Ali Marjaninejad

U.S. Permanent Resident
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Publications list: Google scholar link

Education:

University of Southern California
Ph.D. Biomedical Eng. GPA: 3.95/4,
Research: AI and Bio-robotics
M.Sc. Electrical Eng. GPA: 3.88/4,
Track: Data Science
Amirkabir University of Tech.
M.Sc. Biomedical Eng. GPA: 4/4,
Track: Signal Processing
Sahand University of Tech.
B.Sc. Electrical Eng. GPA: 3.8/4,
Minor: Biomedical Eng.

Skills:

- **Programming:** Proficient in Python, MATLAB, intermediate in C and R
- **Machine Learning:** Proficient in Gen AI, Supervised, Unsupervised, and Reinforcement Learning and Optimization -- DNN, Decision Making, Clustering, Classification, Regression, Policy and Value based methods, Genetic Algorithm, feature extraction, etc.
- **Hardware design:** Experienced in bio-signal acquisition and amplifiers, analogue filters, PCB design, and microcontrollers

Software and toolboxes:

Pytorch, TensorFlow, Keras, Scikit-learn, Open AI gym and baselines, Numpy, Pandas, SciPy, Matplotlib, and Bokeh libraries, MuJoCo-py, pybullet

AWS Sage maker AI, Bedrock, Rekognition

DSP, DIP, Deep Learning, Optimization, and Statistics toolboxes
+ Simulink

MuJoCo and Bullet physics simulators, PSpice, Eagle Cad, Adobe Illustrator, Adobe Photoshop, Microsoft Office

Related Certifications and Coursework:

Certifications:
- AWS: GenAI with Large Language Models
- DataCamp: Associate data scientist in python
- American Red Cross: Adult First Aid/CPR/AED

Coursework:
- Estimation theory
- Statistical signal processing
- Advanced digital signal processing
- Biological signal processing
- Pattern recognition
- Computational intelligence
- Foundations of Artificial Intelligence
- Advanced studies of the nervous system

Highlights:

- 20+ peer-reviewed publications (400+ citations) including multiple papers in **Nature Machine intelligence** and **Science Advances**; a first-authored research paper being featured on the cover of "Nature Machine Intelligence"), a book chapter in "Springer Nature" Tracts in Advanced Robotics, and IEEE conferences such as IROS and EMBC
- 10+ years of research experience in AIML, Optimization, Signal Processing and Filtering, Bio-inspired systems, Robotics, and Algorithms: Time and Frequency domain analysis, Multimodal signal processing, hardware design, Pattern recognition, Supervised, Unsupervised, and Reinforcement learning

Professional Experiences

- **Applied Scientist – Gen AI at Amazon**.com Inc. (Seattle, Washington, Jan 2025 - Current)
  - Applied research on automizing tasks for real-world problems
  - Utilizing and enhancing multiple Gen AI capabilities such as multimodal, agentic, RAG, distillation, prompt optimization, SLMs, etc.
- **Staff Data Scientist at Ceribell** Inc. (Sunnyvale, California, Sep 2024 – Jan 2025)
- Senior Data Scientist at Ceribell Inc. (Sunnyvale, California, Feb 2022 – Oct 2024)
  - Led multiple projects including ones that required active collaboration with multiple teams (such as the clinical, hardware, and commercial teams) from the idealization step to the FDA submission.
  - Using AI and classic Signal Processing techniques to process, enhance, and make inferences from biological signals, produce meaningful insight into how the pipelines works, and generate resulting statistics
- **Postdoctoral Research Fellow at University of Southern California** (USC, Los Angeles, California, June 2021 – Feb 2022)
  - Developing Life-long Learning, Autonomous Bio-inspired Robotic Systems with Embodied Intelligence
  - Utilizing AI and machine techniques to model and make inference of bio-signals (Brain Computer Interface devices, etc.)
- Internship as a Data Scientist at NovaSignal (Los Angeles, California, formerly: Neural Analytics; Summer 2018)
  - Designed machine learning pipelines and user interface software to enable the team to make data-driven clinical decisions
- Research Assistant at ValeroLab (USC, Los Angeles, California, 2016 – present)

Honors and Awards

- Research contributions has appeared on more than 80 news outlets (including the Wired magazine, PCMag, Wevolver, and VoA)
- Has received several of the most prestigious awards for the scientific and educational contributions during PhD
  - The USC best PhD Dissertation Award (William F. Ballhaus Award)
  - USC Stevens center for innovation's "Best Commercial Potential" award for the work done on bio-inspired autonomous robots
  - The Jenny Wang Excellence in Teaching award
  - The USC Viterbi BME Best Research Assistant award
- Society for Brain Mapping & Therapeutics (SBMT) and BMF Student Outstanding Leadership and Service Award (2019)
- Awarded the Certificate of Appreciation from the Deputy Minister of Science for my active role in the "Bioelectric" journal (awarded as the best national student journal of the year - Iran)

Professional contributions, Services, and Memberships

- Assistant editor of Paladyn, Journal of Behavioral Robotics – De Gruyter
- Chairing the "Brain-machine Interface and Sensory Perception" session at ICONIP (2020)
- Co-chairing the "Biorobotics and Biomechanics & Computational Systems & Synthetic Biology; Multiscale modeling" session at IEEE EMBC (2018)
- President of the student branch of the Society for Brain Mapping & Therapeutics (SBMT) at USC (2019)
- Vice president of the Iranian Graduate Student Association (IGSA) at USC (2016)
- IEEE Student member; Society for Neuroscience (SfN) student member; American Society of Biomechanics (ASB) student member