

Alireza Alinejad

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Objective

I believe that as AI models continue to evolve, we are closer than ever to achieving a human-like robotic brain. However, this brain needs an advanced, adaptable body to execute actions that genuinely ease human lives. I am driven to explore the creation of such robots, merging intelligent design with purposeful functionality to bridge the Moravec's Paradox gap.

Education

Sharif University of Technology (SUT), B.Sc. in Aerospace Engineering Sep 2021 – Present

- GPA: 3.67 (17.36 out of 20) [Original Transcript]

Areas of Interest



Robotics



Machine Learning



Control & Autonomy



Computer Vision



Swarm Intelligence



Mechatronics

Patents and Publications

C=Conference, J=Journal, P=Patent, S=In Submission, T=Thesis

- [P.1] A. Alinejad, T. Alikhani, S. H. Pourtakdoust, S. M. S. Mousavi. (2025). **Design and Development of a Dragonfly-Inspired Flapping Mechanism**. Iran Intellectual Property Office. Filed: November 2025 (Pending).

Research Projects

- **Dragonfly-Inspired Flapping Wing Micro Air Vehicle (FWMAV)** Aug 2023 – Sep 2025
↪ Tools: SolidWorks, Rapid Prototyping (mostly FDM), Arduino, MATLAB
 - Designed biomimetic flapping mechanism via more than 4 iterative prototyping.
 - Integrated control system for enhanced maneuverability and efficiency.
 - Validated performance through simulations and physical tests.

Academic Experience

- **Aircraft Design, Teaching Assistant** Sep 2025 – Present
↪ Sharif University of Technology (SUT) Instructor: Prof. Afshin Banazadeh
- **Numerical Methods, Teaching Assistant** Sep 2025 – Present
↪ Sharif University of Technology (SUT) Instructor: Dr. Hossein Hashemi Nasab
- **Control Systems Lab, Teaching Assistant** Sep 2024 – Jan 2025
↪ Sharif University of Technology (SUT) Instructor: Prof. Alireza Sharifi
- **Engineering Dynamics, Teaching Assistant** Sep 2023 – Jan 2024
↪ Sharif University of Technology (SUT) Instructor: Prof. Alireza Sharifi



Language Proficiency

- English ⇄ TOEFL iBT: 97 (R24, L28, S24, W21)
- Persian ⇄ Native

Skills

- **Soft Skills:** Problem-Solving, Communication, Teamwork, Critical Thinking
- **Programming Languages:** Python, C++, MATLAB, Simulink, Arduino
- **Data Science & Machine Learning:** Python, TensorFlow, MATLAB
- **Mathematical & Statistical Tools:** MATLAB, EES (Engineering Equation Solver)
- **Other Tools & Technologies:** ROS2, SOLIDWORKS, Linux, \LaTeX
- **Research Skills:** Data Analysis, Statistical Modeling, Literature Review, Experimental Design, Qualitative Research, Quantitative Research

Selected Course Projects

- **Inverted Rotary Pendulum Control with Raspberry Pi** Sep 2025
 ↪ Tools: Raspberry Pi, SSH Protocol, C++
 ◦ Configured Raspberry Pi via SSH for control experiments.
 ◦ Implemented stabilization algorithm for rotary pendulum.
 ◦ Tested system performance in self-directed project.
- **ROS2-Based Mobile Robot Navigation and NAO Robot Interaction** Feb 2025 – Jun 2025
 ↪ Tools: ROS2, Gazebo, TurtleBot3, NAO Robot, CHOREGRAPHE
 ◦ Simulated TurtleBot3 for environment mapping in Gazebo.
 ◦ Deployed code on real robot for autonomous exploration.
 ◦ Programmed NAO for movement and interaction tasks.
- **Reimplementation of MCST Tracking Algorithm** Feb 2025 – Jun 2025
 ↪ Tools: Python, Bi-LSTM Networks, PyTorch
 ◦ Reproduced adaptive tracking model for high-speed targets.
 ◦ Incorporated Bi-LSTM and maneuver compensation unit.
- **Hybrid-Electric STOL Air Taxi Design (DEP System)** Feb 2025 – Jun 2025
 ↪ Tools: MATLAB, OpenVSP, SolidWorks, CS-23 Regulations
 ◦ Engineered hybrid-electric aircraft featuring 10-motor Distributed Electric Propulsion.
 ◦ Conducted full weight and performance sizing, validated aerodynamics via CFD, and optimized powertrain.
 ◦ Designed interior configuration meeting CS-23 airworthiness standards.
- **Amphibious Aircraft Design (RAeS 2024-2025 RfP)** Sep 2024 – Jan 2025
 ↪ Tools: MATLAB, SolidWorks, Analytical Modeling, CS-23 Regulations
 ◦ Developed conceptual design meeting CS-23 standards.
 ◦ Conducted sensitivity and performance analyses.
 ◦ Optimized aerodynamics for operational versatility.
- **Quadrotor Control System Simulation** Feb 2024 – Jun 2024
 ↪ Tools: MATLAB, Simulink, SolidWorks, Simscape 
 ◦ Modeled 6DOF dynamics with PID control strategy.
 ◦ Simulated system for stability validation.
 ◦ Aligned results with robotics precision standards.
- **Cessna 310 Flight Dynamics Analysis** Feb 2024 – Jun 2024
 ↪ Tools: MATLAB, DATCOM
 ◦ Extracted aerodynamic derivatives for stability assessment.
 ◦ Analyzed longitudinal and lateral modes.
 ◦ Validated using computational simulations.
- **Airline Performance Optimization** Sep 2023 – Jan 2024
 ↪ Tools: Python, Data Analysis, Web Scraping 
 ◦ Integrated multi-source metrics via data analytics.
 ◦ Developed predictive models for decision support.
 ◦ Automated web scraping for insights.

Honors and Awards

- **Top Rank** Sep 2021 – Present
 ↳ Sharif University of Technology (SUT)
 - Studying Aerospace Engineering at 1st rank Engineer University in Iran, SUT.
- **Elite National Rank** Jul 2021
 ↳ Iranian Nationwide University Entrance Exam
 - Ranked among the top **0.3%** of participants in the Iranian Nationwide University Entrance Exam.

Professional Memberships

- **Head of Welfare Committee** May 2023 – Sep 2024
 ↳ Aerospace Engineering Department's Student Council, SUT
 - Led the Welfare Committee, overseeing student well-being initiatives.
 - Developed and implemented programs improving student support and resources.
 - Honed leadership, organizational, and communication skills.
- **Environmental Cooperation** Apr 2023 – Dec 2023
 ↳ Association of Environmentalists, SUT
 - I have been associated with multiple programs such as tree-planting, paper waste recycling, etc.
- **Technical Editor** Oct 2022 – Apr 2023
 ↳ Aerospace-Based Trade Magazine, OWJ Publications, SUT
 - Edited multiple magazines for grammatical and scientific accuracy.

Certifications

- **Deep Learning Fundamentals: Unlocking the Power of AI** Aug 2025
- **Artificial Neural Network and Machine Learning using MATLAB** Jul 2024
- **Simulink Onramp** Mar 2024
- **MATLAB Onramp** Nov 2022

References

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