

HAFEZ GHAEMI

hafez.ghaemi@studenti.polito.it

ghaemi.hafez@ut.ac.ir

hafezghaemi.com



Last updated: March 6, 2023

Areas of interest: Computational neuroscience - reinforcement learning - game theory - deep learning - multi-agent learning and optimization

EDUCATION

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

Sep. 2020 – July 2023

University of Tehran,

Current GPA (20/32 Credits): 18.8/20.0, North American: 3.85/4.0

Tehran, Iran

- **Thesis:** 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. *: equal contribution. ([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. *: equal contribution. (**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

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|---|---|
| Graduate Teaching Assistant Neural Networks Course, School of ECE, University of Tehran <ul style="list-style-type: none">Instructor: Ahmad Kalhor, Ph.D | February 2023 – July 2023 Tehran, Iran |
| Graduate Teaching Assistant Game Theory Course, School of ECE, University of Tehran <ul style="list-style-type: none">Instructor: Hamed Kebriaei, Ph.D | February 2023 – July 2023 Tehran, Iran |
| Research Assistant Cognitive Systems Lab, and Smart Networks Lab, School of ECE, University of Tehran <ul style="list-style-type: none">Principal investigators: Hamed Kebriaei, Ph.D, Majid Nili, Ph.D | October 2022 – Present Tehran, Iran |
| Undergraduate Research Assistant Artificial Intelligence in Mechanical Engineering Lab, University of Tehran <ul style="list-style-type: none">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 | November 2019 – August 2020 Tehran, Iran |
| Summer Intern Biorobotics Lab, School of Mechanical Engineering, University of Tehran <ul style="list-style-type: none">Programming educational robots, design of dynamic mechanisms using CAD | July 2019 – September 2019 Tehran, Iran |
| Undergraduate Teaching Assistant Materials Science Course, School of Mechanical Engineering, University of Tehran <ul style="list-style-type: none">Lecturing, solving extra problems, grading homeworkInstructor: Ghader Faraji, Ph.D | September 2019 – January 2020 Tehran, Iran |

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

AWARDS

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| 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 |

CERTIFICATES

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

RELEVANT COURSES

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

SELECTED ACADEMIC PROJECTS

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| Distributed Cooperative Multi-Agent Reinforcement-Learning in Markov Games (code) <i>Python</i> | Fall 2022 |
| Distributed Learning and Optimization Course, University of Tehran | |
| Gossip Training for Image Classification with Deep Learning (code) <i>Python</i> | Fall 2022 |
| Distributed Learning and Optimization Course, University of Tehran | |
| Federated Deep Learning for Image Classification (code) <i>Python</i> | Fall 2022 |
| Distributed Learning and Optimization Course, University of Tehran | |
| Auditory Attention Task EEG Signal Classifier (code) <i>Python</i> | 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) <i>Python</i> | Fall 2021 |
| Deep Natural Language Processing Course, Politecnico di Torino | |
| A Hybrid Rule-based/Q-learning Hanabi Agent (code) <i>Python</i> | Fall 2021 |
| Computational Intelligence Course, Politecnico di Torino | |
| Problems on Flow Optimization, Markov Chains, and Epidemic Models (code) <i>Python</i> | Fall 2021 |
| Network Dynamics and Learning Course, Politecnico di Torino | |
| Music Genre Classification using CRNN and Transfer Learning (code) <i>PyTorch</i> | Spring 2021 |
| Machine Learning and Deep Learning Course, Politecnico di Torino | |
| Comparison of ML methods for Facial and Emotional Recognition on JAFFE dataset (code) <i>Python</i> | Spring 2021 |
| Mathematics in Machine Learning Course, Politecnico di Torino | |
| Applications of Krylov methods, PCA, and SVD in real-world problems (code) <i>Python</i> | Spring 2021 |
| Computational Linear Algebra Course, Politecnico di Torino | |
| Stock Portfolio Management Using Deep Q-Learning (code) <i>PyTorch</i> | Fall 2020 |
| Reinforcement Learning Course, University of Tehran | |

PERSONAL INTERESTS

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