Arman Asgharpoor Golroudbari

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EDUCATION

Oxford Machine Learning Summer School, University of Oxford   **May. 2023 – Present**
- Organized by AI for Global Goals, CIFAR, and the University of Oxford's Deep Medicine Program
    - Selected among 2000+ applicants from 106+ countries

Oxford Machine Learning Summer School, University of Oxford   **Jun. 2022 – Aug. 2022**
- Attended a 2-week intensive program on machine learning and deep learning
    - Studied topics such as the mathematics of machine learning, neural networks, and probabilistic ML
    - Gained hands-on experience with state-of-the-art machine learning tools and techniques

M.Sc. Space Engineering, University of Tehran, Tehran, Iran   **Sep. 2019 – Sep. 2022**
- Ranked 1st among Iranian Universities   GPA 4.0/4.0
- Thesis: Design and Simulation of Attitude and Heading Estimation Algorithm
    - Optimized attitude estimation's accuracy by utilizing Deep Learning methods (improved conventional filters accuracy up to 40%)
    - Conducted extensive validation procedures to ensure reliability and robustness of the developed end-to-end learning framework
    - Used Ray and Sherpa for Hyperparameter Optimization (PBT, Grid & Random Search) in Python (Keras & PyTorch)

MBA, Academic Center for Education, Culture and Research, Tehran, Iran   **Apr. 2019 – Apr. 2020**
- Project: Utilizing AI for personalized medicine and diagnosis   GPA 4.0/4.0
- **Key Courses:** Project Management, Technology Strategy Management, Entrepreneurship Finance, Problem Solving

B. Eng. Aircraft Avionics Technology, Aviation Industry Training Center, Tehran, Iran   **Sep. 2016 – Jun. 2019**
- University of Applied Science and Technology   GPA 3.8/4.0
- **Selected Coursework:** Used Altium Designer and Proteus for circuit design and programming with C, C++, and the Arduino IDE

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

PUBLICATIONS

1. "End-to-End Deep Learning Framework for Real Time Inertial Attitude Estimation using 6DoF IMU" **A. Asgharpoor**, M. H. Sabour, *Measurement*, arxiv.org/abs/2302.06037, Under Review
2. "Recent Advancements in Deep Learning Applications and Methods for Autonomous Navigation – A Comprehensive Review" **A. Asgharpoor**, M. H. Sabour, *Sensors*, arxiv.org/abs/2302.11089 Work in Progress
3. "6-Axis Deep Neural Network Inertial Odometry" **A. Asgharpoor**, M. H. Sabour, *Expert Systems with Applications*, Work in Progress

SKILLS

Programming	ROS, Python (*Matplotlib, NumPy, Pandas, TensorFlow, Keras*), MATLAB, Arduino, LaTeX
CAD-CAM	SolidWorks, Inventor, Proteus, Altium Designer
AI	Fuzzy Inference System, Deep Learning (*LSTM, CNN, TCN*), PBT Hyperparameter Optimization
Language	English (*Fluent*), Persian (*Native*)

RESEARCH EXPERIENCE

Researcher University of Tehran   **Sep. 2020 - Present**
- Developed Python-based end-to-end deep learning frameworks for inertial odometry and attitude estimation
- Evaluated algorithm performance using conventional attitude estimation methods (KF Family, QUEST, FQA, and CF)

ShadX Team Leader AIAA Aircraft Design Competition   **Aug. 2020**
- Led a graduate team in designing a modern regional jet family

Research Assistant Fuzzy Logic Lab, University of Tehran   **Nov. 2019 - Present**
- Optimized IMU-based attitude estimation by developing Fuzzy tuned complementary filters

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

Researcher CanSat Competition, University of Tehran   **Sep. 2019 - Mar. 2020**

- Improved computer vision accuracy by implementing an optimized algorithm using Raspberry Pi for faster pattern detection
- Optimized navigation and state estimation using sensor fusion techniques from the KF family

Research Assistant Aviation Industry Training Center   **Oct. 2018 - Sep. 2020**

- Mentored undergraduate students to improve their research skills, resulting in successful completion of the research project
- Designed and assembled PCBs: Fire extinguisher and Flight Management System (FMS) simulator

REVIEWING EXPERIENCE

Conferences
- **International Federation of Automatic Control (IFAC) World Congress 2023**, Yokohama, Japan

Journals
- **IEEE Transactions on Instrumentation & Measurement**
- **The Aeronautical Journal**

TEACHING EXPERIENCE

Teaching Assistant University of Tehran   **Fall 2022**

- Fuzzy Logic Course at 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
  - Monitored student progress and provided personalized feedback to ensure their academic success and overall growth

