

HAFEZ GHAEMI

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Last updated: November 20, 2022

Areas of interest: Reinforcement learning - multi-agent learning and optimization - brain-inspired learning - game theory - computational neuroscience

EDUCATION

M.Sc. | *Computer Engineering, AI and Robotics*

Sep. 2020 – July 2023

University of Tehran,

Current GPA: 18.5/20.0, North American: 3.75/4.0

Tehran, Iran

- **Thesis:** Risk Sensitivity and Cumulative Prospect Theory in Multi-Agent Reinforcement Learning and Markov Games.

Advisors: [Hamed Kebriaei, Ph.D.](#), [Majid Nili, Ph.D.](#)

M.Sc. | *Data Science and Engineering (Program taught in English)*

Sep. 2020 – July 2022

Politecnico di Torino,

GPA: 26.3/30.0 (103/110), North American: 3.7/4.0

Turin, Italy

- **Thesis:** Decentralized Value-Based Reinforcement Learning in Stochastic Potential Games ([link](#))

Advisors: [Fabio Fagnani, Ph.D.](#), [Giacomo Como, Ph.D.](#)

B.Sc. | *Major: Mechanical Engineering, Minor: Computer Engineering*

Sep. 2016 – Sep. 2020

University of Tehran,

Overall GPA: 16.24/20.0 (3.35/4.0), Major: 16.24 (3.3), Minor: 16.26 (3.4)

Tehran, Iran

- **Thesis:** Design and Implementation of a Smart Camera Slider Controller Using Deep Reinforcement Learning ([code](#))

Advisor: [Masoud Shariat Panahi, Ph.D.](#)

PUBLICATIONS

- Mahbod Nouri, Faraz Moradi, **Hafez Ghaemi**, Ali Motie Nasrabadi, Towards real-world BCI: CCSPNet, a compact subject-independent motor imagery framework, Digital Signal Processing, 2022, 103816, ISSN 1051-2004. ([DOI](#)), ([arXiv](#)), ([code](#))
- **Hafez Ghaemi**, Erfan Mirzaei, and Mahbod Nouri, "BioLCNet: Reward-modulated Locally Connected Spiking Neural Networks." International Conference on Machine Learning, Optimization, and Data Science. Springer, Cham, 2022 (**In Press**). ([arXiv](#)) ([code](#))

CONFERENCES

- The 8th International Conference on Machine Learning, Optimization, and Data Science, September 2022, Siena, Italy ([link](#)).
- The 2nd Advanced Course and Symposium on Artificial Intelligence and Neuroscience, September 2022, Siena, Italy ([link](#)).

EXPERIENCE

- Research Assistant** October 2022 – Present
Cognitive Systems Lab, and Smart Networks Lab, School of ECE, University of Tehran Tehran, Iran
• Principal investigators: Hamed Kebriaei, Ph.D, Majid Nili, Ph.D
- Undergraduate Research Assistant** November 2019 – August 2020
Artificial Intelligence in Mechanical Engineering Lab, University of Tehran Tehran, Iran
• Member of the project team developing a mobile application that monitors human neck posture using front camera input and head pose estimation.
• Principal investigator: Masoud Shariat Panahi, Ph.D
- Summer Intern** July 2019 – September 2019
Biorobotics Lab, School of Mechanical Engineering, University of Tehran Tehran, Iran
• Programming educational robots, design of dynamic mechanisms using CAD
- Undergraduate Teaching Assistant** September 2019 – January 2020
Materials Science Course, School of Mechanical Engineering, University of Tehran Tehran, Iran
• Lecturing, solving extra problems, grading homework
• Instructor: Ghader Faraji, Ph.D

SKILLS

Languages: English (fluent), Persian (native), Arabic (basic), Italian (basic)
Programming (ordered by decreasing proficiency): Python, MATLAB, C/C++, SQL, MongoDB, Julia, R, Java
Machine learning frameworks (ordered by decreasing proficiency): PyTorch, Scikit-Learn, Keras, Tensorflow
Other soft and hard skills: Linux, Git, Raspberry Pie, Arduino, Simulink, SolidWorks

