

Dr. Hamid Karimi-Rouzbahani

Curriculum Vitae

June 2022

Contact Information:

Residential Status: Australian Permanent Resident under Distinguished Talent Scheme (858)

Current address: MRC Cognition and Brain Sciences Unit, 15 Chaucer Road, University of Cambridge, UK.

Email: Hamid.Karimi-Rouzbahani@mrc-cbu.cam.ac.uk

Tel: +44 1223 766166

Fax: +44 1223 359062

Websites: <https://www.mrc-cbu.cam.ac.uk/people/hamid.karimi-rouzbahani/>
<https://www.neuroscience.cam.ac.uk/directory/profile.php?hk01>

Employments:

Present:

Newton International Fellow (Senior Researcher), MRC Cognition and Brain Sciences Unit, University of Cambridge, UK, 2020-Present.

Adjunct Lecturer, School of Cognitive Science, Institute for Research in Fundamental Sciences, Iran, 2020-Present.

Honorary Research Fellow, Department of Computing, Macquarie University, Australia, 2020-Present.

Past:

Postdoctoral Research Fellow, Department of Cognitive Science, Macquarie University, Australia, 2018-2020.

Lab Manager, Iran Neural Technology Research Center (NeuroTekTronix Inc), Iran, 2016-2018.

Research assistant (part time), School of Cognitive Sciences, Institute for Research in Fundamental Sciences (IPM), Iran, 2013-2015.

Research and Development Expert (part time), Sazeh Pouyesh, EZAM industrial group, Iran, 2014-2015.

Education:

Doctor of Philosophy (PhD), Electrical Engineering, Shahid Rajaei University, Tehran, Iran 2013-2017.

Thesis: Role of Visual Features in Human Visual System for Invariant Object Recognition
Supervisors:

Supervisors: Prof. Reza Ebrahimpour (Shahid Rajaei University)

Dr. Nasour Bagheri (Shahid Rajaei University)

Advisors: Dr. Seyed-Mahdi Khaligh-Razavi (MIT)

Dr. Behrad Noudoost (University of Utah)

Courses passed:

Machine Vision, Machine Learning, Digital Image Processing, Adaptive Filters, Advanced Mathematics, etc.

Master of Science, Biomedical Engineering, Iran University of Science and Technology, Tehran, Iran 2010-2013.

Thesis: Closed-Loop Control of Walker-Supported Standing in Paraplegic Patients Using Functional Electrical Stimulation.

Supervisor: Prof. Abbas Erfanian

Courses passed:

Artificial Neural Networks, Statistical Pattern Recognition, Biological System Modeling, Biological Signal Processing, etc.

Bachelor of Science, Electrical Engineering, Shahid Rajaee University, Tehran, Iran 2007-2009.

Thesis: Electrocardiogram (ECG) signal monitoring on PC using FPGAs for signal transmission.

Supervisor: Dr. Vahid Esmaeeli

Courses passed:

Computer Programming (C, C++, Matlab, Visual Basic), Electrical Circuits, Electronic Circuits, Linear Control Systems, etc.

Associate's degree, Electrical Engineering, Shahid Shamsipour College, Tehran, Iran 2003-2006.

Thesis: Construction of a Real Time Clock (RTC) using AVR microcontrollers.

Supervisor: Ali Zangeneh

Courses passed:

Pulse Generating Circuits, Microcontrollers, Microprocessors, etc.

Committee/Society memberships:

1. **Organization of Human Brain Mapping**, 2022-Present.
2. **British Association of Cognitive Neuroscience**, 2022-Present.
3. **Society for Neuroscience**, 2021-Present.
4. **#EEGManyPipelines** global initiative, 2021-Present.
5. **MRC Cognition and Brain Sciences Unit, Open Science Committee**, 2021-Present.
6. **Federation of European Neuroscience Societies**, 2020-Present.
7. **British Neuroscience Association**, 2020-Present.
8. **Cambridge Neuroscience**, 2020-Present.
9. **Cognitive Neuroscience Society**, 2020-Present.
10. **#EEGManyLabs** global initiative, 2019-Present.
11. **Human Brain Mapping Society**, 2019-Present.
12. **Australian Human Brain Mapping Society**, 2019-Present.
13. **Australasian Cognitive Neuroscience Society**, 2018-Present.
14. **IEEE Society**, 2013-2014.

Awards, Prizes and Honors:

1. **Ranked #1: PhD Thesis of the Year in Neuroscience**, Iranian Neuroscience Society, 6th Basic and Clinical Neuroscience Congress (BCNC), Tehran, Iran, 2017.

