

# HAFEZ GHAEMI

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Last updated: January 4, 2023

**Areas of interest:** Game theory - reinforcement learning - multi-agent learning and optimization - computational cognitive neuroscience - deep learning

## 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. \*: 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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- 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

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**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** Feb. 2021  
news
- TOPolito Scholarship** 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

## CERTIFICATES

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- 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

## RELEVANT COURSES

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- 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
- Optimization of Mechanical Systems (Undergraduate): 4/4
- Numerical Computation (Undergraduate): 4/4
- Engineering Mathematics (Undergraduate): 4/4
- Computational Neuroscience (Graduate): Audit

## SELECTED ACADEMIC PROJECTS

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<b>Gossip Training for Image Classification with Deep Learning (<a href="#">code</a>)</b>   <i>Python</i>	Fall 2022
Distributed Learning and Optimization Course, University of Tehran	
<b>Federated Deep Learning for Image Classification (<a href="#">code</a>)</b>   <i>Python</i>	Fall 2022
Distributed Learning and Optimization Course, University of Tehran	
<b>Auditory Attention Task EEG Signal Classifier (<a href="#">code</a>)</b>   <i>Python</i>	Spring 2022
Fifth BCI Competition of Iranian National Brain Mapping Laboratory (NBML)	
<b>Fine-tuning BERT for Multi-lingual Hate Speech Detection and Text Classification (<a href="#">code</a>)</b>   <i>Python</i>	Fall 2021
Deep Natural Language Processing Course, Politecnico di Torino	
<b>A Hybrid Rule-based/Q-learning Hanabi Agent (<a href="#">code</a>)</b>   <i>Python</i>	Fall 2021
Computational Intelligence Course, Politecnico di Torino	
<b>Problems on Flow Optimization, Markov Chains, and Epidemic Models (<a href="#">code</a>)</b>   <i>Python</i>	Fall 2021
Network Dynamics and Learning Course, Politecnico di Torino	
<b>Music Genre Classification using CRNN and Transfer Learning (<a href="#">code</a>)</b>   <i>PyTorch</i>	Spring 2021
Machine Learning and Deep Learning Course, Politecnico di Torino	
<b>Comparison of ML methods for Facial and Emotional Recognition on JAFFE dataset (<a href="#">code</a>)</b>   <i>Python</i>	Spring 2021
Mathematics in Machine Learning Course, Politecnico di Torino	
<b>Applications of Krylov methods, PCA, and SVD in real-world problems (<a href="#">code</a>)</b>   <i>Python</i>	Spring 2021
Computational Linear Algebra Course, Politecnico di Torino	
<b>Stock Portfolio Management Using Deep Q-Learning (<a href="#">code</a>)</b>   <i>PyTorch</i>	Fall 2020
Reinforcement Learning Course, University of Tehran	
<b>Object-oriented Design and Implementation of a Basic E-commerce Website (<a href="#">code</a>)</b>   <i>C++</i>	Fall 2019
Advanced Programming Course, University of Tehran	

## PERSONAL INTERESTS

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