Nikulin, "Neuronal Biomarkers of Parkinson's Disease are Present in Healthy Aging", NeuroImage, 2021. DOI:10.1016/j.neuroimage.2021.118512

- T. Jorajuría*, **M. Jamshidi Idaji***, Z. İşcan, M. Gómez, V.V. Nikulin, C. Vidaurre, "Oscillatory Source Tensor Discriminant Analysis (OSTDA): a regularized tensor pipeline for SSVEP-based BCI systems," Neurocomputing , 2021. (accepted) * **Both authors contributed equally.**
- **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: 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

Teaching Experience

→ Please check here for responsibilities and details.

July 2020,2021 **Tutor**, Max Planck School of Cognition, MEEG preprocessing

June 2020 **Tutor**, Neuromatch Academy, Computational Neuroscience

2015–2016 **Teaching Assistant** at Sharif University of Technology, EE Dept.

2012–2014 **Teaching Assistant** at Isfahan University of Technology, ECE Dept.

Languages

English Full Proficiency

German B2/C1

Persian Native

Research Funding and Fellowships

12/2017-12/2020 IMPRS NeuroCom funding for persueing the PhD at MPI CBS

→ Every year only 3-4 candidates (<1% of applicatns) 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 (founded by Mowafaghian Foundation, Vancouver, Canada)

→ This 1-year scholarship (including the living and research expenses) is yearly awarded to only five distinguished graduate (master and PhD) students at SUT after application and interview procedure.

Honors and Awards

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)

→ The honorary admission of graduate level programs is awarded each year to a very limited number of students with distinguished academic performance.

Class of 2013 Ranked 6^{th} among 100 EE undergraduate students and 3^{rd} in communication engineering group, Isfahan University of Technology, Isfahan, Iran

08/2012 DAAD Scholarship for one month German summer course in Germany, Berlin

Membership

12/2020- 05/2021 Mentor at Max Planck School of Cognition

12/2017–present International Max Planck Research School NeuoroCom (IMPRS NeuoroCom)

2021-Present IEEE Member

2010-2020 IEEE Student Member

Volunteer Activity

2009-2017 Volunteer teacher, Kherad-Sepahan NGO (Projects of reading promoting and providing high-quality education to pupils in poor regions of Iran). "Read with Me" is a globally recognized project where our NGO is a close partner.

Referees

Dr. Vadim Nikulin (nikulin@cbs.og.de)

Further referees can be provided upon request.

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