

CV

1. **Name** : Osman Ergüven VATANDAŞ

Contact information:

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2. **Date of Birth** : December 15, 1967

3. **Title** : Professor

4. **Education** :

Degree	Area	University	Year
PhD	Aeronautical Engineering	İstanbul Technical University	2006
MSc	Aeronautical Engineering	Middle East Technical University	1998
Bachelor's D.	Aeronautical Engineering	İstanbul Technical University	1990

PhD Dissertation Title and Advisor :

“Three dimensional shape optimization of bodies subjected to air flow by heuristic algorithms”

Prof. Dr. İbrahim ÖZKOL

MSc Dissertation Title and Advisors :

“Aerodynamic performance predictions of two and three dimensional configurations by using a finite element package”

Prof. Dr. Nafiz ALEMDAROĞLU

Prof. Dr. Mehmet Ş. KAVSAOĞLU

Languages: Turkish (Native) - English (Good)

5. Academic Titles:

Date of Assistant Professor : 2007

Date of Associated Professor : June 21, 2012

Date of Professor : September 20, 2017

Research Areas: Fluid Mechanics, Aerodynamics, Computational Fluid Dynamics (CFD), Numerical Methods, Aircraft Design, Flight Dynamics, UAV Technologies, Optimization Methods, Civil Aviation, Propulsion Systems

6. MSc and PhD Theses Supervised

6.1. MSc Theses Supervised

- “New Generation Electric Sterndrive Performance Analysis” Onur AÇAR, İstanbul Gelişim University, Aeronautical Engineering Program, 2022-2023.
- “Modeling and control of a hybrid mini UAV”, Abdullah Can AL, İstanbul Gelişim University, Aeronautical Engineering Program, 2021-2023.

- "Hybrid Fuel Rocket Engine Ignition and Test Assembly Design and Production", Burak ÖZBİLGİN, National Defense University, Institute of Hezarfen Aerospace Technologies, 2016-2019.
- "Investigation of the Reduction of Drag Force for Various Wing Tip Models by Using Computational Fluid Dynamics Methods", Erkan YILDIZ, Air Force Academy, Institute of Aerospace Technologies, 2014-2015.
- "Investigation of CN-235 CASA Air Curtain Wing Design with Calculated Fluid Dynamics", İlyas KARAOĞLU, Air Force Academy, Institute of Aerospace Technologies, 2014-2015. (Co-supervising)
- "Mini Unmanned Aerial Vehicle Design", Önder KARAGÖZ, Air Force Academy, Institute of Aerospace Technologies, 2010-2011.
- "Aerodynamic Analysis of a Designed UAV by Alternative Queue Types", Alper ANTEPLİOĞLU, Air Force Academy, Institute of Aerospace Technologies, 2009-2010.

6.2. PhD Theses Supervised

- "The workspace analysis of stewart platform mechanism", Serdar AY, Air Force Academy, Institute of Aeronautics and Astronautics, 2013 (Co-supervisor)

7. Publications

7.1. Journal Papers (SCI & SSCI & Arts and Humanities)

- **Vatandaş E., Özkol İ.**, "Coupling Dynamic Mesh Technique and Heuristic Algorithms in 3 Dimensional Tapered Wing Design" International Journal for Numerical Methods in Engineering (SCI-Scopus Q1), **74/12**, 1771–1794, (2008) (DOI: 10.1002/nme.2231).
- **Vatandaş E.**, "Geometrical and Positional Optimization of the Forward Swept Lift Producing Surfaces in 3-D Flow Domains" Aircraft Engineering & Aerospace Technology (SCI-Expanded, Scopus Q3), **79/6**, 635-645, (2007) (DOI: 10.1108/00022660710829836).
- **Vatandaş E., Özkol İ., and Hacıoğlu A.** "Vibrational Genetic Algorithm (VGA) and Dynamic Mesh in the Optimization of 3-D Wing Geometries" Journal of Inverse Problems in Science and Engineering (SCI-Scopus Q2), **15/6**, 643-657, (2007) (DOI: 10.1080/17415970600913740).
- **Vatandaş E., and Özkol İ.**, "Dynamic mesh and heuristic algorithms for the design of a transonic wing" Aircraft Engineering & Aerospace Technology (SCI-Expanded, Scopus Q3), **78/1**, 34-44, (2006) (DOI: 10.1108/17488840610639672).
- **Vatandaş E., Özkol İ., and Kaya M.O.**, "Using the Dynamic Mesh Method for Genetically Obtained Wing Structures" Aircraft Engineering & Aerospace Technology (SCI-Expanded, Scopus Q3), **76/3**, 314-319 (2004). (DOI: 10.1108/00022660410536050)

