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Contact Information

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Education

- **PhD. at K.N. Toosi University of Technology** (September 2009-June 2012)
  Field of Study: Aerospace Engineering, Flight Dynamics and Control
  Supervisor: Dr. Jafar Roshanian, E-mail: roshanian@kntu.ac.ir
  Thesis: Non-Deterministic Multidisciplinary Design Optimization of a Launch Vehicle

- **MSc. at K.N. Toosi University of Technology** (September 2004- April 2007)
  Field of Study: Aerospace Engineering, Flight Dynamics and Control
  Supervisor: Dr. Jafar Roshanian
  Thesis: Multidisciplinary Design Optimization of a Launch Vehicle Using System Sensitivity Analysis

- **BSc. at Isfahan University of Technology** (September 2000 – September 2004)
  Field of Study: Mechanical Engineering, Solid Mechanics
  Supervisor: Dr. Hasan Khademizadeh
  Thesis: Stress Analysis in bended beam.

- **High School Diploma** (September 1996 – June 2000)
  Field of Study: Mathematics and Physics

Awards and honors

- Annual superior student in PhD., K.N. Toosi University of Technology ,Two Times
- Annual superior researcher in PhD., K.N. Toosi University of Technology
- Annual superior researcher in MSc., K.N. Toosi University of Technology
- Annual superior student in BSc. , Isfahan University of Technology, Two Times
- Sperior student, National Mathematical Olympiad, Two Times
- Sperior student, National physic Olympiad

Research Interests

- Control, Guidance and Navigation of Flying Robots and Spacecrafts (Satellite Rendezvous)
- Multidisciplinary Design Optimization(MDO) of Aerospace Systems and Subsystems(Satellite and Launch Vehicles)
- Optimization Algorithms
- Celestial Navigation And Star Pattern Recognation Algorithms

Teaching Experience

- Advanced Control
- Advanced Flight Dynamics
- Advanced Engineering Mathematics
- Engineering Optimization
- Flight Dynamics I, II

Work Experiences

- Supervisor in Multidisciplinary Design Optimization(MDO) laboratory at K.N. Toosi University of Technology ,2003-2007
- Supervisor in Space Systems Design Research Center at K.N. Toosi University of Technology ,2008-2012
- Co-Editor in Modares Mechanical Engineering Journal, Since 2013
- Director of Technology Incubator, Tarbiat Modares University, Science and Technology Park, 2015-2018
- President of Tarbiat Modares University, Science and Technology Park, since 2018

Journal Reviewer

- Journal of Aerospace Science and Technology
- Acta Astronautica

- ISA Transaction
- Journal of Navigation
- Journal of Space Science and Technology (In Persian)
- Modares Mechanical engineering journal, (In Persian)

Publications (Journal Papers)

1- J. Jodei, **M. Ebrahimi**, J. Roshanian, "Multidisciplinary Design Optimization Applied to a Launch Vehicle Using System Sensitivity Analysis, Journal of Structural Multidisciplinary Optimization, Vol. 38, No. 1, pp 93–100, 2009, https://doi.org/10.1007/s00158-008-0260-5, (ISI).

2- **M. Ebrahimi**, J. Jodei, J. Roshanian, "System Sensitivity Analysis Approach for Design Optimization of a Solid Propellant Small Launch Vehicle", Journal of Space Science and Technology, Vol. 1, No. 1, 2009, (In Persian).

3- **M. Ebrahimi**, M.R. Farmani, J. Roshanian "Multidisciplinary Design of a Small Satellite Launch Vehicle Using Particle Swarm Optimization", Journal Of Structural And Multidisciplinary Optimization, Vol. 44, No. 6, pp 773–784, 2011, https://doi.org/10.1007/s00158-011-0662-7, (ISI).

4- **M. Ebrahimi**, A. Batalebloo, J. Roshanian, "A survey On Non-deterministic Optimization And Its Application", Journal of Space Science and Technology, Vol. 4, No. 4 , 2011, (In Persian).

5- **M. Ebrahimi**, Roshanian J., Barzinpour F., "Multidisciplinary Design Optimization Approach for a Small Solid Propellant Launch Vehicle Conceptual Design Using Hybrid Simulated Annealing" , Applied Mechanics and Materials Vols. 110-116 pp 4765-4771, 2012, https://www.scientific.net/AMM.110-116.4765 (ISI).

