Hafez Ghaemi

hafez.ghaemi@studenti.polito.it

Google Scholar arXiv LinkedIn GitHub

EDUCATION

- **M.Sc., Data Science and Engineering**
  Polytechnic University of Turin
  Scholarship: TOPoliTO
  Current GPA: 25/30 (3.6/4.0)
  September 2020 - Present
- **ASP Multidisciplinary Joint Program**
  Polytechnic University of Milan, Polytechnic University of Turin
  February 2021 - Present
- **Minor in Computer Engineering**
  University of Tehran
  Final GPA: 16.26/20.00 (3.37/4.00)
  February 2019 - September 2020
- **B.Sc., Mechanical Engineering**
  University of Tehran
  Final GPA: 16.24/20.00 (3.30/4.00)
  Thesis: Design and Physical Implementation of a 3-DoF Smart Multiple-face-navigator Camera Slider Using a Deep Q-Network Trained Controller
  Advising Professor: Masoud Shariat Panahi, Ph.D.
  September 2016 - September 2020

FIELDS OF INTEREST

- Machine Learning
- Deep Learning
- Reinforcement Learning
- Brain-Computer Interfaces (BCI)
- Computational Neuroscience

PUBLICATIONS

M. Nouri, F. Moradi, H. Ghaemi, and A.M. Nasrabadi, “Towards Real-World BCI: CCSPNet, A Compact Subject-Independent Motor Imagery Framework”, arXiv preprint arXiv:2012.13567 (Under Review)
December 2020

EXPERIENCE

- **Team Controller and Project Manager**
  ASP Program Project, SmartCars
  Principal academic tutor: Umberto Spagnolini, Ph.D., Full Professor, Department of Electronics, Information, and Bioengineering, Polytechnic University of Milan

- **Undergraduate Research Assistant**
  Artificial Intelligence in Mechanical Engineering (AIME) Lab (Director: Masoud Shariat Panahi, Ph.D., Associate Professor, School of Mechanical Engineering, University of Tehran)
  AI Applications in Mechanical and Control Engineering November 2019 - August 2020

- **Undergraduate Teaching Assistant**
  Materials Science (Lecturing, Solving extra problems, Grading homework)
  Instructor: Ghader Faraji, Ph.D., Assistant Professor, University of Tehran, School of Mechanical Engineering September 2019 - January 2020

INTERNSHIP

- **Summer Internship**
  Artificial Intelligence in Mechanical Engineering (AIME) Lab, University of Tehran, School of Mechanical Engineering
  Project: Developed a CNN-based framework for head pose estimation to be used in a mobile application that warns about poor neck posture when looking at a cellphone. August 2020 – September 2020
- **Summer Internship**
  Biorobotics Lab, School of Mechanical Engineering, University of Tehran
  Tasks: Programming educational robots, Design of dynamic mechanism for robots, Design of robot parts using CAD July 2019 – September 2019

SKILLS

- **Computer Skills and Programming**
  Machine Learning and Deep Learning (scikit-learn, PyTorch, TensorFlow/Keras), Big Data (Apache Hadoop, Apache Spark), Databases (SQL, MongoDB), Python, R, C/C++, OpenCV, Tableau, MATLAB, EEGLAB, Arduino, Verilog, Proteus, MS Project, LaTeX, Adobe Photoshop, SOLIDWORKS
- **Language Skills**
  English: Bilingual Proficiency
  TOEFL IBT (October 19, 2019): 110 (R: 30, L: 30, S: 23, W: 27)
  GRE (November 26, 2019): 332 (Q: 170, V: 162), AW: 4.0
  Italian: Elementary Proficiency
  Arabic: Elementary Proficiency
  Persian: Native
- **Machining and Welding**
  Lathes, Mills, Drill Presses, Arc Welders

RELEVANT COURSEWORK and ACADEMIC PROJECTS

- **Artificial Intelligence, Machine Learning, and Deep Learning**
  - Implemented a CRNN deep learning framework for music genre classification achieving state-of-the-art performance on GTZAN dataset
  - Design and simulation of a smart mobile robot controller for navigation and obstacle avoidance using DDPG algorithm (Group Project)
  - Implemented an unsupervised GAN for image dataset regeneration (tested on multiple Kaggle datasets)
  - Price estimation on a cell phone online shop dataset using Persian natural language processing
  - Developed a recommendation system on a used car website using web scraping and machine learning
- **Object-Oriented Programming and Software Development**
  - Developed a comprehensive bank management program for keeping customers and employees account records and activities
  - Developed an interactive multiplayer graphical game (similar to TankTrouble) using Simple DirectMedia Layer (SDL) and object-oriented design

    - Developed an image processing software for removing fog and haze from pictures using OpenCV (Group Project)
- **Robotics, Control, and Optimization**
    - Designed a PID controller for a dynamic system consisting of a cart and an inverted pendulum, preventing the pendulum from falling using MATLAB & Simulink
    - Designed and simulated a motocross vibration system using MATLAB and Simulink
    - Built and Programmed a sophisticated line follower, obstacle avoiding robot from scratch using Arduino
    - Optimized the mathematical model of a heating system using Genetic Algorithm and Conjugate-Gradients Method by linking MATLAB and ANSYS Fluent (Group Project)
- **Miscellaneous**
    - Design of a MIPS-inspired multicycle pipelined RISC CPU using FSM and Verilog
    - Solved the lid-driven cavity CFD problem using ADI and SIMPLE algorithms in Python (Group Project)
    - Analyzed the motion of a bullet with supersonic speed in water using MATLAB and Abaqus FEA and found correlations between bullet velocity, acceleration, and stresses (Group Project)
    - Conceptually designed an evaporative cooler with 3D models and 2D drawings using SOLIDWORKS

HONORS AND SCHOLARSHIPS

- Granted the 2020/2021 TOPoliTo Scholarship
- Ranked within top 0.1% in the Iranian Graduate University Entrance Exam in both Computer Science and Computer Engineering majors
- Ranked within the top 0.25% (Mathematical Sciences Group) and top 0.1% (Foreign Languages Group) students in the Iranian University Entrance Exam and became a member of Iran's National Elites Foundation due to this outstanding performance (Summer 2016)
- Semi-finalist of Iran's National Olympiad in Mathematics and Informatics for two consecutive years (2015 & 2016)

Certificates

- Deep Learning Specialization – Coursera
- EEG Workshop Certificate – National Brain Mapping Laboratory (NBML), University of Tehran

PERSONAL INTERESTS

Listening to Podcasts, Classic Novels, Hard Sci-Fi and Psychological Thriller Movies & Shows, Philosophy, Chess, Coffee, Travelling, Meditation, Aerobic Exercises