7.2. Journal Papers (Other indexes)

- **Vatandaş E.**, "On Novel Usage of a Hybrid Method (ANN and GA) for Faster 3-D Aerodynamic Optimization" Journal of Aeronautics and Space Technologies (e-ISSN: 2148-1059), **10/2**, p.1-6, 2017

7.3. Conference Papers

- **Günel, Z., Vatandaş E.**, "The Proposal to establish the infrastructure of space tourism in Turkey in terms of social sciences and the 'Shel-Uz' model" 3rd International Congress of New Generations and New Trends in Tourism, Sapanca, Sakarya, 26-28 October 2023.
- **Açar, O, Vatandaş E., Özdemir, Ö.**, "New Generation Electric Tail Rotor Performance Analyses" 10th International Conference on Recent Advances in Space Technologies RAST 2023, İstanbul, June 07-09, 2023.
- **Vatandaş E., Antepioğlu A.**, "Aerodynamic Performance Comparison of V-tail and Conventional Tail for an Unmanned Vehicle" 7 th International Conference on Recent Advances in Space Technologies RAST 2015, İstanbul, 16-19 June 2015.
- **Vatandaş E., Altuntaş Y., Çelebi M.**, "Improvement of forward swept wing optimization in the compressible flow by using a hybrid method" 7 th International Conference on Recent Advances in Space Technologies RAST 2015, İstanbul, 16-19 June 2015.
- **Ay S., Hacıoğlu A. Vatandaş E.**, "A novel geometrical method for the determination of reachable workspace of a planar stewart platform" 2nd International Conference and Exhibition on Mechanical & Aerospace Engineering, September 08-10, 2014 Hilton Philadelphia Airport, USA (<http://dx.doi.org/10.4172/2168-9792.S1.00>)
- **Ay S., Vatandaş E., Hacıoğlu A.**, "Determination of the Reachable Workspace of 6-3 Stewart Platform Mechanism " World Congress on Engineering 2012, London, U.K., July 4 - 6, 2012.
- **Ay S., Hacıoğlu A. Vatandaş E.**, "A Novel Geometrical Approach to Determining the Workspace of 6-3 Stewart Platform Mechanism" 5 th International Conference on Recent Advances in Space Technologies RAST 2011, İstanbul, 9-11 June 2011.
- **Vatandaş E.**, "Hybridizing Genetic Algorithm with Artificial Neural Network in the Aerodynamic Optimization of the Forward Swept Wing", 6th AIAA Multidisciplinary Design Optimization Specialist Conference, Orlando, Florida, USA, 12 - 15 April 2010.
- **Ay S., Vatandaş E., Hacıoğlu A.**, "The Effect of Radius of Joint Location on Workspace Analysis of The 6-6 Stewart Platform Mechanism" 4 th International Conference on Recent Advances in Space Technologies RAST 2009, İstanbul, 11-13 June 2009.
- **Vatandaş E.**, "Forward Swept Wing Optimization by Using Recent Favorable Numerical Techniques", 49th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics, and Materials, Conference (AIAA-2008-2060), Schaumburg, IL, USA, 7 - 10 April 2008
- **Vatandaş E., Özkol İ.**, "Aerodynamic Optimization of a Transonic Wing by Merging the Dynamic Mesh and Non-Gradient Techniques" 14th CFD Conference, Queen's University, Kingston, Ontario, Canada, 16-18 July 2006
- **Vatandaş E., Özkol İ.**, "Combined Parallel Computing, Dynamic Mesh and Heuristic Algorithms in Tapered Wings" 2nd AIAA Multidisciplinary Design Optimization Specialist Conference, Newport, Rhode Island, USA 1 - 4 May 2006
- **Vatandaş E., Özkol İ.**, "Wing shape optimization by using the dynamic mesh and genetic algorithm", Abstract for Third M.I.T. Conference on Computational Fluid and Solid Mechanics, Massachusetts Institute of Technology Cambridge, MA 02139 U.S.A., june 14-17, 2005 (ABSTRACT)
- **Vatandaş E., Özkol İ., and Hacıoğlu A.** "Combining Vibrational Genetic Algorithm (VGA) and Dynamic Mesh in the Optimization of 3-D Wing Geometries" Finite Element for Flow Problems FEF05 IACM Special Interest Conference supported by ECCOMAS, April 4-6, 2005, Swansea, Wales, UK

