Hafez Ghaemi

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Areas of interest: reinforcement learning - game theory - network science - bio-plausible and brain-inspired learning - neural networks and computational neuroscience

Education

M.Sc. | ***Data Science and Engineering (Program taught in English)*** Sep. 2020 – July 2022
Polytechnic University of Turin,
Current GPA (84 of 110 ECTS): 26.1/30.0, North American: 3.75/4.0 Turin, Italy

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 Physical Implementation of a Smart Camera Slider Using Deep Reinforcement Learning (code), **Advisor**: Dr. Masoud Shariat Panahi

Under Review

- **Ghaemi H**, Mirzaei E, Nouri M, Kheradpisheh SR. BioLCNet: Reward-modulated Locally Connected Spiking Neural Networks. Conference double-blind submission, arXiv preprint (code)
- Nouri M, Moradi F, **Ghaemi H**, Nasrabadi AM. Towards Real-World BCI: CCSPNet, A Compact Subject-Independent Motor Imagery Framework. Submitted to Journal of Biomedical Signal Processing and Control, arXiv preprint (code)

Experience

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: Dr. Masoud Shariat Panahi

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: Dr. Ghader Faraji

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 (TRF: 21IT009723GHAH010A) October 2021
International English Language Testing System

SELECTED ACADEMIC PROJECTS

Fine-tuning BERT for Multi-lingual Hate Speech Detection and Text Classification (code) | ***Python*** Fall 2021
Deep Natural Language Processing Course, Polytechnic University of Turin

A Hybrid Rule-based/Q-learning Hanabi Agent (code) | ***Python*** Fall 2021
Computational Intelligence Course, Polytechnic University of Turin

Problems on Flow Optimization, Markov Chains, and Epidemic Models (code) | ***Python*** Fall 2021
Network Dynamics and Learning Course, Polytechnic University of Turin

Music Genre Classification using CRNN and Transfer Learning (code) | ***PyTorch*** Spring 2021
Machine Learning and Deep Learning Course, Polytechnic University of Turin

Comparison of ML methods for Facial and Emotional Recognition on JAFFE dataset (code) | ***Python*** Spring 2021
Mathematics in Machine Learning Course, Polytechnic University of Turin

Stock Portfolio Management Using Deep Q-Learning (code) | ***PyTorch*** Spring 2020
Interactive Learning Course (Audit), University of Tehran

Applications of Krylov methods, PCA, and SVD in real-world problems (code) | ***Python*** Fall 2021
Computational Linear Algebra Course, Polytechnic University of Turin

Waterfilling Power Allocation and LZSS Lossless Compression (code) | ***MATLAB*** Fall 2021
Information Theory Course, Polytechnic University of Turin

Object-oriented Design and Implementation of a Basic E-commerce Website (code) | ***C++*** Fall 2019
Advanced Programming Course, University of Tehran

AWARDS

TOPolito Scholarship Oct. 2020 - Sep. 2022
Awarded to Polytechnic University of Turin top international students

Iran's National Elites Foundation Membership Sep. 2016
Awarded for excellent performance in the Iranian University Entrance Exam

RELEVANT COURSES

- **Machine Learning and Deep Learning (Graduate):** 4/4
- **Mathematics in Machine Learning (Graduate):** 4/4
- **Network Dynamics and Learning (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
- **Interactive (Reinforcement) Learning (Graduate):** Audit
- **Introduction to Cognitive Science (Graduate):** Audit
- **Computational Neuroscience (Graduate):** Audit

Personal Interests

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