2. **Praiseworthy PhD Thesis of the Year in Machine Vision**, Iranian Society of Machine Vision and Image Processing, 10th Iranian Conference on Machine Vision and Image Processing, Isfahan, Iran, 2017.
3. **Praiseworthy Researcher of the University**, Shahid Rajaee University, Tehran, Iran, 2017.
4. **Recipient of Australian Distinguished Talent Permanent Visa**, March, 2020.
5. **Recipient of UK Exceptional Talent visa**, Endorsed by The UK's Royal Society, 2020.
6. **Newton International Fellowship 2019** (among 40 annual worldwide recipients; second-ever Iranian recipient since established 2008), The Royal Society, Host: University of Cambridge, UK, 2019.
7. **Second Rank (+People's Choice Award)**, Australian Hearing Hub Hackathon – Predicting biological age from MEG, Macquarie University, Sydney, Australia, 2019.
8. **Distinguished Researcher of the Faculty**, Faculty of Electrical Engineering, Shahid Rajaee University, Tehran, Iran, 2016.
9. **Publication awards (91,300,000 IRR, for publishing papers in Q1 journals in Cognitive and Brain Sciences)**, Iranian Cognitive Sciences and Technologies Council, Tehran, Iran, 2016-2019.
10. **Selected Lecturer in Young Researchers' Section**, 1st Basic and Clinical Neuroscience Congress (BCNC), Tehran, Iran 2012.
11. **Iranian National university admissions ('Konkour')**, ranked 282, 486, 862 and 117 at national university admittance examinations for A.D., B.Sc., M.Sc. and Ph.D., respectively among 100,000, 42,000, 38,000 and 12,000 participants.

Competitive Research Grants and Funding:

1. **Newton International Fellowship (110,816 GBP)**, The Royal Society, UK, 2019, Sole investigator: Hamid Karimi-Rouzbahani. Host: University of Cambridge. <https://royalsociety.org/grants-schemes-awards/grants/newton-international/>
2. **Carer Grant (2005 GBP)**, The Royal Society, UK, 2022, Sole investigator: Hamid Karimi-Rouzbahani. Host: University of Cambridge.
3. **Carer grant (200 GBP)**, British Neuroscience Association, UK, 2021. Sole investigator: Hamid Karimi-Rouzbahani. <https://www.bna.org.uk/>
4. **Honorarium Award (500 GBP)**, UK Reproducibility Network (UKRN), UK, 2021. Sole investigator: Hamid Karimi-Rouzbahani. <https://www.ukrn.org/>
5. **CNS2020 Conference Participation Funding (145 USD)**, Australasian Cognitive Neuroscience Society, Australia, 2020, Sole investigator: Hamid Karimi-Rouzbahani. <https://www.cogneurosociety.org/>

6. **Early Career Bursary (200 AUD)**, OHBM Australia – Hunter Neuroimaging, 2019, Sole investigator: Hamid Karimi-Rouzbahani. <https://www.newcastle.edu.au/research-and-innovation/resources/hmri-imaging-centre/about-us/hunter-neuroimaging-ohbm-australia-conference-2019>
7. **Family Care Grant (600 AUD)**, Australasian Cognitive Neuroscience Society, Australia, 2019, Sole investigator: Hamid Karimi-Rouzbahani. <https://www.acns.org.au/acns-conference-launceston-2019/>
8. **Research Project Grant (400,000,000 IRR)**, Iranian Cognitive Sciences and Technologies Council, Tehran, Iran, 2014-2017, Investigators: Reza Ebrahimpour, Nasour Bagheri, Mohammad Ganjtabesh, Hamid Karimi-Rouzbahani and Saeedreza Kheradpisheh. Role: Fourth Investigator. <http://cogc.ir/?lang=2>
9. **PhD Thesis Support Grant (78,000,000 IRR)**, Iranian Cognitive Sciences and Technologies Council, Tehran, Iran, 2014-2017, Sole investigator: Hamid Karimi-Rouzbahani. <http://cogc.ir/?lang=2>
10. **Conference Travelling Support Grant (15,000,000 IRR)**, Shahid Rajaei University, Tehran, Iran, 2016, Role: Sole Investigator. <https://www.sru.ac.ir/en2/>
11. **Conference Travelling Support Grant (54,000,000 IRR)**, Iranian Cognitive Sciences and Technologies Council, Tehran, Iran, 2016, Sole investigator: Hamid Karimi-Rouzbahani. <http://cogc.ir/?lang=2>
12. **Workshop Participation Support Grant (70,000,000 IRR)**, 4th IBRO/APRC, School of Neuroscience: Basic Approaches in Neurological Diseases, Tehran, Iran, 2014. Sole investigator: Hamid Karimi-Rouzbahani. <http://phypha.ir/content/205/4th-Tehran-School-of-NEUROSCIENCE:-Basic-approaches-in-neurological-disease>
13. **Research Grant (10,000,000 IRR)**, Paarand Research Company, Tehran, Iran, 2013. Sole investigator: Hamid Karimi-Rouzbahani. <http://paarand.org/>

Publications (JIF= last journal impact factor before publication, Q-level: journal ranking both according to Scimago, * = equally contributing authors):

