Zahra Rezvani Updated: March2024	Assistant professor Department of computer science, Faculty of mathematical sciences, Alzahra university, Tehran, Iran	Email: zrezvani@alzahra.ac.ir zrezvani@ipm.ir z_rezvani@sbu.ac.ir rezvanizahra@gmail.com Tel: +989393760468 Skype ID: Z Rezvani My Google Scholar

Research Interests:

Artificial Intelligence, Visual Perception, Cognitive Science, EEG and MEG signal processing, Brain Connectivity, Human Brain Mapping, Time series analysis, Visual Perception, Eye-tracking data analysis, Cognitive Modeling, Machine Learning and deep learning.

Education:

- **Assistant professor in computer science department, Alzahra University**

- **Postdoctoral researcher in Artificial Intelligence**
  2021-2023 Institute for Research in Fundamental Sciences (IPM)
  Research project: Humanized Artificial Intelligence: customizing machine learning algorithms to detect like human

- **Research Visit on visual perception**
  2018-2019 Donders center for Neuroscience, Radboad Univerisity
  Supervisor: Prof. Richard van Wezel

- **PhD on Cognitive Modeling (Cognitive Science)**
  2014-2020 ICBS, Shahid Beheshti University (SBU)
  Supervisor: Prof. HR. Pouretemad
  Dr. Ali Katanforoush
  Co-supervisor: Prof. Richard van Wezel
  GPU: 18.61/20
  Thesis title: Computational modeling of perceptual field variables on global/local processing

- **MSc on Computer Science**
  2011-2013 Shahid Beheshti University (SBU)
  Supervisor: Dr. Ali Katanforoush
  GPU: 18.18/20
  Thesis title: Online handwriting recognition by Hidden Markov models

- **BSc on Computer Science**
  2008-2011 Shahid Beheshti University
  GPU: 17.34/20

Languages:

English (advance), German (A2), Arabic (intermediate), Persian (Native) and motivated to learn more languages!

Funded Proposal:

"Computational modeling of perceptual field variables on global/local processing", [PhD Proposal] Ministry of Science, Research and Technology, Student's welfare fund, 2017, Under Supervision of Prof. H. Pouretemad and Dr. A. Katanforoush and co-supervision of Prof. R. van Wezel.

Research Projects:

- "Effect of Perceptual Field Variables on Local–Global Visual Processing", 2020.
- "Eye movement strategy in global-local processing experiments", 2020.
- "Opto-locomotor reflex biases for random dot motion in mice", 2019.
- "Behavioral and cognitive markers of mild cognitive impairment: diagnostic value of saccadic eye movements and Simon task", 2019.
- Co-supervision in "The association between excessive usage of digital devices and attention switching speed with tracing of electrophysiological activity of children's brain",
- "Machine learning Classification of Dyslexic Children based on EEG Features", 2018.
- "Investigating the change in women's satisfaction with depressive symptoms in short-term effects with virtual reality",2018.
- Co-supervision in "Assessing working memory based on the random number generation paradigm: based on complexity theory", 2017.
- "Infant brain network for diagnosing language disorder", 2016.

