Saeed Karimian Aliabadi

Associate Professor in Aerospace Engineering
Mechanical Faculty, Tarbiat Modares university

Address: Room 318, Mechanical Eng. Faculty,
Tarbiat Modares University, Tehran

Post Box: 14115-111
Tel: +98-21-82884965
Fax: +98-21-82884909
E-mail: Karimian@modares.ac.ir
Saeed81@gmail.com

	Information				
Personal Details	Gender: **Male**	Year of Birth: **1981**	City of Birth: **Shiraz**	Marriage status: **Married**	Nationality: **Iranian**
Educational Records	**2005-2012** Sharif University of Technology, Tehran Ph.D. in Aerospace Engineering, Flight dynamics and Control, GPA: 17.32 (2nd Rank) **2002-2005** Sharif University of Technology, Tehran M. Sc. in Aerospace Engineering, Flight dynamics and Control, 2nd Rank in the aerospace college, GPA: 17.16 (1st Rank) **1998-2002** Sharif University of Technology, Tehran B.Sc. in Aerospace Engineering and Analytical Physics, First Rank in the aerospace college, GPA: 16.98 (2nd Rank) **1994-1998** School of Talented students, Dezfoul Diploma in Mathematics and Physics, First Rank in the region, GPA: 19.80 (1st Rank)				

Thesis Publications	• **Ph.D. Thesis**: Aeroelastic modeling, experimentally validation and stability analysis of a flexible FMAV in planar Flight, supervisor: Dr. S. H. Pourtakdoust, February 2012 • **M. Sc. Thesis**: Computation of 3D Optimized flight path in climb phase of a jet transport aircraft and controller design, supervisor: Dr. A. A. Khayyat, February 2006 • **B. Sc. Thesis**: Estimation of Aerodynamic Forces and Moments for a regional propeller aircraft based on semi empirical methods and code generation, supervisor: Dr. K. Mazaheri, January 2003

Selected Journal Papers	1. S. Rasekh, S. Karimian and M. Hansen, toward improving the performance of a variable pitch vertical axis wind turbine (VP-VAWT), Part 1: Sensitivity analysis using Taguchi-CFD approach, ocean engineering, vol. 279, 2023. 2. S. Rasekh and S. Karimian, toward improving the performance of a variable pitch vertical axis wind turbine (VP-VAWT), Part 2: Multi-objective optimization using NSGA-II with CFD in the loop, ocean engineering, vol. 278, 2023. 3. S. Karimian, S. Rasekh, Effect of Sudden Change in Free Stream Velocity on the Wind Turbine Airfoil Performance Based on Boundary Element Method, journal of engineering analysis with boundary elements, vol. 101, pp 360-370, 2019. 4. S. Karimian and S. Rasekh, effect of platform disturbance on performance of the offshore wind turbine under pitch control, wind energy, vol. 23, pp. 1210-1230, 2020 5. S. Karimian, M. R. Parsa and M. M. Moghadam, Experimental study of flapping-wing aerodynamic coefficients and landing performance estimation, Meccanica, vol. 58, 2023. 6. S. Rasekh and S. Karimian, Effect of solidity on aeroacoustic performance of a vertical axis wind turbine using improved delayed detached eddy simulation, international journal of aeroacoustics, vol. 20, no. 4, 2021. 7. P. Seyedmatin, S. Karimian et.al, Electricity and hydrogen co-production via scramjet multi-expansion open cooling cycle coupled with a PEM electrolyzer, Energy, vol. 199, paper 117364, 2020, doi.org/ 10.1016/j.energy.2020.117364 8. S. Karimian & S. Rasekh, Power and noise performance assessment of a variable pitch vertical axis darrieus type wind turbine, Journal of the Brazilian Society of Mechanical Sciences and Engineering, vol. 43, no. 437, 2021, Doi: 10.1007/s40430-021-03103-4.

