Amirhossein **Mesbah**

GRADUATE STUDENT · RESEARCH ASSISTANT

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"Be the change that you want to see in the world."

Education

University of Tehran   *Tehran, Iran*
M.SC. IN ARTIFICIAL INTELLIGENCE AND ROBOTICS   *2020 - present*
- Overall GPA: 19.48/20 (4/4)

University of Tabriz   *Tabriz, Iran*
B.S. IN COMPUTER ENGINEERING   *2016 - 2020*
- Thesis: news scrapping dashboard using Scrappy and Django frameworks for news clustering
- Overall GPA: 18.23/20 (3.79/4)
- 3rd Rank among Graduated Bachelor Students based on Overall GPA among 70 students

Research Interests

Reinforcement Learning	Social Reinforcement Learning
Deep Learning	Theory of Deep Learning
Explainable AI	Adverserial Attacks
Computational Neuroscience	System Neuroscience

Research Experience

Research Assistant   *Tehran, Iran*
COGNITIVE SYSTEMS LAB, UNIVERSITY OF TEHRAN   *2021 - present*
- Compared different methods of Social Reinforcement Learning in a systematic review. (Link)
- Exploring the role of Free Energy and Sub-spaces to find bottleneck states faster.

Publications

Who to follow: A Policy-gradient Social Reinforcement learning Method for Multi-armed bandit   *Reinforcement Learning*
B.KARIMIAN, *A.MESBAH , *E.MIRZAEI , M.NILI, R.HOSSEINI, P.SHARIATPANAHI (* EQUAL CONTRIBUTION)   *2022*
- Submitted

Teaching Experience

Regular Teaching Assistant   *Neuromatch Academy*
UNITED STATES (ONLINE)   *2022*
- Selected as TA for full-time supervision on the learning of 16 students from different countries, and leading 2 research group projects during 3 weeks in English for Computational Neuroscience.

Mentor   *HooshBaaz Summer School*
UNIVERSITY OF TEHRAN, TEHRAN, IRAN   *2022*
- Group collaboration with 7 other mentors for educating 80 students during 14 workshops on Data Analytics and Machine Learning.

Advanced Deep Learning Teaching Assistant   *Dr. Mohammad Amin Sadeghi*
SCHOOL OF ELECTRICAL AND COMPUTER ENGINEERING, COLLAGE OF ENGINEERING, UNIVERSITY OF TEHRAN, TEHRAN, IRAN   *2022*
- Defining 4 advanced projects with collaboration of 3 other TAs.

Interactive Learning Teaching Assistant   *Dr. Majid Nili Ahmadabadi*
SCHOOL OF ELECTRICAL AND COMPUTER ENGINEERING, COLLAGE OF ENGINEERING, UNIVERSITY OF TEHRAN, TEHRAN, IRAN   *2021*
- Reviewed Final Projects of over 10 groups of students and designed homework.

Machine Learning Teaching Assistant *Dr. Mohammad Reza Abolghasemi*

SCHOOL OF ELECTRICAL AND COMPUTER ENGINEERING, COLLAGE OF ENGINEERING, UNIVERSITY OF TEHRAN, TEHRAN, IRAN *2021*

- Designed several assignments for more than 100 students in a 2 groups.

Projects

BigData Projects *2022*

- Launching a real-time data pipeline on the Crypto and Stocks market
- Using Apache Spark for NLP, Social Networks Analysis and dimesionality reduction tasks

Neuroscience Projects *2022*

- Implementing multiple Neural Dynamic models of single cell and population models
- Evaluating Discrete-Time Neural Signals
- Studying Continuous-Time Neural Signals for different data modalities
- Analyzing behavioral data of subjects collected by designing a Psychopy task
- Investigating the role of Imitation and Emulation in Decision Making

Deep Learning & Machine Learning Projects *2022*

- Utilizing federated learning methods (FedAVG, FedADMM) for image segmentation task
- Training Distributed Deep Neural Networks for Fashion MNIST classification
- Implementing Generative Cooperative Network
- Setting up a Machine translation system with transformers (English to Persian)
- Implementing an Image captioning Deep Network
- Performing Semantic segmentation on Camvid Dataset
- Detecting Parkinson disease using signals of speech data with ensemble learning

Reinforcement Learning Projects *2022*

- Implementing Multi-Agent Reinforcement learning algorithms for grid Environment
- Training Deep Reinforcement Learning Agents for turning the forest fires off
- Finding the best route in a network with multi armed bandit algorithms

Skills

Theoretical Experience Statistical Machine learning, Reinforcement Learning, Deep Learning, Design of Algorithms and Databases
Programming & Scripting Python, SQL, HTML, CSS, JavaScript, Matlab, C, C++ and Java and LaTeX
Libraries and Frameworks PyTorch, Tensorflow, Keras, Numpy, Scipy, Scikit-learn, Pandas, BeautifulSoup, NLTK, Opencv,Django and Scrapy

Languages

English *Fluent*
Persian *Native*
Turkish *Native*

Academic Courses

Principles of cognitive science, 19.49/20 *2022*
Massive Data Analysis and Systems, 20/20 *2022*
Data Analysis, 19.5/20 *2021*
Distributed Optimization and Learning (Special Topics in Control Eng), 19/20 *2021*
Biological Computing, 19.6/20 *2021*
Interactive Learning (Special Topics in Control Engineering 1), 18.5/20 *2020*
Machine Learning, 19.9/20 *2020*