Arman Asgharpoor Golroudbari

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Education

University of Tehran Sep. 2019 – Sep. 2022
MSc. Space Engineering Tehran, Iran
- **Thesis**: Developing Deep Learning-based Attitude and Heading Estimation Algorithm GPA:4.0/4.0

Academic Center for Education, Culture and Research Apr. 2019 – Apr. 2020
Master of Business Administration (MBA) Machine Tehran, Iran
- **Key Courses**: Project Management, Entrepreneurship Finance, Problem Solving GPA:4.0/4.0

University of Applied Science and Technology Sep. 2016 – Jun. 2019
B.Eng. Aircraft Avionics Technology Tehran, Iran
- **Key Courses**: C, C++, Electronic I, II, III GPA: 3.8/4.0

Civil Aviation Technology College Jan. 2013 – Sep. 2016
Associate Avionics Tehran, Iran
- **Key Courses**: C++, Aircraft Computer, Telecommunications, Navigation Systems, Instrumentation

Publications

- **A. Asgharpoor**, M. H. Sabour, (2023), "End-to-End Deep Learning Framework for Real Time Inertial Attitude Estimation using 6DoF IMU", Measurement, *DOI: 10.1016/j.measurement.2023.113105*.
- **A. Asgharpoor**, M. H. Sabour, (2023), "Recent Advancements in Deep Learning Applications and Methods for Autonomous Navigation: A Comprehensive Review", Journal of Field Robotics, *DOI: 10.22541/au.168664884.43899660 (Under Review)*.
- **A. Asgharpoor**, M. Raissi, (2023), "Solving Inertial Navigation System Equations Using Physics-Informed Neural Networks", IEEE Robotics and Automation Letters, *Work in Progress*.

Research & Industry Experience

Milky Way Program @ Deep Space Initiative Aug. 2023 - Present
Researcher, *A 3-month intensive program focused on Space Transportation Systems*
- Collaborated with interdisciplinary teams on research projects presented
- Gained foundational understanding of the field and contributed to addressing pressing space-related issues

Oxford Machine Learning Summer School May. 2023 – Present
Researcher, *Utilizing deep learning for vision-based breast cancer detection using PyTorch*
- Performed k-fold cross-validation with weighted sampling for Ensemble Learning (EfficientNetV2, InceptionV3, & GoogLeNet)
- **Ranked 1st** in The Health and Medicine OxML competition track [**Kaggle**]

Fuzzy Logic Lab @ University of Tehran Apr. 2023 – Present
Researcher, *Utilizing Deep Neural Networks for Visual Odometry*
- Developed RCNN-based learning framework using KITTI dataset in Python (Keras & PyTorch) [**GitHub**]

Space Lab @ University of Tehran Apr. 2023 – Present
Researcher, *Deep Learning based Inertial Odometry*
- Developed deep learning framework for inertial odometry using OxIOD, RONIN, and RIDI datasets[**GitHub**]
- Utilized Ray and Sherpa for Hyperparameter Optimization (PBT, Grid & Random Search) in Python (Keras & PyTorch)

Department of Aerospace Eng. @ University of Tehran Sep. 2021 – Sep 2022
Researcher, *Quantum Computing and Implementation Method* – [**Appreciated Presentation in MTalk Competition**]
- Review various implementation methods and techniques such as Paul Trap and their applications in space

Fuzzy Logic Lab @ University of Tehran Sep. 2020 – Sep 2022
Researcher, *Deep learning based inertial attitude estimation*
- Developed multiple BiLSTM and hybrid RCNN-based models which enhanced attitude estimation accuracy by 40% [**GitHub**]

Space Lab @ University of Tehran Sep. 2019 – Mar. 2020
Researcher, *CanSat Competition*
- Used OpenCV to implementing an optimized ORB-SURF feature detection algorithm via Raspberry Pi
- Implemented EKF parameter optimization for accurate state estimation