	9. S. Karimian and S. Saham, Power and Ventilation Performance Study in a Modified Vertical Axis Wind Turbine Based on Semi-Analytical Approach, international journal of engineering, vol. 36, no. 7, 2023. 10. S. Karimian and Z. Jahanbin, Bond graph modeling of a typical flapping wing micro-air-vehicle with the elastic articulated wings, Meccanica journal (MECC), vol. 55, No. 6, pp. 1263-1294, 2020. 11. S. Karimain and Z. Jahanbin, Aerodynamic Modeling of a Flexible Flapping-Wing Micro-Air Vehicle in the Bond Graph Environment with the Aim of Assessing the Lateral Control Power, proceedings of the institution of mechanical engineer part g-journal of aerospace engineering, vol. 233, No. 13, pp 4998-5015, 2019. 12. Z. Jahanbin and S. Karimain, Modeling and parametric study of a flexible flapping-wing MAV using the bond graph approach, Journal of the Brazilian Society of Mechanical Sciences and Engineering, Vol 40, No 2, pp 96-1:96-19, 2018. 13. S. Karimian and S. Rasekh, Effect of Platform Surge Motion on the Performance of 5MW NREL Offshore Floating Wind Turbine, journal of renewable energy and environment, vol. 6, No. 1, pp. 8-14, 2019 14. S. Karimian and S. M. Sadat, The numerical Study of Aerodynamic Performance of a UAV Discrete Wing with the Morphing Capability, Fluid mechanics and Aerodynamics journal, vol. 10, no. 1, 2021. (in Persian) 15. M. Ahmadi and S. Karimian, Rotor Design and Performance analysis of an airborne constrained wind energy system in flight simulation, Sharif Mechanics journal, vol. 39, no. 2, 2024. (in Persian), doi.org/ 10.24200/j40.2022.60848.1651 16. M. Yadegari, F. Ommi, S. Karimian and Z. Sabouhi, Reducing the aerodynamic noise of the axial flow fan with perforated surface, Applied acoustics, 2023, doi.org/ 10.1016/j.apacoust.2023.109720 17. S. Abed, S. K. Osgouie, S. Karimian and M. Moshfeghi, Numerical study on the effect of weather parameters on corona discharge performance in a horizontal axis wind turbine, international journal of Nonlinear Analysis Applications, doi,10.22075/ijnaa.2022.29450.4170 18. S. Karimian and S. Rezaey, Aerodynamic Modeling and performance study of an INVELOX system containing multiple wind turbines using a semi-analytical approach, journal of renewable energy and environment, vol. 11, No. 1, 2024. 19. S. Karimian and S. Saham, Wind energy potential evaluation and customizing a vertical axis wind turbine based on Iran cities climate, journal of solid and fluid mechanics, vol. 12. No. 5, 2022. (in Persian) 20. S. Karimian and S. Rasekh, The Study of the Effect of Floating Platform Rotational Disturbance on the Aerodynamic Performance of Offshore Wind Turbine in the Presence of Pitch Control System, Amirkabir journal of mechanical engineering, vol. 50, no. 4, 2018. (in Persian)

	21. S. Karimian and M. Yadegari, improving the performance of a vertical axis wind turbine via active and passive flow control methods and comparison, Sharif mechanics journal, vol. 36, no. 3, 2020. (in Persian) 22. M. Asghari, S. Karimian and M. Hashemi, study the effect of suction flow control on aerodynamic performance of a horizontal axis wind turbine based on 2D numerical results, Sharif mechanics journal, vol. 37, no. 1, 2021. (in Persian) 23. M. Alaee, S. Karimian and F. Ommi, sensitivity analysis and optimization of delta wing design parameters using CFD based response surface method, Journal of applied fluid mechanics, vol. 12, no. 6, pp 1885-1903, 2019. 24. S. Rasekh, S. Karimian and M. Hoseinidoust, comparing the numerical and semi empirical approach in dynamic stall modeling, journal of mechanic modares, vol. 18, no 3, pp 282-290, 2018 (in Persian). 25. S. Rasekh, M. Hoseinidoust, S. Karimian, Accuracy of dynamic stall response for wind turbine airfoils based on semi-empirical and numerical methods, journal of applied fluid mechanics, Vol. 11, no 5, pp 1287-1296, 2018. 26. S. Abed, S. Karimian, S. K. Osgouie, and M. Moshfeghi, Numerical study of the effect of adding corona discharge based on plasma actuator on flow control performance in a horizontal axis wind turbine with rough surfaces, journal of modeling in engineering, vol. 21, no. 74, 2024. (in Persian), doi.org/ 10.22075/jme.2023.29367.2382. 27. S. Karimian and S. Rezaey, modeling of a invelox wind energy system based on numerical results and semi analytical approach, Sharif mechanics journal, vol. 38, No. 3, 2022. (in Persian) 28. S. Abed, S. Karimian, S. K. Osgouie, and M. Moshfeghi, Numerical Study of the Effect of Corona Discharge on Upward Wake Flow in the Horizontal Axis Wind Turbine Farm, Journal of Applied Fluid Mechanics, vol. 18, no. 1, pp 32-44, 2025, doi: 10.47176/jafm.18.1.2547 29. M. Moradi, S. Karimian and F. Ommi, Numerical Study of the Effect of Spray Geometric Parameters on Fuel Flow and Air Core in Open-end Pressure-swirl Atomizer, journal of aerospace mechanics, vol. 18, no. 3, 2022. (in Persian) 30. S. Karimian and S. Rezaey, Design and performance study of a horizontal wind turbine inside the INVELOX system using modified blade element momentum theory, journal of mechanical engineering, Tabriz university, vol. 52, no. 2, 2021. (in Persian) 31. S. Saham and S. Karimian, Localization and aerodynamic improvement of an urban-scale vertical axis wind turbine with respect to the climate of Sistan, journal of aerospace science and technology, vol. 15, no. 2, 2022. 32. S. Karimian and F. Ahmadpour, Multi objective optimization of the performance of a small size horizontal axis wind turbine based on