	• "Face familiarity effects in eye movement", 2016. • "Investigating changes in brain wave patterns during mind-meditation, 2016. • "Investigating the effect of prayer on brain signals", 2016. • "Changes in brain networks during stress and after recovery", 2015. • "Mental state identification from voice", 2014. • "Computational model of working memory based on a random generation paradigm", 2014. • "Online handwriting recognition by Hidden Markov models", Master thesis, 2012.
Expertise in Software:	• MATLAB: Psychtoolbox, EEGlab, ERPlab, Brain Connectivity Toolbox, EEG-EyeTracking Toolbox, Signal Processing Toolbox, Image Processing Toolbox, Fuzzy Logic Toolbox, Statistical Toolbox, Neural Network Toolbox, Machine Learning and Deep Learning Toolbox, Metaheuristic Algorithm Toolbox • C++, Python (Specially machine learning and deep learning), R (many packages), SPSS, CMA2, OpenCV, Latex, Endnote. • Using Linux servers for complex computations
Honors and Awards:	• **"Exceptional Talent Student Title"** from the admissions office of Shahid Beheshti University and exempted from Ph.D. program in Cognitive Science entrance exam as a talent student, [2014]. • **"Exceptional Talent Student Title"** from the admissions office of Shahid Beheshti University and exempted from M.Sc. program in Computer Science entrance exam as a talent student, [2011]. • Defending the doctoral dissertation with excellent degree • Selected as top researcher of the research institute of cognitive and brain science among PhD students [2014-2020] • Top GPU among classmates in BSc, MS and PhD.
Prizes and Grants:	• IBRO school award, 2019. • Granted 6 months' research opportunity for Donders center of neuroscience, Netherlands. • Dr. Shahriari scholarship winner, National Elite Foundation of Iran, 2017. • Paper award winner, Ministry of Science, Research and Technology, student's welfare fund, 2017. • Awarding Traveler Award at the International Conference, 2016. • Top present paper award, 2nd International Conference on Pattern Recognition and Image Analysis (IPRIA), 2015. • Granted Master proposal as advisor, "Multifractal Structures in Correlated Time Series and Its Application in Working Memory", 2015. • Selected for IBRO school award, 2015. • Succeed in big entrance of "National Organization for Development of Exceptional Talents", 2000 and 2003. • Get the title of the "Youngest Photographer" by the Ministry of Culture and the Association of Photographers, 2000. • The third grade elementary school as a leap in the summer of 1998.
Publications:	My Google Scholar
- Journals	• Rezvani, Z., Jamali, N., Katanforoush, A., & Sabokrou, M. (2023). Network Analysis of Informal Social Media Conversations about Autism. Journal of Neurodevelopmental Cognition, 3(1), 16-21. • **Rezvani, Z.,** Shekarizahdeh, S., Sabokrou, M. (2023). Global-Local Processing in Convolutional Neural Networks. (Submitted) • **Rezvani, Z.,** Jamali, N., Katanforoush, A., & Sabokrou, M. (2022). Network Analysis of Informal Social Media Conversations about Autism. Journal of Neurodevelopmental Cognition, 4(1), 16-21. • Sobhani, V., **Rezvani, Z**., Meftahi, G. H., Ghahvehchi-Hosseini, F., & Hatef, B. (2022). The Linear and Nonlinear Indices of Electroencephalography Change in the Stroop Color and Word Test. Modern Rehabilitation, 16(2). • **Rezvani, Z**., Jamali, N., Katanforoush, A., & Pouretemad, H., Sabokrou, M. (2022). Network Analysis of Informal Social Media Conversations about Autism. Journal of Neurodevelopmental Cognition. • Meftahi, Gh., **Rezvani, Z**., Pirzad, G., Sahraei, H., Hatef, B. (2021). Frontiers in Biomedical Technologies, Frontiers in Biomedical Technologies, 8(S1), 10-14. • Kirkels, L. A. M. H., Zhang, W., **Rezvani, Z**., van Wezel, R. J. A., & van Wanrooij, M. M. (2021). Visual motion integration of bidirectional transparent motion in mouse opto-locomotor reflexes. Scientific reports, 11(1), 1-10. • **Rezvani, Z**., Katanforoush, A., van Wezel, R., & Pouretemad, H. (2020). Global and Local Visual Processing: Influence of Perceptual Field Variables, Journal of Basic and Clinical Neuroscience. • **Rezvani, Z**., Katanforoush, A., van Wezel, R., & Pouretemad, H. (2020). Arbitrary Eye Movement Strategies in Global-Local Processing Experiments. Journal of Neurodevelopmental Cognition.