6- J. Roshanian, S. Yazdani, S.M. Hasani, **M. Ebrahimi**, "Performance Analysis of Nasir-I Star Tracker in The Presence of Systematic Errors Using Monte-Carlo Method", Journal of Control & Sensors, Vol. 6, No.2, 2012, (In Persian).

7- J. Roshanian, S.Yazdani, S.M. Hasani, **M. Ebrahimi**, "Definition of Criterions for Star catalogue Selection for Star Trackers", Journal of Space Science and Technology. Vol.5, No.4, 2012, (In Persian).

8- J. Roshanian, S. Yazdani, S.M. Hasani, **M. Ebrahimi**, "Implementing Non-dimensional Pattern Recognition Algorithm for Typical Star Sensor", Journal of Space Science and Technology. Vol.5, No.2, 2012, (In Persian).

9- J. Roshanian, S. Yazdani, **M. Ebrahimi**, "Robustness Study of Non-Dimensional Star Pattern Recognition for a Typical Star Tracker", Majlesi Journal of Electronics, 2012.

10- **M. Ebrahimi**, Roshanian J., Taheri E., Bataleblu A., "Multidisciplinary Design Optimization Of Space Transportation Control System Using Genetic Algorithm", Journal of Aerospace Engineering , Vol. 228, No. 4, pp 518-529, 2013, https://journals.sagepub.com/doi/10.1177/0954410013475573, (ISI).

11- **M. Ebrahimi**, Roshanian J., "Latin Hypercube Sampling Applied to Reliability-based Multidisciplinary Design Optimization of a Launch Vehicle", Journal of Aerospace Science and Technology, Vol. 28, No. 1, pp 297-304, 2013, https://doi.org/10.1016/j.ast.2012.11.010, (ISI).

12- M. Nasrollahzadeh, E. Laali, J. Roshanian, **M. Ebrahimi**, "Analysis and Optimization for a Projectile under Stresses of Gun during Interior Ballistics", Journal of Mechanic & Aerospace, No.6, 2014, (In Persian).

13- S. Yazdani, J. Roshanian, **M. Ebrahimi**, M. J. Kabutarkhani, "Uniform Star Catalog Generation and Comparison Criterion Introduction for a Typical Star Tracker", Modares Mechanical engineering journal, Vol. 15, No. 3, 2015, (In Persian).

14- S. Yazdani, J. Roshanian, **M. Ebrahimi**, "Star Identification Based on Euclidean Distance Transform, Voronoi Tessellation and K-Nearest Neighbor Classification", IEEE Transaction on Aerospace and Electronics, Vol. 52, No. 6, PP. 2940_2949, 2016, https://ieeexplore.ieee.org/document/7855596, (ISI).

15- A. Samadi, **M. Ebrahimi**, H. Jahanbakhsh, , "A survey On Electromagnetic Discharging in Satellite and Introducing SPIS Software", Mechanical Engineering Journal, Vol. 25, No. 7, pp 95-106 , 2016, (In Persian).

16- M. Mansoordahghan, **M. Ebrahimi**, O. Negaresh, "Small Satellite Thermal Control Sub-System Conceptual Design Optimization Methodology", Modares Mechanical engineering journal, Vol. 16, No. 8, 2016, (In Persian).

17- M. Arbabmir, **M. Ebrahimi**, M. Norouz, "A survey On Visual Odometer Methods for Flying Robots' Navigation", Journal of Space Science and Technology. Vol. 10, No. 2, pp 33-52, 2017, (In Persian).

18- A. Samadi, **M. Ebrahimi**, H. Jahanbakhsh, , "Improvement of the Electrical Potential Distribution on the Surface Geostationary Satellites by changing Material", Journal of Space Science and Technology. Vol. 10, No. 3, pp 25-39, 2017, (In Persian).

19- M. S. Dalvand, **M. Ebrahimi**, G. Pouryusefi, "Optimization of the ratio of induced flow velocity to electrical power consumption in the DBD plasma actuator using artificial neural network and genetic algorithm", Modares Mechanical engineering journal, Vol. 1۷, No. 11, 2017, (In Persian).