Space Lab @ University of Tehran Sep. 2019 – Sep. 2022
Research Assistant,
- Developed test plans for attitude dynamics and control algorithms for satellite missions using LPC1788
- Improved test bed control accuracy by implementing a custom control algorithm in LabView

Avionics Lab @ Aviation Industry Training Center Oct. 2018 – Sep. 2020
Research Assistant, *Mentored undergraduate students on their thesis project*
- Designed and assembled PCBs for fire extinguisher and Flight Management System (FMS) simulator

Iran Air, Tehran, Iran Sep. 2018 – Nov. 2018
Intern – Aircraft Avionics,
- Checked the aircraft's engine and avionics instruments using Airbus A-320 Aircraft Maintenance Manual (AMM)

Civil Aviation Technology College, Tehran, Iran Sep. 2015 – Jun. 2016
Intern – Aircraft Avionics,
- Overhauled Aero Commander 690 using AMM

Review Experience

Referee of Research Council, Students' Scientific Research Center Apr. 2019 – Present
Analyzed and evaluated research proposals to determine if they are appropriate for funding

Conferences
- **International Federation of Automatic Control (IFAC) World Congress 2023**, 1 Paper

Journals: List: P
- **IEEE Transactions on Instrumentation & Measurement**, 20 Papers
- **The Aeronautical Journal**, 3 Papers
- **Elsevier Aerospace Science and Technology**, 6 Papers
- **Space: Science & Technology**, 2 Papers
- **Elsevier Measurement**, 1 Papers
- **Springer Neural Computing and Applications** , 1 Papers

Work Experience

Mentor @ Space Generation Advisory Council Nov. 2020 - Present
- Provide guidance, give personalized advice, and support to mentees.

Martial Arts Instructor @ Iran Martial Arts Federation Mar. 2016 – Present
- Improve communication skills by teaching students from various backgrounds

Manager @ Arman Imen Passargad Jan. 2013 – Present
- Improve leadership and management skills by working with different people in harsh work environments

Teaching Assistant – Fuzzy Logic Course @ University of Tehran Sep. 2022 – Jan. 2023
- Graduate Level (M.Sc. and Ph.D. Students) – Instructor: Dr. M.H. Sabour
- Developed students' practical skills in programming by designing and supervising projects utilized MATLAB Fuzzy logic toolbox

Instructor @ Aviation Industry Training Center Sep. 2019 – Sep. 2021
- Taught **11 courses** covering electronics, navigation, and aviation to undergraduate students

Thesis Supervisor @ Aviation Industry Training Center Sep. 2019 – Sep. 2021
- Provided guidance and assessment for a cohort of **five undergraduate theses**.

Extra Curricular Activities

Oxford Machine Learning Summer School – 63 Hours June 2023
- **Organized by:** AI for Global Goals, CIFAR, and the University of Oxford's Deep Medicine Program

Oxford Machine Learning Summer School – 48 Hours Aug. 2022
- Covered topics including the mathematics of machine learning, neural networks, and probabilistic ML

USERN Research Week – 6 Courses – 24 Hours Sep. 2021
- Including: 1. Systematic Review, 2. Data Analysis in SPSS, 3. Scientific Writing, 5. Meta-analysis

National Society of Professional Engineers – Bridging the Gap to Leadership Aug. 2021

University of Toronto (Coursera) – State Estimation and Localization for Self-Driving Cars May 2021

Awards & Honors

OxML Competition Track @ Oxford Machine Learning Summer School – Ranked 1st 2023
USERN Miniature Talk Competition – Appreciated Presenter 2021
National University Entrance Exam – Ranked top 10% in M.Sc. Aerospace Engineering 2019
University of Tehran, Dept. Aerospace – Ranked 1st in class 2019

References

Dr. Maryam Karbasi Motlagh m-karbasimotlagh@sina.tums.ac.ir
Dr. Mohammad Hossein Sabour mohammad.sabour@concordia.ca
Dr. Mandana Shirazi mshirazi@sina.tums.ac.ir