	• **Rezvani, Z.,** Katanforoush, A., & Pouretemad, H. (2020). Global precedence changes by environment: A systematic review and meta-analysis on effect of perceptual field variables on global-local visual processing. Attention, Perception, & Psychophysics, 1-12. • **Rezvani, Z**., Khosrowabadi, R., Seyedebrahimi, A., Meftahi, G. H., & Hatef, B. Alteration of Brain Functional Network and Cortisol Level During Induction and Release of Stress: An EEG Study in Young Male Adults. Basic and Clinical Neuroscience, 0-0. • Zhang, W., **Rezvani, Z.,** van Wezel, R. J., & Kirkels, L. A. (2020). Monocular and binocular opto-locomotor reflex biases for random dot motion in mice. Journal of Vision, 20(2), 6-6. • Chehrehnegar, N., Nejati, V., Shati, M., Esmaeili, M., **Rezvani, Z**., Haghi, M., & Foroughan, M. (2019). Behavioral and cognitive markers of mild cognitive impairment: diagnostic value of saccadic eye movements and Simon task. Aging clinical and experimental research, 31(11), 1591-1600. • van Wezel, R., Zhang, W., **Rezvani, Z.,** & Kirkels, L. (2019, September). Different Motion Integration Mechanisms for Cortical and Subcortical Visual Motion Processing Pathways in Mice. In PERCEPTION (Vol. 48, pp. 25-25). • **Rezvani, Z**., Zare, M., Žarić, G., Bonte, M., Tijms, J., Van der Molen, M. W., & González, G. F. (2019). Machine learning Classification of Dyslexic Children based on EEG Local Network Features. bioRxiv, 569996. • Dimitriadis, S. I., Zare, M., **Rezvani, Z.,** Benasich, A. A., Atkin, K., Lorch, M. P., ... & Beighton, C. (2016). Identification of infants at high familiar risk for language-learning disorders (LLD) by combining machine. • Zare, M., **Rezvani, Z**., & Benasich, A. A. (2016). Automatic classification of 6-month-old infants at familial risk for language-based learning disorder using a support vector machine. Clinical Neurophysiology. • Keshvari, F., **Rezvani, Z**., Ghassemi, F., & Pouretemad, H. (2016). Temporal correlates of intuition and cognitive control in moral decision making in different social contexts. European Psychiatry, 33, S140. • **Z Rezvani**, A Katanforoush, N Sammaknejad, H. Pouretemad (2017), What are the differences in face free viewing when we are at the first glance? In preparation. • Maryam Naderi, Golam Reza Jafari, Vahid Nejati and **Zahra Rezvani** (2017), Multifractal Structures in Correlated Time Series and Its Application in Working Memory, Submitted. • T. Hosseinian, **Z. Rezvani**, M. Saebipour. (2017), Investigating changes in brain wave patterns during mind-meditation.
- Conferences	• Heydari, M., & Rezvani, Z. (2023, November). Challenges and Experiences of Iranian Developers with MLOps at Enterprise. In 2023 7th Iranian Conference on Advances in Enterprise Architecture (ICAEA) (pp. 26-32). IEEE. • Cheshmi, S. S., Mahyar, A., Soroush, A., Rezvani, Z., & Farahani, B. (2023, July). Brain Age Estimation Using Structural MRI: A Clustered Federated Learning Approach. In 2023 IEEE International Conference on Omni-layer Intelligent Systems (COINS) (pp. 1-6). IEEE. • Ghader, M., Farahani, B., Rezvani, Z., Shahsavari, M., & Fazlali, M. (2023, July). Exploiting Federated Learning for EEG-based Brain-Computer Interface System. In 2023 IEEE International Conference on Omni-layer Intelligent Systems (COINS) (pp. 1-6). IEEE. • Jamali, N., Nesari, M., & Rezvani, Z. (2023, July). Exploring social ties in informal conversations about ASD and ADHD: a graph-based approach. In 2023 IEEE International Conference on Omni-layer Intelligent Systems (COINS) (pp. 1-6). IEEE. • **Rezvani, Z.,** Shekarizahdeh, S., Sabokrou, M. (2022). Global-Local Processing in Convolutional Neural Networks. (Submitted to NeurIPS2022) • **Rezvani, Z**., Jamali, N., Katanforoush, A., & Pouretemad, H., Sabokrou, M. (2022). Network Analysis of Informal Social Media Conversations about Autism. Joint symposium of cognitive sciences. • **Rezvani, Z**., Katanforoush, A., van Wezel, R., & Pouretemad, H. (2019). Arbitrary Eye Movement Strategy in Global-Local Processing Experiments, 7th international conference of Basic and Clinical Neuroscience, Tehran, Iran. • van Wezel, R., Zhang, W., **Rezvani, Z**., & Kirkels, L. (2019, September). Different Motion Integration Mechanisms for Cortical and Subcortical Visual Motion Processing Pathways in Mice. In PERCEPTION (Vol. 48, pp. 25-25). • Z Rezvani, B Hatef, R Khosrowabadi (2018), Brain functional connectivity in stress control, Brain Engineering and Computational Neuroscience Conference (BECNC) • **Z Rezvani,** M Zare, M Van der Molen, G Zaric, M Bonte, J Tijms, L Blemort, … (2017), Automatic classification of children with dyslexia using a support-vector machine and EEG resting-state connectivity, 13th International Conference for Cognitive Neuroscience, Amsterdam, Netherland. • M Naderi, **Z Rezvani,** V Nejati, G Jafari (2017), Multifractal structures in correlated time series and its application in working memory, 7th international conference of cognitive science. • **Z Rezvani**, M Zare, GF González (2016), Interrupted Brain Network Topology in Children with Dyslexia: An EEG Study3rd Iranian Human Brain Mapping Congress. • **Z Rezvani**, R Khosrowabadi, B Hatef, H Pouretemad (2016), Automatic classification of infants at familial risk of language learning disorder An EEG Study, Fifth Biennial Conference on Resting-State and Brain Connectivity. • **Z Rezvani,** M Zare, AA Benasich (2016), The roll of brain functional connectivity changes for coping with stressful condition, Fifth Biennial Conference on Resting-State and Brain Connectivity.