	NSGA-II, journal of mechanical engineering, Tabriz university, vol. 50, no. 4, 2020. (in Persian) 33. M. Alaee, F. Ommi, S. Karimian, evaluation of the numerical approach in estimation of the aerodynamic coefficients of an air based career Delta wing, journal of mechanic modares, Vol 17, no 9, pp 237-244, 2017 (in Persian). 34. S. Karimian and A. Ebrahimi, parametric study for kinematic optimization of flapping wing air vehicle using a new aeroelastic model, Modares mechanical engineering journal, volume 14, No 9, pages 73-80, 2014 (in Persian). 35. S. Karimian and A. Ebrahimi, modeling of propulsion system in a flapping vehicle and parametric study, Iranian journal of aerospace propulsion, volume 1, No 1, pages 89-96, 2014 (in Persian). 36. H. Pourtakdoust and S. Karimian, Performance Analysis of the flapping wing air vehicle based on a new aeroelastic model, Journal of system design and dynamics JSME, volume 6, No 1, pages 1-16, 2012. 37. H. Pourtakdoust and S. Karimian, Evaluation of the Flapping Wing Propulsion based on a new experimentally validated aeroelastic model, Scientia Iranica journal of mechanical system, vol. 19, No 3, pages 472-482, 2012. 38. S. Karimian and M. Parsa, a new Analytical model for trajectory and control synthesis of the flapping air vehicle in landing phase, Meccanica, MECC-D-23-00637, submitted and under review, 2024. 39. H. Rezaei, S. Karimian, Experimental study of the functional characteristics of a flapping wing with combined bulk and membrane parts, Journal of Applied Fluid Mechanics, JAFM-2312-2547, revision submitted. 40. K. Mazaheri, A. Ebrahimi and S. Karimian, Performance Analysis of a Flapping Wing Vehicle based on Experimental Aerodynamic Data, Journal of Aerospace Engineering ASCE, volume 25, No 1, pages 1-7, 2012. 41. H. Pourtakdoust, S. Karimian et.al, Experimental Analysis of a Flapping Aeroelastic Wing and Derivation of Generalized Curves, Journal of Aeronautical Engineering, volume 14, No 1, pages 13-25, 2012 (in Persian). 42. S. Karimian and M. Azimi, Periodic Solution for Vibration of Euler-Bernoulli Beams Subjected to Axial Load Using DTM and HA, Scientific Bulletin Series D, volume 76, Issue 2, pages 69–76, 2014. 43. M. Azimi, A. Hedesh and S. Karimian, Flow modeling in a porous cylinder with regressing walls using semi analytical approach, int. journal of Multi physics, volume 9, No 1, pages 75-82, 2015. 44. S. Saham and S. Karimian, A Comparative Study of the Aerodynamic Performance and Economic Viability of H-Shaped and V-Shaped Wind Turbines in the Climate of Zahedan City, Sharif Mechanics journal, 2024. (in Persian), doi.org/ 10.24200/j40.2023.62309.1680

