

Arman Asgharpour Gorloudbari

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Education

- 4.0/4.0 **M.Sc Space Eng.**, *University of Tehran* | Tehran, Iran Sep. 2019 - Sep. 2022
Thesis: **End-to-End Deep Learning Framework for Real-Time Inertial Attitude Estimation using 6DoF IMU**,
- 4.0/4.0 **MBA**, *Academic Center for Education, Culture and Research* | Tehran, Iran Apr. 2019 - Apr. 2020
Project:, AI-based Personalized Medicine.
- 3.8/4.0 **B.Eng. Aircraft Avionics**, *University of Applied Science and Technology* | Tehran, Iran Sep. 2016 - Jun. 2019
Associate Avionics, *Civil Aviation Technology College* | Tehran, Iran Jan. 2013 - Sep. 2016

Publication

- [1] **A. Asgharpour**, M. H. Sabour, "End-to-End Deep Learning Framework for Real Time Inertial Attitude Estimation using 6DoF IMU," *Measurement*, Jun. 2023. [Paper](#) [Code](#)
- [2] **A. Asgharpour**, M. H. Sabour, "Recent Advancements in Deep Learning Applications and Methods for Autonomous Navigation: A Comprehensive Review," *Journal of Field Robotics*, *Under Review* 2023. [Paper](#)
- [3] **A. Asgharpour**, S.A. Đurđević, D.K. Mathur, "The Future of In-Space Manufacturing: A Systematic Review of Emerging Technologies, Trends, and Applications for Sustainable Space Exploration and Off-Earth Colonization," *75th International Astronautical Congress (IAC) 2024*, *Accepted*

Research Experience

- Students' Scientific Research Center, Researcher** Apr. 2023 - Apr. 2024
Persian-LLAMA
• Integrated Persian language into LLAMA framework using LoRA framework via HuggingFace, by assembling and pre-processing Persian text corpus for model training through web crawling. Optimized tokenization pipeline to address Persian linguistic nuances, ensuring seamless integration and enhancing model performance.
- Oxford Machine Learning Summer School, Researcher** May 2023 - Aug. 2023
Deep Learning for Image Classification (Cancer Detection)
• Implemented transfer learning on an imbalanced dataset of 62 labeled images. Employed k-fold cross-validation with weighted sampling for Ensemble Learning, combining four pre-trained classifier models to achieve an accuracy of 82% [[Kaggle](#)].
Ranked 1st in [The Health and Medicine OxML competition track](#)
- University of Tehran, Researcher** Sep. 2019 - Sep. 2023
End-to-End Learning Framework for Inertial Attitude Estimation [[Paper](#)].
• Developed robust learning-based models for real-time inertial attitude estimation which generalized across various sampling rates. Evaluated on seven datasets totaling 120 hours and 200 kilometers of IMU measurements. the proposed approach outperforms traditional algorithms by up to 40% in accuracy [[GitHub](#)].

Skills

Programming	Linux, Python (<i>PyTorch, TensorFlow, Keras</i>), C/C++, MATLAB, Git, LaTeX
Robotics	ROS 1/2, Gazebo, SolidWorks, Inventor, Arduino, Sensor Fusion, Proteus, Altium Designer
Hyperparameter optimization	Grid & Random Search, Population-based Training, Bayesian Optimization, ASHA
Natural Language Processing	LLM, QA Models, BERT, Sentiment Analysis, Text Classification

Academic Services

Supervising

- Thesis Supervisor**, *Aviation Industry Training Center* Sep. 2019 - Sep. 2021
Supervised **five** undergraduate theses.

Teaching

- Co-Instructor**, *TUMS* Sep. 2023 - Present
Course: Application of Technology in Research.
- Teaching Assistant**, *University of Tehran* Sep. 2022 - Sep. 2023
Course: Fuzzy Logic.

Review Activities

- Referee of Research Council**, *Students' Scientific Research Center* Apr. 2019 - Present

Journals

Wiley Journal of Field Robotics

Cambridge University Press The Aeronautical Journal

IEEE Instrumentation & Measurement Magazine

Elsevier Space: Science & Technology

Springer Visual Computing for Industry, Biomedicine, and Art

IEEE Transactions on Instrumentation & Measurement

IEEE Open Access Journal on Circuits and Systems

Elsevier Aerospace Science and Technology

Elsevier Measurement

Conferences

International Federation of Automatic Control (IFAC) World Congress **2023**

American Control Conference (ACC) **2024**

Work Experience

AI Engineer, Farzan Institute

Apr. 2024 - Present

- Fine-tuned Large Language Models (LLMs) for medical and anti-depression applications.
- Developed evaluation models to assess the performance of LLMs for scientific purposes.

Mentor, Space Generation Advisory Council

Nov. 2020 - Present

- Provide targeted guidance, deliver personalized advice, and offer ongoing support to mentees.

Lead AI Engineer, Hotelsazi Darya

Aug. 2023 - Dec. 2023

- Developing a **conversational QA model** to improve customer service by swiftly addressing common queries.
- Employed **QLoRA** to fine-tune Language Models (**BERT, LLAMA, and GPT**) through Hugging Face.

Certificates

8/2023 **AI Programming with Python Nano Degree**, Udacity and Amazon, 3 months

6/2023 **Oxford Machine Learning Summer School**, AI for Global Goals, CIFAR, and the University of Oxford's Deep Medicine Program, 63 hours

6/2023 **University of Colorado Boulder (Coursera)**, Deep Learning Applications for Computer Vision, 20 hours

5/2023 **DeepLearning.AI (Coursera)**, Neural Networks and Deep Learning, 24 hours

8/2022 **Oxford Machine Learning Summer School**, Topics: mathematics of machine learning, neural networks, and probabilistic ML, 48 hours

3/2021 **University of Toronto (Coursera)**, State Estimation and Localization for Self-Driving Cars, 26 hours

Achievements

2023 **Outstanding Reviewer**, IEEE Transactions on Instrumentation & Measurement

2023 **AWS AI & ML Scholarship**, Amazon & Udacity

2023 **Ranked 1st**, OxML Competition Track @ Oxford Machine Learning Summer School

2021 **Appreciated Presenter**, USERN Miniature Talk Competition

2019 **Ranked top 10% in M.Sc. Aerospace Eng.**, National University Entrance Exam

2019 **Ranked 1st in class 2019**, University of Tehran, Dept. Aerospace

Leadership Experience

World Astronomy Week (Iran), Executive Member

Jan. 2017 - Jan. 2023

Astronomy Outreach, University of Tehran, Executive Member

Jan. 2021 - Sep. 2023

Tehran University of Medical Sciences, Executive Member

Jan. 2014 - Jul. 2023

24th Iranian Conference on Health Professions Education

4th Student Education Development Festival

20th, 21st, and 23rd Conference of Annual General Meeting

Universal Scientific Education & Research Network, Executive Member

Jan. 2021 - Jan. 2022

6th International USERN Congress & Prize Awarding Festival and the Health & Art

7th International Festival of Paintings for Pediatric Patients.

University of Tehran, Core Member

Sep. 2019

Climate Change Conference.

References

Dr. Maryam Karbasi Research Group Supervisor m-karbasimotlagh@sina.tums.ac.ir

Dr. Mohammad H. Sabour MSc Supervisor mohammad.sabour@concordia.ca

Prof. Mandana Shirazi Supervisor mshirazi@sina.tums.ac.ir