CERTIFICATES

- Reinforcement Learning Specialization ([link](#))** October 2021
Coursera, University of Alberta & Alberta Machine Intelligence Institute
- Deep Learning Specialization ([link](#))** May 2021
Coursera
- Graduate Record Examinations (GRE): Q: 170, V: 162, W: 4.00 ([link](#))** November 2019
Educational Testing Service (ETS)
- IELTS Academic: R: 9.0, L: 8.0, W: 7.0, S: 7.0 ([link](#))** October 2021
International English Language Testing System

SELECTED ACADEMIC PROJECTS

- Auditory Attention Task EEG Signal Classifier ([code](#)) | *Python*** Spring 2022
Fifth BCI Competition of Iranian National Brain Mapping Laboratory (NBML)
- Fine-tuning BERT for Multi-lingual Hate Speech Detection and Text Classification ([code](#)) | *Python*** Fall 2021
Deep Natural Language Processing Course, Politecnico di Torino
- A Hybrid Rule-based/Q-learning Hanabi Agent ([code](#)) | *Python*** Fall 2021
Computational Intelligence Course, Politecnico di Torino
- Problems on Flow Optimization, Markov Chains, and Epidemic Models ([code](#)) | *Python*** Fall 2021
Network Dynamics and Learning Course, Politecnico di Torino
- Music Genre Classification using CRNN and Transfer Learning ([code](#)) | *PyTorch*** Spring 2021
Machine Learning and Deep Learning Course, Politecnico di Torino
- Comparison of ML methods for Facial and Emotional Recognition on JAFFE dataset ([code](#)) | *Python*** Spring 2021
Mathematics in Machine Learning Course, Politecnico di Torino
- Stock Portfolio Management Using Deep Q-Learning ([code](#)) | *PyTorch*** Spring 2020
Reinforcement Learning Course, University of Tehran

Applications of Krylov methods, PCA, and SVD in real-world problems (code) Python Computational Linear Algebra Course, Politecnico di Torino	Fall 2021
Waterfilling Power Allocation and LZSS Lossless Compression (code) MATLAB Information Theory Course, Politecnico di Torino	Fall 2021
Object-oriented Design and Implementation of a Basic E-commerce Website (code) C++ Advanced Programming Course, University of Tehran	Fall 2019

AWARDS

Ranked 10 in the 25th Iranian Scientific Olympiad for University Students in Computer Engineering news	Feb. 2021
TOPolito Scholarship Awarded to Politecnico di Torino's top international students	Oct. 2020 - Sep. 2022
Iran's National Elites Foundation Membership Awarded for excellent performance in the Iranian University Entrance Exam	Sep. 2016

RELEVANT COURSES

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| • Machine Learning and Deep Learning (Graduate): 4/4 | • Game Theory (Graduate): 4/4 |
| • Mathematics in Machine Learning (Graduate): 4/4 | • Information Theory (Graduate): 3/4 |
| • Network Dynamics and Learning (Graduate): 4/4 | • Artificial Intelligence (Undergraduate): 4/4 |
| • Reinforcement Learning (Graduate): 4/4 | • Advance Programming (Undergraduate): 4/4 |
| • Introduction to Cognitive Science (Graduate): 4/4 | • Optimization of Mechanical Systems (Undergraduate): 4/4 |
| • Deep Natural Language Processing (Graduate): 4/4 | • Numerical Computation (Undergraduate): 4/4 |
| • Big Data (Graduate): 4/4 | • Engineering Mathematics (Undergraduate): 4/4 |
| • Computational Linear Algebra (Graduate): 4/4 | • Computational Neuroscience (Graduate): Audit |

PERSONAL INTERESTS

Podcasts, classic novels, psychological thrillers and hard sci-fis, philosophy, chess, traveling