

## EDUCATION

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<b>University of Tehran</b> <i>MSc. Space Engineering</i> <ul style="list-style-type: none"><li>• <b>Thesis:</b> Developing Deep Learning-based Attitude and Heading Estimation Algorithm</li></ul>	Sep. 2019 – Sep. 2022 Tehran, Iran GPA:4.0/4.0
<b>Academic Center for Education, Culture and Research</b> <i>Master of Business Administration (MBA)</i> <ul style="list-style-type: none"><li>• <b>Project:</b> Utilizing Deep Learning for Personalized Medicine and Diagnosis</li><li>• <b>Key Courses:</b> Project Management, Entrepreneurship Finance, Problem Solving</li></ul>	Apr. 2019 – Apr. 2020 Tehran, Iran GPA:4.0/4.0
<b>University of Applied Science and Technology</b> <i>B.Eng. Aircraft Avionics Technology</i> <ul style="list-style-type: none"><li>• <b>Key Courses:</b> C, C++, Electronic I, II, III</li></ul>	Sep. 2016 – Jun. 2019 Tehran, Iran
<b>Civil Aviation Technology College</b> <i>Associate Avionics</i> <ul style="list-style-type: none"><li>• <b>Key Courses:</b> C++, Aircraft Computer, Telecommunications, Navigation Systems, Instrumentation</li></ul>	Jan. 2013 – Sep. 2016 Tehran, Iran

## PUBLICATIONS

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- **A. Asgharpour**, 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](https://doi.org/10.1016/j.measurement.2023.113105).
- **A. Asgharpour**, 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](https://doi.org/10.22541/au.168664884.43899660) (Under Review).
- **A. Asgharpour**, (2023), “6-Axis Deep Neural Network Inertial Odometry”, Sensors, *Work in Progress*.

## RESEARCH & INDUSTRY EXPERIENCE

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<b>Oxford Machine Learning Summer School</b> <i>Researcher, Utilizing deep learning for vision-based breast cancer detection using PyTorch</i> <ul style="list-style-type: none"><li>• Performed k-fold cross-validation with weighted sampling for Ensemble Learning</li><li>• Implemented transfer learning with multiple pretrained models (ResNet50, EfficientNetV2, InceptionV3, and GoogLeNet)</li><li>• <b>Ranked 1st</b> in <a href="#">The Health and Medicine OxML competition track</a> [<a href="#">Kaggle</a>]</li></ul>	May. 2023 – Present
<b>Fuzzy Logic Lab @ University of Tehran</b> <i>Researcher, Utilizing Deep Neural Networks for Visual Odometry</i> <ul style="list-style-type: none"><li>• Developed RCNN-based learning framework using KITTI dataset in Python (Keras &amp; PyTorch) [<a href="#">GitHub</a>]</li></ul>	Apr. 2023 – Present
<b>Space Lab @ University of Tehran</b> <i>Researcher, Deep Learning based Inertial Odometry</i> <ul style="list-style-type: none"><li>• Developed deep learning framework for inertial odometry using OxIOD, RONIN, and RIDI datasets [<a href="#">GitHub</a>]</li><li>• Utilized Ray and Sherpa for Hyperparameter Optimization (PBT, Grid &amp; Random Search) in Python (Keras &amp; PyTorch)</li></ul>	Apr. 2023 – Present
<b>Department of Aerospace Eng. @ University of Tehran</b> <i>Researcher, Quantum Computing and Implementation Method – [<a href="#">Appreciated Presentation in MTalk Competition</a>]</i> <ul style="list-style-type: none"><li>• Review various implementation methods and techniques such as Paul Trap and their applications in space</li></ul>	Sep. 2021 – Sep 2022
<b>Fuzzy Logic Lab @ University of Tehran</b> <i>Researcher, Deep learning based inertial attitude estimation</i> <ul style="list-style-type: none"><li>• Developed multiple BiLSTM and hybrid RCNN-based models which enhanced attitude estimation accuracy by 40% [<a href="#">GitHub</a>]</li></ul>	Sep. 2020 – Sep 2022
<b>Space Lab @ University of Tehran</b> <i>Researcher, CanSat Competition</i> <ul style="list-style-type: none"><li>• Used OpenCV to implementing an optimized ORB-SURF feature detection algorithm via Raspberry Pi</li><li>• Implemented EKF parameter optimization for accurate state estimation</li></ul>	Sep. 2019 – Mar. 2020
<b>Fuzzy Logic Lab @ University of Tehran</b> <i>Research Assistant,</i> <ul style="list-style-type: none"><li>• Developed Fuzzy tuned complementary filter for optimized IMU-based attitude estimation</li></ul>	Sep. 2019 – Mar. 2020

**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

**Internship – 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

**Internship – 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**, 10 Papers
- **The Aeronautical Journal**, 3 Papers
- **Aerospace Science and Technology**, 2 Papers

## SKILLS

<b>Programming</b>	ROS, Python ( <i>PyTorch</i> , <i>TensorFlow</i> , <i>Keras</i> ), MATLAB, LaTeX
<b>CAD-CAM</b>	SolidWorks, Inventor, Proteus, Altium Designer
<b>AI</b>	Deep Learning ( <i>LSTM</i> , <i>CNN</i> , <i>TCN</i> ), Hyperparameter Optimization
<b>Language</b>	English ( <i>Fluent</i> ), Persian ( <i>Native</i> )

## TEACHING EXPERIENCE

**Teaching Assistant – Fuzzy Logic Course @ University of Tehran**

Fall 2022

- 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 – 48 Hours**

Aug. 2022

- **Organized by:** AI for Global Goals, CIFAR, and the University of Oxford's Deep Medicine Program
- 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

**MathWorks – MATLAB Onramp**

Oct. 2020

## AWARDS &amp; HONORS

**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](mailto:m-karbasimotlagh@sina.tums.ac.ir)

Dr. Mohammad Hossein Sabour [mohammad.sabour@concordia.ca](mailto:mohammad.sabour@concordia.ca)

Dr. Mandana Shirazimshirazi [shirazimshirazi@sina.tums.ac.ir](mailto:shirazimshirazi@sina.tums.ac.ir)