

Hafez Ghaemi

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Last updated: February 15, 2024

Areas of interest: Self-supervised learning - deep learning - reinforcement learning - theoretical neuroscience - embodied AI

Education

Ph.D. | Computer Science Aug. 2023 – Present
Mila Quebec - University of Montreal Montreal, Canada

- Advisors: Eilif Muller, Ph.D., Shahab Bakhtiari, Ph.D.

M.Sc. | Computer Engineering, AI and Robotics Sep. 2020 – August 2023

University of Tehran,

GPA: 18.0/20.0, North American: 3.72/4.0 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
Advisor: Masoud Shariat Panahi, Ph.D.

Publications

- Hafez Ghaemi*, Erfan Mirzaei*, and Mahbod Nouri*, BioLCNet: Reward-modulated Locally Connected Spiking Neural Networks. Machine Learning, Optimization, and Data Science: 8th International Workshop, LOD 2022, Certosa di Pontignano, Italy, September 19–22, 2022, Revised Selected Papers, Part II. Cham: Springer Nature Switzerland, 2023. *: equal contribution. ([DOI](#)), ([preprint](#)) ([code](#))
- 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](#)), ([preprint](#)), ([code](#))

In Press

- Hafez Ghaemi, Hamed Kebriaei, Alireza Ramezani Moghaddam, and Majid Nili Ahamdabadi. "Risk-Sensitive Multi-Agent Reinforcement Learning in Network Aggregative Markov Games." (To be presented in AAMAS 2024 Conference), ([preprint](#))

Preprints

- Aurora Saibene, Hafez Ghaemi, and Eda Dagdevir. "Deep Learning in Motor Imagery Eeg Signal Decoding: A Systematic Review." Available at SSRN 4592138. ([DOI](#)), ([preprint](#)), ([code](#))

Experience

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| Research Assistant Architectures of Biological Learning Lab (ABL), University of Montreal | August 2023 – Present Montreal, Canada |
| <ul style="list-style-type: none">• Located at CHU Sainte-Justine Research Center• Principal investigator: Elif Muller, Ph.D | |
| Research Assistant Systems Neuroscience and AI Lab (SNAIL), University of Montreal | August 2023 – Present Montreal, Canada |
| <ul style="list-style-type: none">• Principal investigator: Shahab Bakhtiari, Ph.D | |
| Teaching Assistant Computational Neuroscience Course, Neuromatch Academy | July 2023 and Jan. 2024 |
| Graduate Teaching Assistant School of ECE, University of Tehran | February 2023 – July 2023 Tehran, Iran |
| <ul style="list-style-type: none">• Neural Networks Course, instructor: Ahmad Kalhor, Ph.D• Game Theory Course, instructor: Hamed Kebriaei, Ph.D | |
| Research Assistant Cognitive Systems Lab, and Smart Networks Lab, School of ECE, University of Tehran | October 2022 – August 2023 Tehran, Iran |
| <ul style="list-style-type: none">• Principal investigators: Hamed Kebriaei, Ph.D, Majid Nili, Ph.D | |
| Undergraduate Research Assistant Artificial Intelligence in Mechanical Engineering Lab, University of Tehran | November 2019 – August 2020 Tehran, Iran |
| <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 | |
| Summer Intern Biorobotics Lab, School of Mechanical Engineering, University of Tehran | July 2019 – September 2019 Tehran, Iran |
| <ul style="list-style-type: none">• Programming educational robots, design of dynamic mechanisms using CAD | |
| Undergraduate Teaching Assistant Materials Science Course, School of Mechanical Engineering, University of Tehran | September 2019 – January 2020 Tehran, Iran |
| <ul style="list-style-type: none">• Lecturing, solving extra problems, grading homework• Instructor: Ghader Faraji, Ph.D | |

Skills

Languages: English (fluent), Persian (native), French (intermediate), Italian (basic), Arabic (basic)
Programming (ordered by decreasing proficiency): Python, MATLAB, C/C++, Java, SQL, MongoDB, Julia, R
Deep learning frameworks: PyTorch, Keras/TensorFlow
Miscellaneous: Linux, Git, Raspberry Pie, Arduino, Simulink, SolidWorks

Awards and Honors

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| Ranked 10 in the 25th Iranian Scientific Olympiad for University Students in Computer Engineering | 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 |