	45. A. Bagheri, S. Karimian, K. Osgouie and F. Ommi, Air Injection's effect on a Vertical Tube with Helical Corrugations: An empirical investigation, Iranica Journal of Energy and Environment, vol. 15, no. 4, 2024. 46. A. Bagheri, S. Karimian, K. Osgouie and M. Shafaee, Air Injection Impact on Thermal Performance of a Vertical Tube with Helical Corrugations: Upward Flow, Iranica Journal of Energy and Environment, vol. 15, no. 2, 2024. 47. S. B. Ajelle, S. Karimian, M. A. vaziri. A review of methods to improve and determine the aerodynamic performance of helicopter rotor, Fluid mechanics and Aerodynamics journal, Vol. 12, No. 2, February 2024. (in Persian) 48. S. Saham, S. Karimian, Introducing and Comparing Momentum Models in Aerodynamic Analysis of Vertical Axis Wind Turbine, Journal of energy conversion, vol. 10, No. 2, 2023. (in Persian) 49. M. Sabzehali, M. Alibeigi, and Saeed Karimian Aliabadi, Low-Emission Methane Fueled Dual-Bypass Turbofan Engine Optimization based on Machine learning: Energy-Economic-Environmental (3E) Analysis, Cleaner Engineering and Technology, Doi: https://doi.org/10.1016/j.clet.2025.100919

Some of the Conference Papers	1. M. Moradi, S. Karimian, and M. Masdari, Fuzzy control application in the computation of the appropriate landing centerline using Distance Measurement Equipment, 3rd international conference on new researches and achievements in science, engineering and technology, Nov. 2023, Germany. 2. S. Saham, S. Karimian, Performance consideration and effect of maintenance schedule of the industrial gas turbines, 7th national conference on gas turbines, June 2022, Iran. (in Persian) 3. S. M. Sadat, S. Karimian, numerical study of the aerodynamic performance of a MAV discrete wing with morphing capability, 19th international conference of the Iranian aerospace association, May 2021, Tehran. 4. S. Saham, S. Karimian, study of the effective variables in aerodynamic performance of the vertical axis wind turbines, 7th Iranian wind energy conference, May 2021, Iran. 5. M. Ahmadi, S. Karimian, study the effect of geometric parameters on the accuracy and speed of the simulation of the airborne wind energy systems, 7th Iranian wind energy conference, May 2021, Iran. 6. S. Rezaey, S. Karimian, Aerodynamic modeling of the Invelox wind system to parametric study of the geometric characteristics, 7th Iranian wind energy conference, May 2021, Iran. 7. A. Abdmaleki, A. Nemati, and S. Karimian, longitudinal dynamics of a fixed wing MAV using extended Kalman filter and Least square, 18th international conference of the Iranian aerospace association, Feb. 2020, Tehran.