<https://scholar.google.com/citations?user=j0AZtowAAAAJ&hl=en&oi=ao>

- **Journal papers**

1. Karimi-Rouzbahani, H., Woolgar, A., Henson, R., & Nili, H. (2022). Caveats and nuances of model-based and model-free representational connectivity analysis. *Frontiers in Neuroscience*. <https://www.frontiersin.org/articles/10.3389/fnins.2022.755988/abstract> [Research Topic of Machine Learning in Neuroscience, Volume II, JIF = 4.67].
2. Karimi-Rouzbahani, H., Woolgar, A. (2022). When the whole is less than the sum of its parts: maximum object category information and behavioral prediction in multiscale activation patterns. *Frontiers in Neuroscience*. <https://doi.org/10.3389/fnins.2022.825746> [Research Topic of Machine Learning in Neuroscience, Volume II, JIF = 4.67].
3. Karimi-Rouzbahani, H., Shahmohammadi, M., Vahab, E., Setayeshi, S., Carlson, T., (2021) Temporal variabilities provide additional category-related information in object category decoding: a systematic comparison of informative EEG features. *Neural Computation*.

- https://doi.org/10.1162/neco_a_01436 [Ranked 32th in Cognitive Neuroscience among 120 journals; JIF: 3.472. Q1; MIT Press; Editor: Terrence Sejnowski (world-leader in computational neuroscience)]
4. Merrikhi, Y., Shams-Ahmar, M., Karimi-Rouzbahani, H., Clark, K., Ebrahimpour, R., Noudoost, B. (2021) Dissociable contribution of extrastriate responses to representational enhancement of gaze targets. *Journal of Cognitive Neuroscience*, 1-14. https://doi.org/10.1162/jocn_a_01750 [Ranked 20th in Cognitive Neuroscience among 120 journals; JIF: 2.73. Q1]
 5. Karimi-Rouzbahani, H., Woolgar, A., Rich, A. (2021) Neural signatures of vigilance decrements predict behavioural errors before they occur. *eLife*, 10:e60563. <https://elifesciences.org/articles/60563> [Ranked 3rd in Biology among 112 and 10th in Neuroscience among 151 journals; JIF: 8.14. Q1]
 6. Karimi-Rouzbahani, H., Ramezani, F., Woolgar, A., Rich, A., Ghodrati, M. (2021) Perceptual difficulty modulates the direction of information flow in familiar face recognition. *NeuroImage*, 117896. doi: <https://doi.org/10.1016/j.neuroimage.2021.117896> [Ranked 1st in Neuroimaging and 4th in Cognitive Neuroscience; JIF: 6.55. Q1]
 7. Pavlov, Y., ..., Karimi-Rouzbahani, H., ..., (~60 authors; 2021) #EEGManyLabs: Investigating the Replicability of Influential EEG Experiments. *Cortex*. <https://doi.org/10.1016/j.cortex.2021.03.013> [a world-wide project across prominent labs in cognitive science; journal ranked 12th in Cognitive Neuroscience; JIF: 3.39. Q1]
 8. Karimi-Rouzbahani, H., Vahab, E., Ebrahimpour, R., & Menhaj, MB. (2019) Spatiotemporal analysis of category and target-related information processing in the brain during object detection. *Behavioral Brain Research*, 369, 224-239. <https://www.sciencedirect.com/science/article/pii/S0166432818312804#sec0135> [Ranked 17th in Behavioural Neuroscience among 75 journals; JIF: 3.173. Q1]
 9. Karimi-Rouzbahani, H. (2018). Three-stage processing of category and variation information by entangled interactive mechanisms of peri-occipital and peri-frontal cortices. *Scientific reports*, 8(1), 12213. <https://www.nature.com/articles/s41598-018-30601-8> [Nature Publishing Group; ranked 5th in Multidisciplinary journals among 116 journals; JIF: 4.116. Q1]
 10. Karimi-Rouzbahani, H., Bagheri, N., & Ebrahimpour, R. (2017). Invariant object recognition is a personalized selection of invariant features in humans, not simply explained by hierarchical feed-forward vision models. *Scientific reports*, 7(1), 14402. <https://www.nature.com/articles/s41598-017-13756-8> [Nature Publishing Group; ranked 5th in Multidisciplinary journals among 116 journals; JIF: 4.445. Q1]
 11. Karimi-Rouzbahani, H., Bagheri, N., & Ebrahimpour, R. (2017). Hard-wired feed-forward visual mechanisms of the brain compensate for affine variations in object recognition. *Neuroscience*, 349, 48-63. <http://www.sciencedirect.com/science/article/pii/S0306452217301410> [Official journal of the International Brain Research Organization; JIF: 3.247. Q1]
 12. Karimi-Rouzbahani, H., Bagheri, N., & Ebrahimpour, R. (2017). Average activity, but not variability, is the dominant factor in the representation of object categories in the brain. *Neuroscience*, 346, 14-28. <http://www.sciencedirect.com/science/article/pii/S0306452217300088> [Official journal of the International Brain Research Organisation; JIF = 3.247. Q1]
 13. Karimi-Rouzbahani, H., Ebrahimpour, R., & Bagheri, N. (2016). Quantitative evaluation of human ventral visual stream in invariant object recognition: Human behavioral experiments and brain-plausible computational model simulations. *Machine Vision and Image Processing*, 3(2), 59-72. http://jmvip.sinaweb.net/article_32800.html [New domestic journal, no JIF and Q-level is available yet]
 14. Karimi-Rouzbahani, H., & Daliri, M. R. (2011). Diagnosis of Parkinson's disease in human using voice signals. *Basic and Clinical Neuroscience*, 2(3), 12-20. http://bcn.iuims.ac.ir/browse.php?a_id=96&sid=1&slc_lang=en [Top Iranian journal in neuroscience, JIF: 1.722. Q3. GS Citations: 24; 21st highly-cited paper in the journal's history]

