

# Curriculum Vitae (CV)

## Masoud Rahimi

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### INTERESTS

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

### EDUCATION

- University of Tehran** Tehran, Iran
  - Master of Science - Control engineering; GPA: 3.53/4.0 (16.2/20)* *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 to produce 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.
      - Implemented a visual-spatial-working-memory game that captures gameplay and gaze data with an eye tracker in Python.
    - ADHD Screening:** Recruited hand-eye coordination game to distinguish 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

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- **Programming Languages:** Python, SQL, Matlab, HTML, CSS
- **Softwares:** Gym, Stable-baselines3, Sklearn, TensorFlow, GIT, LaTeX, MongoDB, Cassandra, Elasticsearch, Pyspark, kafka, NetworkX
- **Soft Skills:** Problem Solving, Hard Working, Communication, Team Work, Scheduling, Antipathy
- **Language:** English (proficient), Farsi(native)

## HONORS AND AWARDS

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- Ranked 31<sup>th</sup> among more than 20000 participants at the University National Entrance Exam (Konkour).
- 3<sup>rd</sup> rank out of 45 students in high school.

## REFERENCES

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- **Hadi Moradi, Full Professor at University of Tehran, School of ECE** Tehran, Iran  
*Email: moradih@ut.ac.ir*
- **Hamed Kebriai, Associate Professor at University of Tehran, School of ECE** Tehran, Iran  
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