	• **Z Rezvani**, B Hatef, R Khosrowabadi (2016), Stress functionally rewires the brain: an EEG base study, 3rd Iranian Human Brain Mapping congress. • Katanforoush, A., & **Rezvani, Z.** (2015, March). Recognition of Farsi handwriting strokes using profile HMM, 2nd International Conference on Pattern Recognition and Image Analysis (IPRIA) (pp. 1-6). IEEE. • **Rezvani, Z.** (2014) Innovative method of particle swarm optimization-based clustering algorithms in wireless sensor networks. The First National Conference on Meta-Heuristic Algorithms and Their Applications in Engineering and Science.
Workshops and schools:	
- Organized	• Fourth Iranian National Informatics Conference, 2023. • Sixth International IPM Advanced School on Computing: Artificial Intelligence, 2022. • Third Iranian National Informatics Conference, 2022. • Fifth International IPM Advanced School on Computing: Artificial Intelligence, 2021. • Research Assistant, "EEG data Analysis for cognitive assessment workshop", 2017. • Research Assistant, Workshop on "Cognitive assessment with Event Related Potential (ERP)", 2016. • Research Assistant, "Combining EEG and eye-tracking workshop (Theory and Practice), 7-8 Nov 2016. • Organizing committee, Summer school for MRI, "The 1st educational program on brain mapping science and technology, Magnetic resonance imaging", Aug 2016, 8 full days. • Workshop Tutor and Organizer, "Design of neuropsychological experiments in MATLAB workshop", 2015. • Workshop Tutor and Organizer, Practical workshops on Basic Matlab, Psychtoolbox, EEGLab.
- Attended	• 2nd IBRO/APRC Bangladesh Associate school of neuroscience, Fundamental of neuroscience, Neural disorder and Neural, 2019. • Workshop on "Writing Scientific Papers in the Field of Brain Mapping ", 2017. • "One Day Psychtoolbox Workshop: Theory and Practice", 2017. • "Deep learning, Theory and practice", 2017. • Research assistant, Psychological Task Development (from construction to analysis), 7-8 Aug 2016. • Summer school for MRI, "The 1st educational program on brain mapping science and technology, Magnetic resonance imaging", Aug 2016, 8 full days. • "ABA Instructor for Autism, Level1", 18-19 May 2016. • "Workshop on R programming", 2016. • "Workshop on Design of statistical experiment", 2016. • Workshop on "Required training on magnetic resonance imaging", 2016. • IBRO Alumna, 1st Tehran IBRO/APRC Associate school of Neuroscience on functional human brain mapping, 2015. • "Designing psychophysics experiment in Psychopy", 2015. • "The A to Z getting published and maximizing your research impact",2015. • "Human Brain Dissection ", 3rd Basic and clinical Neuroscience congress, Oct 2014. • "How to start a scientific research", 2014. • "Writing Scientific Proposal", 2014. • "3rd IPM-NUS Workshop on Computational Biology", 2013. • "Pairwise and multiple sequence alignment", IPM, 2013.
Teaching Experience:	• Data structure, Sharif university, 2022. • Mathematical software 2 (Python), Shahid Beheshti University, 2022. • Mathematical software (MATLAB), Shahid Beheshti University, 2021. • Fundamentals of programming (Python) for BSc students, Shahid Beheshti University, 2021. • Machine learning course for both cognitive science and computer science PhD students, 2016. • Computational algorithms in Bioinformatics course for MSc students of computer science, Shahid Beheshti university, 2010-2018. • Invited Speaker, Neural Network course, Shahid Beheshti university, 2014. • Invited Speaker, computer lab, Shafieh university of Qom, 2012. • Teaching Assistant, Fundamentals of computational theory course, 2010. • Teaching Assistant, Automata and theory of computation course, 2009. • Teaching Assistant, Data structure course, 2008.