20- S. Kasaeian, N. Asadian, **M. Ebrahimi**, "Sliding Mode Predictive Guidance For Terminal Rendezvous In Eccentric Orbits", Acta Astronautica, Vol. 140, No. -, pp 142-155, 2017, https://www.sciencedirect.com/science/article/pii/S0094576517306392, (ISI).

21- J. Roshanian, S. Yazdani, S. Bakran, **M. Ebrahimi**, , "Development of Mission Catalog and Robust Identification Algorithm for Daytime Performance Extension of Star Trackers", Tabriz Mechanical Engineering Journal, Vol. 47, No. 4, pp 117-126, 2018, (In Persian).

22- M. S. Dalvand, G. Pouryusefi, **M. Ebrahimi,** "Experimental Investigation of the Effect of Geometrical and Electrical Variables on the Performance of the DBD Plasma Actuators in Uniform and Filamentary Regimes", Tabriz Mechanical Engineering Journal, Vol. 47, No. 1, pp 95-104, 2018, (In Persian).

23- M. Dalvand, **M. Ebrahimi**, S. Pouryussefi, "Experimental Investigation Modeling And Prediction Of Transition From Uniform Discharge To Filamentary Discharge In DBD Plasma Actuators Using Artificial Neural Network", Applied Thermal Engineering, Vol. 129, No. -, pp 50-61, 2018, https://www.sciencedirect.com/science/article/pii/S1359431117335433, (ISI).

24- J. Roshanian, A. Bataleblo, **M. Ebrahimi**, "Robust Ascent Trajectory Design and Optimization of A Typical Launch Vehicle", Proceedings of the Institution of Mechanical Engineers Part C-Journal of Mechanical Engineering Science, Vol. 232, No. -, pp -, 2018, https://journals.sagepub.com/doi/abs/10.1177/0954406217753460, (ISI).

25- J. Roshanian, A. Bataleblu, **M. Ebrahimi**, "A Novel Evolution Control Strategy for Surrogate-Assisted Design Optimization", Structural and Multidisciplinary Optimization, Vol. 58, No. 3, pp 1255-1273, 2018, https://link.springer.com/article/10.1007/s00158-018-1969-4 (ISI).

26- A. Saghari, S. Rahmani, A. Kosari, **M. Ebrahimi**, "Wasted Performance Minimization Of The Multi-Purpose Mini-Satellite Platform For An EO Mission Using A Dynamic Simulation-Based Model", Aerospace Science And Technology, Vol. 73, No. -, Pp. 61-77, 2018, https://www.sciencedirect.com/science/article/pii/S1270963816308653 (ISI).

27- And 8 submitted journal paper in different status.

Publications (Selected International Conference Papers)

1- J.Jodei, **M. Ebrahimi**, J.Roshanian "An Automated Approach to Multidisciplinary System Design Optimization of Small Solid Propellant Launch Vehicles' Proceeding of the 1st International symposium on Systems and Control in Aerospace and Astronautics', Harbin, China, January,2006.

2- **M. Ebrahimi**, J.Jodei, J.Roshanian ," Multidisciplinary Design optimization of a Launch Vehicle Using Sequential Quadratic Programming" Proceeding of the 13th International Conference of the Iranian Society of Mechanical Engineering, Esfehan University of Technology, Esfehan , Iran, 2006, (In Persian).

3- J.Jodei , **M. Ebrahimi**, J.Roshanian," A Survey on Multidisciplinary design Optimization Applied to Aerospace Systems" , Proceeding of the 6th Iranian Aerospace Society Conference , K.N.Toosi University ,Tehran ,Iran ,2007, (In Persian).

4- **M. Ebrahimi**,J.Jodei, J.Roshanian " GSE Extraction for Multidisciplinary Design Optimization of a Light Launch Vehicle ", Proceeding of the 6th Iranian Aerospace Society Conference , K.N.Toosi University ,Tehran ,Iran ,2007, (In Persian).

5- **M. Ebrahimi**, Roshanian J., Taheri E., Mirshams M., "Reliability And Robustness Analysis Of Earth-Moon Mission In Presence Of Uncertainty" ,62st International Astronautical Congress, Cape Town, South Africa, 2011.

