

Kiomars Sharifi

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Education

- 2018 – 2021
Tehran, Iran **Sharif University of Technology (Full Scholarship)**, *M.Sc., Biomedical Engineering* [↗](#)
- **Thesis:** Neural Encoding of Reward Learning: A Deep Learning Study on fMRI Data
 - **Supervisor:** Dr. Ali Ghazizadeh [↗](#)
- 2013 – 2017
Isfahan, Iran **University of Isfahan (Full Scholarship)**, *B.Sc., Biomedical Engineering* [↗](#)
- **Thesis:** Developing BCI Applications for Autism Neurofeedback Treatment
 - **Supervisor:** Dr. Amin Mahnam [↗](#)

Publications

- Sharifi, K.**, Abbaszadeh, M., & Ghazizadeh, A. (2023). Value Pop-out Results from Spatial Enhancement of Object Processing in Prefrontal Cortex. (submitted to COSYNE, Soon accessible on BioRxiv) [↗](#)
- Farmani, S., **Sharifi, K.**, & Ghazizadeh, A. (2023). Cortical and Subcortical Substrates of Minutes and Days-long Object Value Memory in Humans, *BioRxiv*, 2023-3. (In the revision process for Cerebral Cortex) [↗](#)
- Sharifi, K.**, Khoshvishkaie, A., & Ghazizadeh, A. (2021). Value-driven efficient search is accompanied by differential visual processing area for high-vs low-value objects, *Journal of Vision*, 21(9), 2491-2491. [↗](#)
- Alizadehgoradel, J., ... **Sharifi, K.**, ... Nitsche, M.A., & Salehinejad, M.A. (2023). Targeting the prefrontal-supplementary motor network in obsessive-compulsive disorder with intensified electrical stimulation in two dosages: A randomized, controlled trial, *medRxiv* (In the revision process for Translational Psychiatry) [↗](#)
- Hallajian, A.H., ... **Sharifi, K.**, ... & Salehinejad, M.A. (2023). Enhancing Implicit Mentalizing in Autism Spectrum Disorder with Theta-burst Stimulation of the Right Temporoparietal Junction: A Randomized Sham-controlled Double-blind Crossover Study, *Research Square* (Submitted to Autism Research) [↗](#)
- Hallajian, A.H., **Sharifi, K.**, Rostami, R., Vila-Rodriguez, F., Nitsche, M.A, Salehinejad, M.A (2023). Investigating neurocognitive effects of prefrontal stimulation on cognitive deficits in SCZ: a protocol for a randomized sham-controlled tDCS-fMRI study (submitted to BMJ Open)

Research Interests

- Neuroscience (vision, learning, sensorimotor)
- Machine Learning in Neuroscience
- Real-time Computation
- Brain-computer interfaces and Neuroprosthetics
- Signal Processing and Code Implementation

Research Experience

- Jul 2018 – present
Tehran, Iran **Research Assistant**,
Institute for Research in Fundamental Sciences (IPM), School of Cognitive Science [↗](#)
- Bayesian methods in value-based decision-making using Multi-Alternative DDM
 - Reward learning's impact on visual perception and neural representation using deep learning for fMRI data analysis
 - Analysis of visual processing areas in efficient value-oriented search
 - Exploring value learning and memory retention using neuroimaging techniques
- Dec 2020 – Apr 2023
Tehran, Iran **Graduate Student Researcher**,
Centre For Convergent Technologies Research, University of Tehran [↗](#)
- tDCS efficacy in OCD using EEG signal processing and correlation analysis
 - Exploring brain stimulation in schizophrenia cognitive impairment using tDCS-fMR
- Sep 2016 – Apr 2019
Isfahan, Iran **Undergraduate Researcher**, *Isfahan Neurotechnology lab* [↗](#)
- Developed a neuro/biofeedback-based serious game to enhance attention, empathy, and social skills in autistic children

Industrial Experience

- Jun 2019 – Nov 2021
Tehran, Iran
- Co-Founder and Technical Lead, Cardano Trader**
- A startup focused on implementing AI and ML techniques in the Tehran Market.
 - Gathered comprehensive market tick data continuously, employing Umap and HDBScan for temporal clustering of symbols.
 - Utilized diverse ML and DL algorithms, such as Random Forest, CNN, RNN, and Transformer network, to identify price trends as positive or negative over various periods.
- May 2019 – present
Tehran, Iran
- Linux Systems Administrator, Sharif University of Technology, Neuroscience Lab**
- Managing and maintaining servers for MATLAB, AFNI, Python, AI, and remote access

Teaching Experience

- Oct 2019 – present
Tehran, Iran
- Teaching Assistant, Sharif University of Technology**
- **Advanced Neuroscience (Systems and Computational)** [🔗](#) (3 semesters)
 - **Neuroscience Lab** [🔗](#) (2 semesters)
 - **Foundations of systems and computational neuroscience** [🔗](#)
- Aug 2020
Tehran, Iran
- Summer School, Intelligent Learning, held at Institute for Research in Fundamental Sciences (IPM)** [🔗](#)
- Led and organized [🔗](#) a four-day summer school, delivering lectures and workshops on machine learning, deep learning, machine vision, and reinforcement learning.
- Mar 2019
Tehran, Iran
- Workshop, held at the SNS symposium, [audience: MA and PhD students]** [🔗](#)
- Functional MRI, Principles and Practice [🔗](#)
 - Deep Learning in Neuroscience, Advanced Applications [🔗](#)

Skills

Python, OOP, Multiprocessing, Threading, AsyncIO, Sysv-IPC, PyTorch, TensorFlow, OpenCV, SciKit-Learn, SciPy, Requests, Selenium, Redis, Plotly, Dash, PyQt, Tkinter.

MATLAB, Brainstorm, EEGLAB, FieldTrip, SPM, Psychtoolbox, Optimization, Parallel Computing, Signal Processing, Image Processing.

Linux, Shell Scripting, User Management, 3D Remote Access, Networking and firewalls, Logs, Hardware Setup and Troubleshooting, Monitoring.

AFNI, Analysis of Functional NeuroImages [🔗](#)

Selected Course Projects

- Investigation of Cortical Traveling Waves (Phase propagation) in Array Dataset
- Neural Encoding: Leaky Integrate and Fire Model
- Neural Encoding: Population Code and Low Dimensional Embedding
- Tuning Curve and Noise Correlation, Population Coding and Computation
- Implement Kalman Filter Method to Explain Blocking and Unblocking in Conditioning
- Learning the Water Maze: An Example of Generalized Reinforcement Learning
- Simulation of Evidence Accumulation Model and Studying the Relationship Between Accuracy and RT
- Implementing the Model Proposed by Shadlen (2001) for the Interaction Between Area MT and LIP
- Learning to Predict where Humans Look using Eye-Tracking Database
- Study the Sparse Representation of Natural Image Statistics as the Receptive Fields of simple cells in V1
- Simulations in Multivariate Pattern Analysis of fMRI
- Joint Object Detection and Depth Estimation Using DNN
- Matching the 3D CT Scan Image of the Patient's Spine on the Atlas Using Image Registration