

Curriculum Vitae (CV)

Masoud Rahimi

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RESEARCH INTERESTS

Reinforcement Learning	Deep Learning	Artificial Intelligence
User-Personalization	Human-Computer Interaction	Recommendation System
Data Science	Cognitive Science	

EDUCATION

- University of Tehran** Tehran, Iran
Master of Science - Control engineering; GPA: 3.53/4.0 Sep. 2019 - Present
Thesis title: “**Dynamic Difficulty Adjustment** through Reinforcement Learning”
Thesis publication: In Progress - Final phase (data gathering)
Courses: Neural Networks, Pattern Recognition, System Identification, Principles of Cognitive Science, Massive data analysis and systems, Social networks, Nonlinear System Analysis
- Imam Khomeini International University** Qazvin, Iran
Bachelor of Science - Electrical Engineering (Telecommunication) Sep. 2014 - July 2019

RESEARCH EXPERIENCE

- Research assistant at University of Tehran** Tehran, Iran
Advance Robotics and Intelligence Systems Laboratory Aug. 2020 - Present
 - Dynamic Difficulty Adjustment** through Reinforcement Learning in memory game:
 - Formulated a reinforcement learning problem that produces personalized memory tasks based on users’ performance. The RL agent is trained in a simulated RL environment, then in the real world.
 - Defined a measure of difficulty for the visual-spatial-working-memory game.
 - Developed and implemented some algorithms which extract visual-spatial-working-memory features.
 - Implemented a visual-spatial-working-memory game capturing gameplay and gaze data with an eye tracker in Python.
 - Gathered data (In progress)
 - ADHD Screening:** Recruited a hand-eye coordination game whose aim is distinguishing ADHD children from normal children

TEACHING MENTORING EXPERIENCE

- Teacher Assistant of Linear Control Course at University of Tehran** Tehran, Iran
Prepared quiz answers and graded quiz sheets. Sep. 2021 - Feb. 2021
- Teacher and Student Advisor at High School (part-time)** Tehran, Iran
Taught complementary math and physics classes and held motivational counseling sessions. Sep. 2014 - May 2015
- Python programming mentor** Tehran, Iran
Assisted several master’s students in implementing and debugging their theses. Sep. 2019 - Des. 2019
- University National Entrance Exam (Konkoor) mentor** Tehran, Iran
Provided scheduling and time management advice to Konkoor applicants. 2019

PROJECTS

- Honey memory game:** Implemented a visual-spatial-working-memory game that stores gaze data as well as gameplay data. Tech: Pygame, eye tracker.
- Control of a mountain car using reinforcement learning (Reinforcement Learning):** Implemented the actor-critic algorithm from scratch and compared with Stable-baselines3 benchmark. Tech: Python.
- Analysis of Iran stock market data using MongoDB (Big Data):** Designed a pipeline for downloading and storing data, then preprocessing and analyzing it. Tech: Pymongo, MongoDB.
- Analysis of Iran stock market data using Spark (Big Data):** Preprocessed and analyzed data with Pyspark in Google Collaboratory. Tech: Google Collaboratory, Pyspark (Spark Dataframe, Spark SQL, Spark RDD, Spark GraphX).

- **Inserting data into Cassandra (Big Data):** Designed appropriate tables to insert data into tables and queried data using cqlsh. Tech: Cassandra, cqlsh bash.
- **Generative Deep Learning (Deep Learning):** Trained a variational autoencoder (VAE) on MNIST dataset. Tech: Tensorflow, Google Collaboratory.
- **Generative Deep Learning (Deep Learning):** Trained DCGAN, CGAN and InfoGAN on Cifar10 dataset. Tech: Tensorflow, Google Collaboratory.
- **Real-Time clock implementation (Embedded systems):** Prototype and analysis of multiple RTC generator circuits.

SKILLS

- **Programming Languages:** Python, SQL, Matlab, HTML, CSS
- **Python Libraries:** Gym, Stable-baselines3, RLlib, Sklearn, TensorFlow, Keras, Pandas, Numpy, Matplotlib, Pyspark, Pymongo, Snap, NetworkX, igraph, pygame
- **Big data tools:** MongoDB, Cassandra, Elasticsearch, Pyspark, kafka
- **Tools:** GIT, LaTeX, Linux
- **Soft Skills:** Problem Solving, Hard Working, Communication, Team Work, Scheduling, Antipathy
- **Language:** English (proficient), Farsi(native)

TEST SCORES

- **TOEFL:** Oct. 29
- **GRE:** Dec. 1

HONORS AND AWARDS

- Ranked 31^{th} among more than 20000 participants at the University National Entrance Exam (Konkure).
- 3^{rd} rank out of 45 students in high school.

INTERESTS AND HOBBIES

Barbecue, Hiking, Camping
 Football tennis, Swimming, Biking, Badminton
 Board game, Chess, Backgammon
 Coding for fun, Podcast, movie, and series

REFERENCES

- **Hadi Moradi, Full Professor at University of Tehran, School of ECE** Tehran, Iran
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- **Hamed Kebriaei, Associate Professor at University of Tehran, School of ECE** Tehran, Iran
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