- ***Under-review/under-revision/available journal papers***

1. Shahmohammadi, M., Vahab, Karimi-Rouzbahani, H. (2020) Informative Neural Codes to Separate Object Categories. <https://doi.org/10.1101/2020.12.04.409789> **BioRxiv**.
2. Karimi-Rouzbahani, H., Rich, A., Woolgar, A. (2021) Spatiotemporal processing of information in the multiple-demand network as revealed by fusing fMRI and MEG.
3. Carrigan, A., Wiggins, M., Karimi-Rouzbahani, H., Woolgar, A., Helton, W., Rich, A. (2021) The relationship between vigilance and cue utilisation in driving. (***Preregistered Study on Open Science Framework, embargoed***)

- ***Under-preparation journal papers***

1. Cogle, B., Karimi-Rouzbahani, H., Carrigan, A., Woolgar, A., Wolfe J., Rich A. (2021) Present/Absent vs Localisation responses in visual search tasks with computer-aided detection (CAD). (***Preregistered Study on Open Science Framework, embargoed***)
2. Cogle, B., Karimi-Rouzbahani, H., Carrigan, A., Woolgar, A., Wolfe J., Rich A. (2021) Sensitive to a T: The effects of non-spatial computer-aided detection cues on user sensitivity in a visual letter search task (localisation response). (***Preregistered Study on Open Science Framework, embargoed***)
3. Cogle, B., Karimi-Rouzbahani, H., Woolgar, A., Wolfe J., Rich A. (2021) Sensitive to a T: The effects of non-spatial computer-aided detection cues on user sensitivity in a visual letter search task. (***Preregistered Study on Open Science Framework, embargoed***)

- ***Peer-reviewed full conference papers***

1. Akhavanpour, A., & Karimi-Rouzbahani, H., & Ebrahimpour, R. (2015) Comparison of background- and variation-imposed object recognition performance between human and a modern computational model of vision. In 9th Iranian Conference on Machine Vision and Image Processing. [Top Iranian Conference on Machine Vision]
2. Golmohammadi, H., Karimi-Rouzbahani, H., Ebrahimpour, R., & Bagheri, N. (2015) A sparse brain-plausible convolutional neural network and its evaluation on Persian hand-written digits. In International Conference on Signal Processing and Intelligent Systems.
3. Fathi, R., Karimi-Rouzbahani, H., & Ebrahimpour, R. (2015) Role of continuous observation in the learning of object variations in the VisNet model of ventral visual stream", In International Conference on Applied Research in Electrical, Mechanical and Mechatronic Engineering.
4. Karimi, H., & Erfanian, A. (2013). Adaptive terminal sliding mode control of walker-supported standing in paraplegia. In 18th Annual International FES Society Conference. [Top international conference on Functional Electrical Stimulation]
5. Karimi Rouzbahani, H., & Erfanian, A. (2012) Control of paraplegic standing using adaptive neuro-fuzzy sliding mode control: a simulation study. In 19th Iranian Conference on Biomedical Engineering. [Top Iranian conference on Biomedical Engineering]

- ***Conference abstracts and oral presentations***

1. Karimi-Rouzbahani, H., Rich, A., & Woolgar, A. (2022) Maximum object category information and behavioural prediction in multiscale EEG patterns. In British Association for Cognitive Neuroscience Meeting, UK.