6- **M. Ebrahimi**, Roshanian J., Bataleblu A., "Launch Vehicle Trajectory Robustness Modification", AIAC, Ankara, Turkey, 2011.

7- S. Yazdani, **M. Ebrahimi**, J. Roshanian, "Robustness Study On Non-Dimensional Star Pattern Recognition For A Typical Star Tracker" ,63st International Astronautical Congress, Rom, Italy, 2012.

8- S. Yazdani, J. Roshanian, **M. Ebrahimi**, "Development Of Star Tracker Test And Design Software: Innovation And Optimization", Oral Presentation 64th International Astronautical Congress, Beijing, China, 23-27 September 2013.

9- S. Yazdani, J. Roshanian, **M. Ebrahimi**, "A Novel Approach For Generating Star Mission Catalog Using Combinatorial Optimization Techniques For Low Cost Airborne Star Tracker", Oral Presentation 65th International Astronautical Congress Toronto, Canada 29 September . 3 October 2014.

10- S. Yazdani, J. Roshanian, S. Bekranbehesht, **M. Ebrahimi**, "2MASS Infrared Star Catalog Data Mining for Use Onboard a Daytime Star Tracker", IEEE/AIAA Recent Advances in Space Technologies (RAST), Istanbul Turkey, June 2015.

11- J. Roshanian, S. Yazdani, **M. Ebrahimi**, " Effects Of Inclinometer Errors On Star Sensor Position Accuracy" International Astronautical Congress Guadalajara (IAC2016), Mexico, September 2016.

12- S. Yazdani, J. Roshanian, **M. Ebrahimi**,"Imperative Modifications Required For Technical Usage Of Star Pattern Recognition Algorithm Onboard A Typical Star Tracker", Proceedings Of Inernational Astronautiv Congress , 2013.

13- **M. Ebrahimi**, A. Batalebloo, J. Roshanian, "Hybrid Search Multi-Discipline Feasible Design Optimization Of A Typical Space Launch Vehicle", Proceedings Of 7th International Conference On Recent Advances In Space Technologies 2015.

14- M. Dalvand, **M. Ebrahimi**, S. Pouryussefi, "Performance Optimization Of The Plasma Actuators Using Response Surface Methodology", Proceedings Of Proceeding of the 15th Iranian Aerospace Society Conference , K.N.Toosi University ,Tehran ,Iran ,2015, (In Persian).

15- E. Fadakar, **M. Ebrahimi**, "A New Metaheuristic Football Game Inspired Algorithm", Proceedings Of The 1st Conference On Swarm Intelligence And Evolutionary Computation (Csiec) , 2016.

16- S. Kasaeian, **M. Ebrahimi**, N. Asadian, "Super Twisting Sliding Mode Synchronization With On0off Thrusters For Rendezvous In Elliptic Orbit", Proceedings Of 67th International Astronautical Congress 2016, Pp. Id: 34685, 2016.

17- M. Norouz, **M. Ebrahimi**, M. Arbabmir, "Modified Unscented Kalman Filter For Improving The Integrated Visual Navigation System", Proceedings Of The 25th Iranian Conference On Electrical Engineering (ICEE) , 2017.

18- S. Rahmani, **M. Ebrahimi**, A. Honaramooz, "A Surrogate Based Optimization Using Polynomial Response Surface In Collaboration With Population Based Evolutionary Algorithm", Proceedings Of 12th World Congress On Structural And Multidisciplinary Optimization, 2017.

19- S. Rahmani, A. Saghari, **M. Ebrahimi**, "A Shifted Constraint Rbdo Framework Using Monte Carlo Simulations", Proceedings Of 12th World Congress On Structural And Multidisciplinary Optimisation, 2017.

20- V. Bohlouri, **M. Ebrahimi**, Jalali Naini S., "Robust Optimization Of Satellite Attitude Control System With On-Off Thruster Under Uncertainty", Proceedings Of IEEE 2017 International Conference On Mechanical System And Control Engineering , 2017.

21- S. Rahmani, A. Saghari, **M. Ebrahimi**, Wagner M., "Reliability0based Orbital Design Optimization For An Earth Observation Satellite", Proceedings Of 68th International Astronautical Congress (IAC), 2017.