Organizing Committee:	• Sientific committee, 13th Iranian and 3rd International Machine Vision and Image Processing Conference (MVIP2024) • Executive committee, Sixth IPM Advanced School on Computing: Artificial Intelligence, 2023. • Executive and Scientific committee, Third Iranian National Informatics Conference, 2023. • Executive committee, Third Iranian National Informatics Conference, 2022. • Executive committee, Fifth IPM Advanced School on Computing: Artificial Intelligence, 2021. • Executive committee, conference of Iranian human brain mapping, 2017. • Executive committee, 1st Tehran IBRO/APRC Associate school of Neuroscience on functional human brain mapping, 2015. • Executive committee, Satellite symposium of "Gateways to entrance field of cognitive science", 6th international conference of cognitive science, 2015. • Website manager, Institute for Cognitive and Brain Sciences (ICBS), 2015-2016. • Refereeing committee, brain and cognition prize of "Ali ibn Abbas Ahwazi", Fourth congress of basic and clinical neuroscience, 2014.
Memberships:	• IPM Artificial Intelligence Laboratory,2020-now. • Student committee of cognitive science and technologies council, 2016-now. • Coursera global translator community, 2015-now. • Iranian society for cognitive science and technology (ISCST), 2014-now. • Office of talented students of Shahid Beheshti university, 2008-now. • The association of photographers of Qom, 2000-now.
References:	• Dr. Mohammad Sabokrou (Postdoc Suupervisor) Assistant Professor of Artificial Intelligence, Institute for Research in Fundamental Sciences (IPM) Email: sabokro@gmail.com Tel: + 98 9102481634 • Prof. Hamid Reza Pouretemad (PhD supervisor) Professor of Clinical Neuropsychology Founder & Head of the Institute for Cognitive and Brain Sciences, Shahid Beheshti University Email: h-pouretemad@sbu.ac.ir, pouretemad.h@gmail.com Tel: + 98 21 22431617 • Dr. Ali Katanforoush (PhD and MSc supervisor) Assistant Professor of Computer Science, Shahid Beheshti University Email: a_katanforosh@sbu.ac.ir, katanfor@gmail.com Tel: + 98 21 29903006 • Prof. Richard van Wezel (PhD Co-Supervisor) Professor in Visual Neuroscience, Radboud University Email R.vanWezel@donders.ru.nl Tel: + 31 24 3614247 • Dr. Marzieh Zare (Co-Author) Postdoctoral Fellow, Computational and Cognitive Neuroscience Lab, University of Montreal Email: marzieh.z.zare@gmail.com