2. Cogle, B., Karimi-Rouzbahani, H., Carrigan, A., Wolfe, J., Woolgar, A. & Rich, A. (2021) Sensitive to a T: Testing two types of computer-aided detection and two user response types in a visual search task. In Australasian Cognitive Neuroscience Society Congress, Virtual, Australia. [Top Australia and New Zealand conference on Cognitive Neuroscience]
3. Karimi-Rouzbahani, H., Rich, A., & Woolgar, A. (2021) Analysis of information coding and exchange in the multiple demand network in space and time using fMRI-MEG fusion. In Society for Neuroscience Meeting, Virtual, USA. [Top global conference on Neuroscience]
4. Karimi-Rouzbahani, H., Rich, A., & Woolgar, A. (2021) Tracking information exchange in the multiple demand network in space and time using fMRI-MEG fusion. In MEGUK conference, Virtual, UK. [Top UK conference on Magnetoencephalography]
5. Karimi-Rouzbahani, H., Woolgar, A. (2021) When the whole is less than the sum of its parts: maximum object category information and behavioral prediction in multiscale neural codes of EEG. In Bernstein (Computational Neuroscience) Conference, Virtual.
6. NikiMaleki, M.H., Karimi-Rouzbahani, H. (2021) Convolutional Neural Networks Do Not Rely On Object Features Which Drive Human Overt Attention. In 43rd European Conference on Visual Perception, Virtual.
7. NikiMaleki, M.H., Karimi-Rouzbahani, H. (2021) Deep Neural Networks Rely on Distinct Semantic Features of Same-Category Exemplars Not Predicted By Low-Level Image Statistics. In International Interdisciplinary Computational Cognitive Science Summer School, Virtual.
8. NikiMaleki, M.H., Karimi-Rouzbahani, H. (2021) Deep Convolutional Neural Networks Rely on Distinct Semantic Features of Same-Category Objects for Recognition. In Understanding Vision Conference, Virtual, UK.
9. Karimi-Rouzbahani, H., Rich, A., & Woolgar, A. (2021) Spatiotemporal Analysis of Information Coding and Exchange in the Multiple Demand Network using fMRI-MEG Fusion. In British Neuroscience Association Meeting, Virtual, UK. [Top British conference on Neuroscience]
10. Karimi-Rouzbahani, H., Ramezani, F., Woolgar, A., Rich, A., Ghodrati, M., (2020) Dynamics of information flow for familiar face perception under perceptual uncertainty. In Bernstein (Computational Neuroscience) Conference, Virtual.
11. Karimi-Rouzbahani, H., Ramezani, F., Woolgar, A., Rich, A., Ghodrati, M., (2020) Representational analysis reveals dynamic information processing for familiar face perception under perceptual uncertainty. In EnCouRage Symposium (Faculty of Medicine, Health and Human Sciences), Macquarie University, Sydney, Australia.
12. Karimi-Rouzbahani, H., Woolgar, A., & Rich, A. (2020) Rare events tend to be missed: can we predict behavioural errors using their neural signatures? In Cognitive Science Society Virtual Meeting (CNS2020), Boston, USA. [Top global conference on Cognitive Neuroscience]
13. Karimi-Rouzbahani, H., Woolgar, A., & Rich, A. (2019) Neural correlates of vigilance decrements: can we use brain decoding to pre-empt behavioural errors? In Australasian Cognitive Neuroscience Society Congress, Tasmania, Australia. [Top Australia and New Zealand conference on Cognitive Neuroscience]
14. Karimi-Rouzbahani, H., Woolgar, A., & Rich, A. (2019) Neural correlates of vigilance decrements: can we use brain decoding to pre-empt behavioural errors? In Human Brain Mapping Conference Australia Section, Newcastle, Australia. [Top Australian conference on Human Brain Mapping]
15. Karimi-Rouzbahani, H., Vahab, E., & Shahmohammadi, M. (2018) Fundamental role of prefrontal cortex in target-detection as revealed by decoding and causality analysis of EEG brain patterns. In Australasian Cognitive Neuroscience Society Congress, Melbourne, Australia. [Top Australia and New Zealand conference on Cognitive Neuroscience]

16. Karimi-Rouzbahani, H. (2017) Interactive processing of object information between peri-occipital and peri-frontal brain areas. In 6th Basic and Clinical Neuroscience Congress. [Top Iranian conference on Neuroscience]
17. Vahab, E., Ebrahimpour, R., & Karimi-Rouzbahani, H. (2017) Contribution of top-down expectation in stimulus-driven category information: an EEG decoding study. In 4th Iranian Human Brain Mapping Congress. [Top Iranian conference on Human Brain Mapping]
18. Karimi-Rouzbahani, H., Ebrahimpour, R., & Bagheri, N. (2016) Role of feed-forward ventral visual cortex in compensating for different variations in core object recognition", In 10th Congress of Federation of European Neuroscience Society. [Top European conference on Neuroscience]
19. Karimi-Rouzbahani, H., Ebrahimpour, R., & Bagheri, N. (2016) Human object recognition relies on a set of dynamical diagnostic features under variations", In 5th Basic and Clinical Neuroscience Congress. [Top Iranian conference on Neuroscience]
20. Shams-Ahmar, M., Karimi, H., Parsa, M., Ebrahimpour, R., & Noudoost, B. (2015) Contributions of response magnitude and variability to the presaccadic enhancement of visual representations. In Society for Neuroscience Conference. [World's number one conference on Neuroscience]
21. Nouri, D. & Karimi, H. (2013) Capability of convolutional neural networks to represent human visual system. In 2nd Basic and Clinical Neuroscience Congress. [Top Iranian conference on Neuroscience]
22. Karimi Rouzbahani, H. & Erfanian, A. (2012) Dynamic modelling of FES-activated walker assisted paraplegic standing. In 1st Basic and Clinical Neuroscience Congress. [Top Iranian conference on Neuroscience]

