CURRICULUM VITAE

Marjan Rashidi

CORRESPONDENCE

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EDUCATION

University of California, Irvine
Doctor of Science, Ongoing
- Major: Cognitive Neuroscience
  GPA: 3.95

Iran University of Science and Technology
Master of Science, 2019
- Major: Architectural Engineering
  GPA: 3.61

Mazandaran University
Bachelor of Science, 2014
- Major: Architectural Engineering

Pre-University School
Pre-University Certificate and High School Diploma, 2010
- Major: Mathematics and Physics
  GPA: 4

RESEARCH EXPERIENCE

Alzheimer's Disease (AD) Project
Structural Brain Changes in AD Sep. 2024 - Present

- Analyzed white matter tracts of Alzheimer's Disease (AD) patients using the ADNI dataset, employing fiber tracking techniques to compare them with control and Mild Cognitive Impairment (MCI) groups.
- Applied statistical methods to assess differences between groups, contributing to a better understanding of structural brain changes associated with AD.

IndivRobotics Project

Brain Structure and Spatial Navigation Aug. 2021 - Present

- Designed a desktop virtual reality navigation task in Unity.
- Managed participant recruitment and conducted experiments in an immersive virtual reality lab (CAVERN), ensuring adherence to protocols and participant safety.
- Assisted in the collection and analysis of MRI data.
- Analyzed brain structures (including grey matter volume in several brain regions, cortical thickness, and white matter microstructures) using advanced neuroimaging techniques such as Advanced Normalization Tools (ANTs) and Correlational Tractography.
- Investigated the relationships between brain morphology and cognitive functions, with a particular focus on navigational and spatial abilities.
- Investigated the effects of stress and anxiety on human navigation abilities using statistical methods.
- Developed a neural network to predict human spatial abilities based on brain structural data, utilizing brain decoding methods to uncover patterns that link brain structure to cognitive performance.

Neural Network Project

Predicting Trial Types from BOLD Signals Aug. 2024

- Developed a Multi-Layer Perceptron (MLP) model to predict trial types (fearful vs. neutral) based on fMRI BOLD signals from the Human Connectome Project (HCP) emotion dataset.
- Implemented a backward elimination technique for feature selection and model training.

Reinforcement Learning Project

Model-based and Model-free comparisons January – March. 2024

- Explored the performance of model-free and model-based reinforcement learning algorithms in a maze navigation task.
- Implemented Q-learning as a Model-Free algorithm and Q planning as a Model-Based counterpart using Tensorflow/Keras packages in python.

Computational Neuroscience Project

Working Memory and Neural Mechanisms *Se*p – Dec. 2022

- Conducted a study simulating working memory activity during a delay period using a Recurrent Neural Network (RNN) to analyze the persistent activity of prefrontal cortex (PFC) neurons.
- Investigated the effects of different stimulus orientations on neural firing rates in the context of direction selectivity.

WORK EXPERIENCE

Mentoring Dec. 2024 - June 2024

Department of Neurobiology and Behavior

- Mentored undergraduate students on their Undergraduate Research Opportunities Program (UROP) projects, providing guidance and support throughout the research process.
- Conducted weekly meetings to monitor progress, address challenges, and foster students' academic and professional growth.

Teaching Assistant Sep. 2021 - June 2023

Department of Cognitive Sciences

- Led discussions and facilitated engaging classroom activities for students in the *Personality Theory* course.
- Provided academic support and guidance to students, helping them to understand key concepts and improve their performance.
- Led discussions in *Psych Fundamentals* course
- Led discussions in *People in Society* course

ACADEMIC PAPERS

Journal Papers:

1. Rashidi, M., Hegarty, M., Chrastil, ER. (2024). Cortical thickness and gray matter volume supporting object-based and egocentric perspective transformations (preregistered on OSF)

2. Rashidi, M., He, C., Hegarty, M., Chrastil, ER. (2024). The role of chronic stress in spatial navigation in humans (preregistered on OSF)

3. Rashidi, M., Hegarty, M., Chrastil, ER. (2024). Spatial navigation, sex differences, and stress (in prep)

4. Chrastil, ER**.**, He, C., Tu, AS., Munns, ME., Hatamian, N., Starrett, MJ., Rashidi, M., Craig E. L. Stark, Jeffrey L. Krichmar., Hegarty, M. (2024) Individual differences in human navigation ability: Representations, predictors, and strategies (preregistered on OSF)

5. Nelson, M., Munns, ME., He, C., Rashidi, M, Chrastil, ER, and Hegarty, M. (2024) Everyday Spatial Experience, Video Games, and Their Influence on Spatial Abilities (preregistered on OSF)

POSTER PRESENTATIONS

Psychonomic Society Nov. 2024

Upcoming – New York City, New York

Psychonomic Society Nov. 2023

SanFrancisco, California

International Conference on Learning and Memory (LEARNMEM)

Huntington Beach, California April. 2023

TECHNICAL SKILLS

Computer Languages

- Python, R, MATLAB

Other Software

- Microsoft Office, Revit Architecture, AutoCAD, Lumion, Sketchup, Photoshop, Illustrator

PORTFOLIO

https://marjanrsd.github.io/ Aug. 2021- Present

- Web portfolio of personal, professional, and school projects.