	8. M. Asghari, S. Karimian, and M. Y. Hashemi, Numerical study of the effect of the suction flow control strength and location on the aerodynamic characteristics of DU93W210LM airfoil, 18th international conference of the Iranian aerospace association, Feb. 2020, Tehran. 9. S. Karimian, Z. Pishbin, Improving the power coefficient of a MW wind turbine based on the control system generalization, 18th international conference of the Iranian aerospace association, Feb. 2020, Tehran. 10. S. Karimian, N. Haghverilou, Analysis of the wind shear effect on MW horizontal axis wind turbine performance via parametric and non-parametric approaches, 18th international conference of the Iranian aerospace association, Feb. 2020, Tehran. 11. M. Safar, S. Karimian, Study of the effect of the inlet flow velocity on pressure recovery in the S-shape turbojet engine intake, 5th international conference on modern finding in science and technology, April 2018, Iran. 12. S. Rasekh, S. Karimian, Study of the effect of wind velocity variation on horizontal axis wind turbine considering the pitch control system based on unsteady aerodynamics, 17th fluid dynamics conference, Sep. 2017, Iran. 13. B. Monfared, S. Karimian, 3D simulation of the Lattice Boltzmann network to predict the heat transfer under the effect of magnetic field, 3rd national conference of mechanical engineering and advanced technology, Sep. 2017, Iran. 14. B. Monfared, S. Karimian, numerical study of Plasma actuator effect on aerodynamic characteristics of NACA 0024 airfoil in different angle of attacks, 3rd national conference of mechanical engineering and advanced technology, Sep. 2017, Iran. 15. F. Ahmadpour, S. Karimian, optimal pitch angle profile in the small scale horizontal axis wind turbine using BEM, 25th annual international conference of mechanical engineering, April 2017, Tehran. 16. M. Askari, F. Ommi, and S. Karimian, review of the electric propulsion systems for space applications, 25th annual international conference of mechanical engineering, April 2017, Tehran. 17. S. M. Hoseinidoust, S. Karimian, Numerical study of the unsteady aerodynamics of a pitch oscillatory symmetric airfoil with large amplitude and turbulent flow, 25th annual international conference of mechanical engineering, April 2017, Tehran. 18. S. Rasekh, S. Karimian, unsteady aerodynamics of a section experiencing suddenly increase in velocity in low speed regime, 25th annual international conference of mechanical engineering, April 2017, Tehran. 19. S. Abed, S. Karimian, Floating wind turbine installation consideration based on platform displacement due to surface currents, First international conference on the new horizons in the basic and technical sciences and engineering. Feb. 2017, Tehran. 20. S. Karimian, Stability and performance improvement of a flexible FMAV using adaptive PID controller, 8th Ankara international aerospace conference, Turkey, 2015.

	21. S. Karimian, FMAV propulsion system modeling and parametric study, 2nd propulsion society conference, Tarbiat modares university, Tehran, 2013. 22. S. Karimian, Hovering flight considerations for a flexible FMAV, 2nd propulsion society conference, Tarbiat modares university, Tehran, 2013. 23. K. Mazaheri, A. Ebrahimi, and S. Karimian, Dynamic simulation and performance analysis of a flapping wing air vehicle, aerospace conference, Isfahan, 2008. 24. S. A. Shahmoradi, S. Karimian, noise reduction in the capacitive MEMS accelerometer using Sigma Delta Modulator, Navigation system conference, Tehran, 2007. 25. S. Karimian, K. Mazaheri, Stability analysis of a FMAV based on the flight simulation, aerospace conference, Khaje nasir university, Tehran, 2006. 26. K. Mazaheri, S. Karimian, and E. Buzarjomehri, A practical method for optimization of dynamic characteristics of a FMAV, aerospace conference, Khaje nasir university, Tehran, 2006. 27. S. A. Shahmoradi, S. Karimian, Modeling of Brownian Noise in Capacitive MEMS Accelerometer, Mechatronics Int. conference and exhibition, Sharjeh university, Dubai, 2006. 28. S. Karimian, A. A. Khayyat, 3D flight trajectory optimization in climb phase of a transport aircraft, 13th annual ISME conference, Isfahan university, Isfahan, 2004. 29. S. A. Shahmoradi, S. Karimian, Comparison of GPS and GALILEO systems, International aerospace conference and exhibition, Amir-Kabir university, Tehran, 2003.

Books and Inventions	• Shahmoradi S. A. and Karimian S., Design and Manufacturing of Capacitive MEMS Accelerometers, Malek University publication, 2005, Tehran, (in Persian) • Karimian S. and Jashnaei H.R., Aeronautical information services, Sattari aeronautical science and technology university publication, 2024, Tehran, (in Persian) • Karimian S. and Saham S., Introduction to wind turbine aerodynamics, Tarbiat Modares university publication, 2024, Tehran, (in Persian) • Invention: Vertical axis wind turbine with flow diversion capability, Karimian S. and Saham S., 2022. (National Iranian Patent Organization) • Invention: Cyclorotor system design with eccentric slot, Karimian S. and Sadat S. M., 2023. (National Iranian Patent Organization)

	• Invention: Wind turbine auxiliary power unit based on the tangential jet flow on the blade tips, Karimian S. and Sabzeali M. R., 2024. (National Iranian Patent Organization) • Invention: Aerodynamic recovery unit in Gas Turbine Power plant based on the wind turbine cascade within exhaust flow, Karimian S. and Sabzeali M. R., 2024. (National Iranian Patent Organization)