- **Media engagements**

1. Erfanian, A. & Karimi-Rouzbahani, H. (2018) Faragaam: how the "Parawalk" Neuroprosthesis Enhances Paraplegic Life. Iran Neural Technology Centre (NeuroTekTronix Inc.), Iran. <https://www.aparat.com/v/nNCBj>

Invited presentations:

1. Invited seminar "Model-free vs. model-based representational connectivity analysis: caveats and nuances", **Methods Day, MRC Cognition and Brain Sciences Unit, University of Cambridge**, UK, February, 2022.
2. Invited webinar "Multivariate encoding and decoding", **International School of Comprehensive Brain Signal Analysis**, Iran, February, 2022.
3. Invited webinar "Neural Mechanisms of Cognitive Control", **Sharif Interdisciplinary Schools**, Iran, December, 2021.
4. Invited presentation "Understanding your potentials!", **Paygah Enghelab High School**, Iran, November, 2021.
5. Invited workshop "Computational Cognitive Neuroscience: from neuroimaging to computational modelling of the brain", **Tabriz University**, Iran, March, 2021.
6. Invited webinar "Applications of machine learning in studying human perception and attention", **Monthly Webinar, Amirkabir University of Technology**, Iran, March, 2021.

7. Invited webinar "Neural correlates of vigilance decrements allow the prediction of behavioural misses!", **WTLS, MRC Cognition and Brain Sciences Unit, University of Cambridge**, UK, January, 2021.
8. Invited webinar "Computational Cognitive Neuroscience: from Neuroimaging to Computational Modeling of the Human Brain", **Neuropsychology Association**, Iran, January, 2021.
9. Invited webinar "Dynamics of Information Flow for Familiar Face Perception Under Perceptual Uncertainty", **9th Basic and Clinical Neuroscience Congress, Iran University of Medical Sciences**, Iran, December, 2020.
10. Invited webinar "Informational fMRI-M/EEG fusion and connectivity", **Methods Day, MRC Cognition and Brain Sciences Unit, University of Cambridge**, UK, November, 2020.
11. Invited webinar "Informational fMRI-M/EEG fusion and connectivity", **7th Iranian Human Brain Mapping Congress, Shahid Beheshti University**, Tehran, Iran, November, 2020.
12. Invited webinar "How multi-variate pattern analysis of brain activity can be used to study human cognition", **Science Beam Corp.**, August, 2020.
13. Invited seminar "representational analysis reveals a dynamical information coding for familiar face perception under perceptual uncertainty", Perception in Action Research Centre (PARC), Department of Cognitive Science, **Macquarie University**, Australia, Fall 2020.
14. Invited seminar, AI-enabled Processes (AIP) Research Centre, Department of Cognitive Science, **Macquarie University**, Australia, Fall 2020.
15. Invited seminar "Application of Novel Multivariate Pattern Analyses in Extracting Information about Face Perception and Attention", Department of Computer Engineering, **Shahid Rajaee University**, Tehran, Iran, Summer 2019.
16. Invited seminar "How can development of novel neuroimaging analysis techniques provide insights about human attention and perception", School of Cognitive Sciences, **Institute for Research in Fundamental Sciences (IPM)**, Tehran, Iran, Summer 2019.
17. Invited seminar "Why Monitoring for Rare Events Is Difficult and What Can We Do About It?", Perception in Action Research Centre (PARC), Department of Cognitive Science, **Macquarie University**, Australia, Winter 2019.
18. Invited seminar "Investigating object invariance in the ventral visual stream", **University of Sydney**, Australia, Spring 2018.
19. Invited seminar "How do we recognize objects, regardless of viewpoint, illumination and size? Investigating object invariance in the ventral visual stream", Perception in Action Research Centre (PARC), Department of Cognitive Science, **Macquarie University**, Australia, Spring 2018.
20. Invited seminar "Invariant Object Recognition in Humans: Insights from Underlying Computational Mechanisms to Behavior", School of Cognitive Sciences, **Institute for Research in Fundamental Sciences (IPM)**, Tehran, Iran, Winter 2018.
21. Processing of EEG signals, **Ferdowsi University of Mashhad**, Mashhad, Iran, Summer 2018.
22. EEG/ERP recording, analysis and processing workshop, **National Brain Mapping Lab.**, Tehran, Iran, Winter 2018.
23. Invited lab visit and seminar at Professor Andrew Parker's Lab., Department of Physiology, Anatomy and Genetics, **University of Oxford**, March 2017.
24. EEG recording and analysis workshop, **Science Beam Corp.**, Tehran, Iran, Fall 2017.