Instructor Aviation Industry Training Center   **Sep. 2018 - Sep. 2020**

- Taught 11 courses covering electronics, navigation, and aviation to undergraduate students

Thesis Supervisor Aviation Industry Training Center   **Sep. 2018 - Sep. 2020**

- Advised and evaluated undergraduate students on their thesis activities. Thesis titles:
  - Design and Implementation of A 3 Axis CNC Machine (Spring 2019 - Fall 2020)
  - Design and Implementation of Pulse Circuits Training Board (Fall 2019 - Fall 2020)
  - Design, Simulate and Build an Aircraft Fire Extinguishing System (Spring 2019 - Fall 2020)
  - Design and Implementation of Retractable Landing Gear (Fall 2018 - Spring 2020)
  - Design and Implementation of A CNC Hot Wire (Fall 2018 - Fall 2019)

INTERNSHIPS

Aircraft Avionics, IranAir, Theran, Iran   **Sep. 2018 – Nov. 2018**

- Checked the aircraft's engine and avionics instruments using Airbus A-320 Aircraft Maintenance Manual (AMM)

Aircraft Avionics, Civil Aviation Technology College, Theran, Iran   **Sep. 2015 – Jun. 2016**

- Overhauled Aero Commander 690 using AMM

WORK EXPERIENCE

Mentor Space Generation Advisory Council   **Nov. 2020 - Present**

- Provided guidance, personalized advice, and support to mentees in SGAC Mentoring Program

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

- Analyzed and evaluated research proposals to determine if they are appropriate for funding

Martial Arts Instructor Iran Martial Arts Federation   **Mar. 2016 – Present**

- Improve communication skills by teaching students from various backgrounds

LEADERSHIP EXPERIENCE

Universal Scientific Education & Research Network   **Jan. 2021 – Jan 2022**

- 6th International USERN Congress & Prize Awarding Festival
  - Served as executive member responsible for R&D, publicity, media, and IT
  - Contributed to the successful organization of the event with more than 1000 participants
- Research Week, Lab Techniques School, and Miniature Talk
  - Served as executive member
  - Helped organize a series of workshops and seminars aimed at enhancing research skills and knowledge

- USERN Health & Art, 7th International Festival of Paintings for Pediatric Patients
  - Served as executive member responsible for event planning and coordination of the event, which showcased the creative talents of pediatric patients and raised awareness about the importance of art therapy

Tehran University of Medical Sciences   Jan. 2014 – May. 2023

- 24th Iranian Conference on Health Professions Education
  - Served as technical assistant and executive committee member
- Inter-professional collaboration in the Covid-19 Era: Pros and Cons
  - Served as executive committee member and responsible for organizing the conference
- 4th Student Education Development Festival
  - Served as executive member responsible for event planning and coordination
- 20th, 21st, and 23rd Conference of Annual General Meeting
  - Served as executive member and contributed to the successful organization of the conference, which brought together researchers, academics, and industry professionals to share their insights and experiences

University of Tehran   Sep. 2019 – Jul. 2020

- Cultural Society KARA
  - Served as a founding board member
- Climate Change Conference
  - Served as organizer responsible for event planning and coordination

World Astronomy Week   Mar. 2017, May. 2022, and Apr. 2023

  - Served as executive member responsible for organizing events aimed at promoting astronomy and space sciences in Tehran, Iran

Civil Aviation Technology College   Jan. 2012 – Sep. 2015

- WaterRocket Competition
  - Served as organizer
- Road & Urban Development & The Related Industries Exhibition
  - Served as executive member
- 3rd, 4th, and 5th International Aviation & Space Industries Exhibition of Iran
  - Served as organizer

Pest Control – Volunteer Work   Jan.2013 – Present

- Kahrizak Nursing Home, Sarai Ehsan Social Victims Center, and Vardavard Welfare
  - Participated in various volunteer activities aimed at improving the lives of vulnerable individuals in the community

CERTIFICATES

USERN Submission & Peer Reviewing, Data Analysis in SPSS, Systematic Review, Scientific Writing, Meta-analysis

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

DeepLearning.AI (Coursera) Neural Networks and Deep Learning

National Society of Professional Engineers Bridging the Gap to Leadership

MathWorks MATLAB Onramp

AWARDS & HONORS

USERN Miniature Talk 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

Iran Martial Arts Federation Black Belt Dan II   2015

Iran Martial Arts Federation National Competitions

- **Gold Medalist** (2011, 2012, 2018, 2019), **Silver Medalist**(2015), **Bronze Medalist** (2016, 2019)

REFERENCES

Mohammad Hossein Sabour
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