

# Hafez Ghaemi

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Last updated: October 13, 2023

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

## Education

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

## Publications

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- 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](#))

## Preprints

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

## Workshop and Conference Attendance

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- Advances in NeuroAI Workshop, October 2023, Mila, Montreal, QC, Canada ([link](#)).
- 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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Research Assistant	August 2023 – Present
Architectures of Biological Learning Lab ( <a href="#">ABL</a> ), University of Montreal	Montreal, Canada
<ul style="list-style-type: none"><li>• Located at <a href="#">CHU Sainte-Justine Research Center</a></li><li>• Principal investigator: <a href="#">Eilif Muller, Ph.D</a></li></ul>	
Research Assistant	August 2023 – Present
Systems Neuroscience and AI Lab ( <a href="#">SNAIL</a> ), University of Montreal	Montreal, Canada
<ul style="list-style-type: none"><li>• Principal investigator: <a href="#">Shahab Bakhtiari, Ph.D</a></li></ul>	
Teaching Assistant	July 2023
Computational Neuroscience Course, <a href="#">Neuromatch Academy</a> , <a href="#">Certificate</a>	
Graduate Teaching Assistant	February 2023 – July 2023
School of ECE, University of Tehran	Tehran, Iran
<ul style="list-style-type: none"><li>• Neural Networks Course, instructor: <a href="#">Ahmad Kalhor, Ph.D</a></li><li>• Game Theory Course, instructor: <a href="#">Hamed Kebriaei, Ph.D</a></li></ul>	
Research Assistant	October 2022 – August 2023
Cognitive Systems Lab, and Smart Networks Lab, School of ECE, University of Tehran	Tehran, Iran
<ul style="list-style-type: none"><li>• Principal investigators: <a href="#">Hamed Kebriaei, Ph.D</a>, <a href="#">Majid Nili, Ph.D</a></li></ul>	
Undergraduate Research Assistant	November 2019 – August 2020
Artificial Intelligence in Mechanical Engineering Lab, University of Tehran	Tehran, Iran
<ul style="list-style-type: none"><li>• Member of the project team developing a mobile application that monitors human neck posture using front camera input and head pose estimation.</li><li>• Principal investigator: <a href="#">Masoud Shariat Panahi, Ph.D</a></li></ul>	
Summer Intern	July 2019 – September 2019
Biorobotics Lab, School of Mechanical Engineering, University of Tehran	Tehran, Iran
<ul style="list-style-type: none"><li>• Programming educational robots, design of dynamic mechanisms using CAD</li></ul>	
Undergraduate Teaching Assistant	September 2019 – January 2020
Materials Science Course, School of Mechanical Engineering, University of Tehran	Tehran, Iran
<ul style="list-style-type: none"><li>• Lecturing, solving extra problems, grading homework</li><li>• Instructor: <a href="#">Ghader Faraji, Ph.D</a></li></ul>	

## Skills

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Languages: English (fluent), Persian (native), French (intermediate), Italian (basic), Arabic (basic)  
Programming (ordered by decreasing proficiency): Python, MATLAB, C/C++, SQL, MongoDB, Julia, R, Java  
Machine learning frameworks: PyTorch, Keras, Scikit-Learn, 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
<a href="#">TOPoliTo Scholarship</a>	Oct. 2020 - Sep. 2022
Awarded to Politecnico di Torino's top international students	
Iran's National Elites Foundation Membership	Sep. 2016
Awarded for excellent performance in the Iranian University Entrance Exam	