25. EEG signal processing workshop, **4th Iranian Human Brain Mapping Conference**, Tehran, Iran, Fall 2017.
26. 2nd EEG recording and analysis workshop, **Shahid Rajaee University**, Tehran, Iran, Winter 2016.
27. 1st EEG recording and analysis workshop, **Shahid Rajaee University**, Tehran, Iran, Winter 2016.

Conference/Symposium/Seminar organization:

- Organizer, Face processing symposium, **8th Iranian Human Brain Mapping Conference**, Iran, 2021.
- Open Science Day, **MRC Cognition and Brain Sciences Unit**, UK, 2021.
- Co-Panel chair, Machine Learning in Neuroscience: Methods and Applications, **9th Basic and Clinical Neuroscience Congress**, Iran, 2020.
- Organizer, MVPA symposium, **7th Iranian Human Brain Mapping Conference**, Iran, 2020.
- Organizer, EEG signal processing workshop, **4th Iranian Human Brain Mapping Conference**, Iran, 2017.

Reviews for grants, journal and conferences (Publisher/Organisation):

- **Human Frontier Science Program Grant (HFSP)**
- **Cerebral Cortex** (Oxford University Press)
- **Cortex** (Elsevier)
- **Neuroscience Research** (Elsevier)
- **NeuroImage** (Elsevier)
- **Behavioural Brain Research** (Elsevier)
- **Cognitive Neurodynamics** (Springer)
- **Brain Sciences** (MDPI)
- **Journal of Comparative Physiology A** (Springer)
- **IEEE Transactions on Cognitive and Developmental Systems** (IEEE)
- **PeerJ** (O'Reilly and SAGE)
- **International Journal of Image and Graphics** (World Scientific)
- **Current Bioinformatics** (Bentham Science)
- **Electronics** (MDPI, Reviewer board member)
- **Sensors** (MDPI)
- **Applied Sciences** (MDPI)
- **IEEE EDOC2021 (AI-PLE 2021 workshop; IEEE)**

Teaching Experience:

Lecturer:

- **Signal Processing and Analysis in Neuroscience**, Fall 2020-Present (School of Cognitive Science, Institute for Research in Fundamental Sciences)

- **Digital Image Processing**, Spring 2018 (Shahid Rajaee University)
- **Biological Signal Processing**, Spring 2018 (Shahid Rajaee University)
- **Statistical Pattern Recognition**, Fall 2017 (Shahid Rajaee University)
- **Microcontrollers**, Fall 2016 (Islamic Azad University, Eastern Tehran branch)
- **Technical English for Students of Electronics**, Fall 2016 (Islamic Azad University, Eastern Tehran branch)
- **Linear Integrated Circuits Lab**, Fall 2016 (Azad Islamic University)
- **Microcontrollers Lab**, Fall 2016 (Azad Islamic University)
- **Computer Architecture Lab**, Fall 2015 (Shahid Rajaee University)
 - Composition of lab instruction book
- **Electronics Lab**, Spring 2015 (Shahid Rajaee University)
- **Technical English for Students of Electronics**, Spring 2015 (Shahid Rajaee University)
- **Linear Control Circuits Lab**, Fall 2014 (Shahid Rajaee University)
- **Microprocessors Lab**, Fall 2014 (Shahid Rajaee University)
- **Technical English for Students of Computer Engineering**, Spring 2014 (Shahid Rajaee University)
- **Linear Control Circuits Lab**, Fall 2013 (Shahid Rajaee University)
- **Microprocessors I**, Fall 2013 (Shahid Rajaee University)
- **Digital Logic Lab**, Fall 2013 (Shahid Rajaee University)
- **Technical English for Students of Electronics**, Spring 2013 (Shahid Rajaee University)
- **Electrical Circuits Lab**, Spring 2013 (Shahid Rajaee University)
- **Microprocessors**, Spring 2013 (Shahid Rajaee University)
 - Composition of lab instruction book
- **Digital Logic Lab**, Spring 2012 (Shahid Rajaee University)
 - Composition of lab instruction book
- **Linear Control Systems Lab**, Fall 2012 (Shahid Rajaee University)
- **Technical English for Students of Computer Engineering**, Spring 2011 (Shamsipour Technical and Vocational College)
- **Technical English for Students of Computer Engineering**, Spring 2011 (Shamsipour Technical and Vocational College)
- **English Course**, Spring 2012- Spring 2014 (Pejvak English Institute)

Teacher assistant:

- **Pulse Generating Circuits**, Spring 2012 (Iran University of Science and Technology)
- **Machine Learning**, Spring 2013 (Shahid Rajaee University)
- **Machine Vision**, Spring 2013 (Shahid Rajaee University)
- **Machine Learning**, Fall 2014 (Shahid Rajaee University)
- **Artificial Neural Networks**, Fall 2014 (Shahid Rajaee University)

Student Supervision:

- **Blake Cogle**, Intern student, Macquarie University, Australia, 2020 (July-Present).
- **MohammadHosein Nikimaleki**, Master student, Shahid Beheshti University, Iran, 2020 (July-Present).

