Tony Muhammad Yousefnezhad   *Resume*

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Short Bio

I am now a Research Associate working with the Department of Computing Science and the Department of Psychiatry at the University of Alberta since January 2024. I am involved with different mental health projects under the supervision of Prof. Russell Greiner and Prof. Andrew Greenshaw. Further, I founded two open-source projects, *viz.*, Easy fMRI, and Easy Data.

My primary research interests lie in developing machine/deep/reinforcement learning for solving real-world big and complex problems. I am now working on the intersection of machine learning and computational neuroscience, where I am translating various machine-learning techniques/concepts for medical professions in Canada, China, Australia, and the U.S.

I have published several theoretical machine-learning papers in prestigious venues such as NeurIPS, AAAI, SIAM SDM, ICDM, and IEEE TCBY, where I developed novel algorithms to address real-world problems. In addition, I collaborate in various applied machine learning studies to analyze (medical) images, texts, audio, and wearable data that are published in journals such as Nature Scientific Report, Neuroinformatics, Journal of Affective Disorders, Frontiers in Psychiatry, etc.

Research Interests

- **Machine Learning:** Multi-View Learning; Representation Learning; Big Data; Deep Learning; Probabilistic, Bayesian, and Causal Models; Natural Language Processing; Energy-based Approaches.
- **Medical Application:** Neuroimage and Health Records Analysis; Disease diagnosis based on text, audio, and wearable data.

Endorsed Skills

- **Programming Languages:** Python, Rust, Javascript, SwiftUI, Bash, MatLab, C, C++.
- **Machine Learning Library:** Scikit-learn, Tensorflow (+Probability, GPflux), JAX, PyTorch, PyWhy, Z3 API, Stable-Baselines3, NLTK.
- **Database:** PostgreSQL, MongoDB, Redis, MySQL, Microsoft SQL, Oracle Database.
- **Neuroscience:** AFNI, FSL, SPM, FreeSurfer, Group ICA, NIfTI.
- **Operating System:** Linux (Arch, Fedora, and Debian), macOS, Windows, Solaris, Cisco IOS.
- **DevOps:** Docker, Kubernetes, CI/CD (GitLab and GitHub), JWT.
- **Cloud Platform:** Amazon AWS, Google Cloud, Microsoft Azure.

Education

- **Ph.D.,** 2018, Computer Science, Nanjing University of Aeronautics and Astronautics
- **M.Sc.,** 2013, Information Technology, Mazandaran University of Science and Technology
- **B.Sc.,** 2010, Computer Engineering, Mazandaran University of Science and Technology

Academic Positions

- **Research Associate**   **Jan/2024–present**
  Departments of Computing Science, and Psychiatry, University of Alberta (full-time job).
- **Postdoctoral Fellow**   **Mar/2019–Jan/2024**
  Department of Computing Science, Faculty of Science, University of Alberta (full-time job).
- **Postdoctoral Fellow**   **Jul/2018–Mar/2019**
  Department of Computer Science and Technology, Nanjing University of Aeronautics and Astronautics (full-time job).

- **Research Assistant** Sep/2014–Jun/2018
  Department of Computer Science and Technology, Nanjing University of Aeronautics and Astronautics (part of my Ph.D. degree).
- **Teacher Assistant** Feb/2015–Sep/2015
  Department of Computer Science and Technology, Nanjing University of Aeronautics and Astronautics, Course: Data Mining (part-time job)
- **Lecturer** Feb/2010–Jul/2014
  Department of Computer Science, Mazandaran University of Science and Technology, Courses: Data Mining, Expert System, Machine Learning, Computer Networks & Lab., Network Operating System & Lab., Microprocessor & Lab., FPGA, VHDL & Verilog (part-time job)

Industrial Experiences

- **Lead Software and Design** Jan/2023–present
  FutureCite (based on my UofA Postdoctoral Fellow position)
  * Under R. Greiner MITACS Grant (for ML DevOps and data analysis)
- **Chief Technology Officer (CTO)** Aug/2013–Aug/2014
  Rasa Ertebatat Soffe Co. (full-time job)
- **Senior Computer Engineer** Feb/2009–Jul/2013
  Rasa Ertebatat Soffe Co. (part-time job)
- **Chief Technology Officer (CTO)** Nov/2006–Aug/2008
  Reza Noor Ltd. (full-time job)

Selected Publications

- **2023,** Functional Alignment-Auxiliary Generative Adversarial Network-based Visual Stimuli Reconstruction via Multi-subject fMRI. IEEE Transactions on Neural Systems and Rehabilitation Engineering.
- **2022,** Detecting Presence of PTSD Using Sentiment Analysis From Text Data. Frontiers in Psychiatry.
- **2021,** Predicting pediatric anxiety from the temporal pole using neural responses to emotional faces. Nature Scientific Reports.
- **2021,** Supervised Hyperalignment for multi-subject fMRI data alignment. IEEE Transactions on Cognitive and Developmental Systems.
- **2020,** Shared Space Transfer Learning for analyzing multi-site fMRI data, NeurIPS.
- **2018,** Gradient Hyperalignment for multi-subject fMRI data alignment, PRICAI.
- **2017,** Deep Hyperalignment, NIPS.
- **2017,** Multi-Region Neural Representation: A novel model for decoding visual stimuli in human brains, SIAM SDM.
- **2017,** Local Discriminant Hyperalignment for multi-subject fMRI data alignment, AAAI.
- **2017,** WoCE: a framework for clustering ensemble by exploiting the wisdom of Crowds theory, IEEE T. Cybernetics.

My personal website provides a complete list of publications and details of my research.

Personal Website