Kiomars Sharifi

sharifikiomars@gmail.com kiomarssharifi.github.io kiomars sharifi kiomars sharifi

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

Farmani, S., **Sharifi, K.,** & Ghazizadeh, A. Cortical and subcortical substrates of minutes and days-long object value memory in humans, **Cerebral Cortex**, 2024-1 (PDF)

Alizadehgoradel, J., Molaei, B., Barzegar Jalali, K., Pouresmali, A., **Sharifi, K.,** ... & Salehinejad, M. A. Targeting the prefrontal-supplementary motor network in obsessive-compulsive disorder with intensified electrical stimulation in two dosages: A randomized, controlled trial, ***Translational Psychiatry,*** *2024-1 (Accepted)*

Hallajian, A.H., **Sharifi, K.,** Rostami, R., ... & Salehinejad, M.A. Investigating neurocognitive effects of prefrontal stimulation on cognitive deficits in SCZ: a protocol for a randomized sham-controlled tDCS-fMRI study, 2024-1 (under revision for **PLOS One**)

Hallajian, A. H., Dehghani-Arani, F., Sima, S., Heydari, A., **Sharifi, K.,** ... & Salehinejad, M. A. Enhancing Implicit Mentalizing in Autism Spectrum Disorder with Theta-burst Stimulation of the Right Temporoparietal Junction: A Randomized Sham-controlled Double-blind Crossover Study, 2024-1 (under revision for **iBrain**)

Conference Presentations

Sharifi, K., Abbaszadeh, M., & Ghazizadeh, A. (2024) Value Pop-out Results from Spatial Enhancement of Object Processing in Prefrontal Cortex. **COSYNE** (Forthcoming on BioRxiv)

Farmani, S., **Sharifi, K.,** & Ghazizadeh, A. (2022). Exploring the Neural Bases of Stable Value Learning and Memory of Objects in Humans Using fMRI and EEG, **Journal of Vision**

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**

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
- 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