- **Deborah Chan**, PACE student, Macquarie University, Australia, 2019 (August-November).
- **Mozhgan Shahmohammadi**, MSc in Artificial Intelligence, Islamic Azad University, Iran, 2017-2019.
- **Ehsan Vahab**, MSc in Computer Engineering, Qazvin Azad University, Iran, 2018.
- **Hamid Golmohammadi**, MSc in Electrical Engineering, Shahid Rajaei University, Iran, 2014.
- **Robab Fathi**, MSc in Computer Engineering, Shahid Rajaei University, Iran, 2014.
- **Alireza Akhavanpour**, MSc in Computer Engineering, Shahid Rajaei University, Iran, 2014.
- **Davoud Nouri**, BSc in Electrical Engineering, Shahid Rajaei University, Iran, 2013.

Professional experiences and skills:

Internationally recognized proficiency in Neural Engineering and Cognitive Neuroscience (Endorsed by the UK Royal Society and Australian Home Office)

- **Neuroimaging and neural data analysis:** invasive and non-invasive neural data analysis e.g. Magnetoencephalography (MEG), Electroencephalography (EEG), functional Magnetic Resonance Imaging (fMRI), and single-cell and array recording. Expertise in Matlab and Python-based packages for analysis in time, time-frequency (wavelet) domains, Statistical Parametric Mapping (SPM) for fMRI. Neural data clustering, spike sorting, eye-data (saccade) detection, filtering, basic (e.g. PSTH, tuning curve, etc) and advanced (e.g. decoding (read-out), multivariate neural representation, classification, etc) data analysis.
- **Machine Vision:** Expertise in the implementation of Deep Visual Object/Face Recognition Models in Pytorch, TensorFlow and Matlab.
- **Psychophysical/behavioral task design:** behavioral visual task design (e.g. using Matlab's PsychoToolbox, Psychopy, Pavlovia, Gorilla). Behavioural data analysis and modelling e.g. using Drift-Diffusion models, psychometric function analysis, etc.
- **Machine Learning:** Expertise in supervised, unsupervised and semi-supervised Machine Learning algorithms including Deep Convolutional Neural Networks, Artificial Neural Networks (ANN), Deep Belief Networks, Classifiers, Clustering and Reinforcement learning methods as reflected in publications. Classification algorithms such as SVM, Bayesian inference, etc. and feature extraction, selection, fusion etc.
- **Learning and adaptive algorithms implementation:** neural networks (e.g. MLP, RBF, SOM, etc.), adaptive signal processing (e.g. LMS, NLMS, RLS, etc.).
- **Image processing and synthetic object dataset generation:** image filtering, transformation, recognition, as well as synthesizing 3D object models in rendering software such as Blender, etc.
- **Neuromuscular systems modeling and control strategy development:** skeletal and muscular dynamical systems modeling, human kinematics. Adaptive control, sliding mode control and its derivatives such as neuro-sliding, higher order sliding and terminal sliding mode control, fuzzy control.
- **Neuromuscular/Functional Electrical Stimulation (FES) Systems:** experiments on paraplegic human subjects for the recovery of standing capability using FES systems including stimulator, gyroscopic accelerometers, force plate, load cells and other experimental equipment.
- **Scientific software and languages:** Matlab (proficient), C, C++, Python, R, spike sort 3D, Plexon offline spike sorter, Orcad, Proteus, Codevision and ISE.

- **Fluent in English:** having passed the IELTS (6.5/9), TOEFL PBT (585/670) and MCHE/MSRT (85/100) exams.

References:

Professor Anina Rich, PhD

Perception in Action Research Centre (PARC)
Department of Cognitive Science
Macquarie University, Australia
Email: anina.rich@mq.edu.au
Web: <https://researchers.mq.edu.au/en/persons/anina-rich>

Assistant Professor Alexandra Woolgar, PhD

Executive processes group
MRC Cognition and Brain Sciences Unit
University of Cambridge, UK
Email: alexandra.woolgar@mrc-cbu.cam.ac.uk
Web: <https://www.mrc-cbu.cam.ac.uk/people/alexandra.woolgar/>

Professor Reza Ebrahimpour, PhD

Computational-Cognitive Vision Lab.
Department of Computer Engineering
Shahid Rajaee University
P.O.Box:16785-163, Tehran, Iran
Telephone: +98(21) 22970060- ext. 2501
Email: rebrahimpour@sru.ac.ir
Web: <https://www.sru.ac.ir/en/school-of-computer/reza-ebrahimpour/>

Professor Abbas Erfanian, PhD

Iran Neural Technology Research Centre
Department of Biomedical Engineering
Iran University of Science and Technology
Narmak, P. O. Box: 13114-16846, Tehran, Iran
Email: erfanian@iust.ac.ir
Web: <http://www.iust.ac.ir/content/45073/Dr.-Erfanian>