Awards	• **Second Rank** in M.S. graduates, aerospace engineering college, Sharif university, 2003-2006 • **First Rank** in M.S. aerospace engineering entrance exam, 2003 • **Second Rank** in B.S. graduates, aerospace engineering college, Sharif university of technology, 1999-2003 • **First rank** of the high school in Talented regional school, 1995-1999 • **Best paper award** in the 2nd aerospace propulsion conference, 2013 • **Third Rank** in aircraft design contest, Isfahan, 2003 • **First Rank** in Iranian Students Sport Olympiad, Tehran university, 2003 and **Third Rank** in regional sport competition, Ahwaz university, 2005 • Design and manufacturing of the **first Iranian AFM** and Tip scanning controller, ARA research Ltd., 2008 • Design and manufacturing of the **first Iranian ornithopter (Flapping wing Robot),** 2006

Job Experiences	• Associate Professor in mechanical engineering faculty, Tarbiat Modares university, Tehran, March 2014 – up to now • Some of the presented Courses: Advanced math., advanced fluid mechanics, advanced aerodynamics, flight dynamics, unsteady aerodynamics, aeroelasticity and special topics in aerodynamics • Consultant in the engineering branch of Modares Science and Technology park (MST park), June 2016 – July 2017

	• Administrator of the engineering branch of Modares Science and Technology park (MST park), July 2017 – up to now • Visiting assistant professor, Jundi Shapur university, Mechanical and Aerospace Engineering group, Dezfoul, Iran, 2008 - 2012 • Some of the presented Courses: Dynamics, Statics, Thermodynamics, Fluid Mechanics, Mechanical Measurements, Gas Turbine and Jet Engine, Advanced Mathematics • Design and Manufacture of high precession AFM systems, ARA Research Ltd., Tehran, 2003 - 2008 • Recruitment Representative for the Faculty of Mechanical Engineering, 2021 to 2023 • Representative of the Faculty of Mechanical Engineering in International Relations, 2024 to 2026

Some of Technical Reports	1. **MST park,** general layout and equipment design for the flying robots test and certificate center in the Modares park, 2016 (in Persian) 2. **MST park,** landscape design of the aerospace park in the east site of Modares park, 2016 (in Persian) 3. **Click House,** geodesic special structures based on the plywood material and CNC fast production, report of invention, 2017 (in Persian) **4. Click House,** software development for the miss distance indicator system based on the microphone sensor arrangement, 2017 (in Persian) 5. **ARA Co.**, MEMS gyro performance and noise analysis, 2003 (in Persian) 6. **ARA Co.**, Optical methods for displacement detection in an active vibration suppression system, 2004 (in Persian) 7. **ARA Co.**, Piezo based micro resolution movement system design for the AFM application, 2004 (in Persian) 8. **ARA Co.**, Design and Simulation of active anti vibration system, 2004 (in Persian) 9. **Sharif university**, Preliminary design of Tadbir ornithopter, 2007 (in Persian)

	10. **Sharif university**, Analytical study of the kinematics of the image in a mirror system undergoing random disturbances, 2008 (in Persian) 11. **Modares university,** Aerodynamic modeling of a tandem wing aircraft, 2024 (in Persian) 12. **Modares university,** Design and optimization of a flexible tandem wing layout with built in oscillation, 2025 (in Persian)

Computer Environment Familiarity	➢ **Academic Software and Packages** MATLAB - Solid works - ADAMS - V. NASTRAN – ANSYS FLUENT 20SIM – Mathematica ➢ **Programming Languages** Visual Basic – Fortran – Delphi – Visual C++

Frequently experienced and Teaching ability	• Wind turbine aerodynamics • Aeroelasticity • Unsteady aerodynamics • Advanced Aerodynamics • Subsonic aerodynamics • Special topics in aerodynamics • Wind Energy System Modeling and Simulation • Computational fluid dynamics • Flow control in aerodynamics • Advanced mathematics • Optimal control • Multi body dynamics • Special topics in flight mechanics • Aerodynamic Optimization

Research Fields and Interests	➢ Fixed and flapping wing air vehicles o Modeling and simulation o Optimization and design o static and dynamic test facilities o Active control and Morphing structures

	➢ Wind turbines o Modeling, simulation, and parametric study o Aerodynamic design and optimization o Active, passive flow control / pitch control o Aeroelasticity and unsteady aerodynamics

Last updated: Feb, 2025