- **Vatandaş E., Özkol İ., and Nas S.**, “Implementation of Genetic Algorithm on the Design of a Transonic Wing by Using Parallel Processing”, ICSP, International Conference of Signal Processing, December 15-17, 2004, Istanbul, Turkey
- **Vatandaş E., Özkol İ.**, “On Effective Combination of Heuristic Algorithms and Dynamic Meshes in CFD Applications” Proceedings Of 5th International Bi-Annual ASME/JSME Symposium Computational Technology For Fluid / Thermal / Chemical / Stressed Systems With Industrial Applications San Diego / La Jolla, California, July 25-29, 2004
- **Vatandaş E. Özkol İ. and Kaya M.O.**, “Implementation of the Dynamic Mesh Methods on Genetically Obtained Mesh Structures for 3-D Geometries” Proceedings of International Congress on Evolutionary Methods for Design, Optimization and Control with Applications to Industrial Problems, EUROGEN’03, Barcelona, Spain 2003

7.4. International books or chapters in books written

- **Yükselen, M.Adil, Vatandaş, Osman Ergüven**, “Fundamentals of Aerodynamics”, Nobel Academic Publishing, ISBN 978-625-397-751-1, Pages: 1150, İstanbul, January 2024 (Book Translation)
- **Düzgün, M., Vatandaş, E. Kul, H., Tezer, G., Aydoğan, S., Türkddoğan A., Çotuksöken, B., Uyanık, H., Saraçyakupoğlu, T.**, “Fundamentals of International Aviation” Nobel Academic Publishing, ISBN: 978-605-033-113- 4, Pages: 411, Ankara, December 2019 (Book Translation)

7.5. National Journal Papers

- **Vatandaş E., Özkol İ.**, "Combining Genetic Algorithm and Dynamic Network Methods in Wing Design", ITU Magazine / d Engineering Series, Volume: 5, No: 6, Page: 39 - 48, December 2006

7.6. National Conference Papers

- **Vatandaş E., Özkol İ.**, "Finding New Network Structures for 3D Wing Models Obtained with Genetic Algorithm by Dynamic Network Method", Kayseri V Aviation Symposium, KAYSERİ, 14 May 2004.
- **Vatandaş E., Özkol İ.**, "Wing Optimization with Genetic Algorithm and Dynamic Network Methods" Symposium on Advanced Techniques and Applications in Aviation (HİTEK) 9-10 December 2004, Air Force Academy, Istanbul.
- **Ay S., Hacıoğlu A., Vatandaş E.**, "Kinematic Investigation of Stewart Platform Mechanism with a New Geometric Approach" 15. National Machine Theory Symposium, Niğde University, Niğde, 16-18 June 2011.

8. Projects

- TÜBİTAK 2209 Project: Electric Fan Motor Driven Unmanned Aerial Vehicle with Vertical Takeoff and Landing (Supervisor), 2023
- Istanbul Gelişim University BAPUM supported project “Modelling of Unmanned Aerial Vehicles in Different Designs (ÖOP-211020-OEV)” (Project Manager), 2022-2023
- Manufacturing and application of three-dimensional printer, İGÜ Mechatronics Eng. Department, (Project Manager), 2018

- “Water tunnel design, manufacturing and monitoring of flow visualization techniques”, Science Festival, Air Force Academy, (Project Manager), 2009.
- “Production and experimental comparison of forward and backward swept wing models”, Science Festival, Air Force Academy, (Project Manager), 2008.

9. Patents

- Vertical take-off and landing (VTOL) unmanned aerial vehicle with electric fan motor (EDF). Patent Inventors: Hüseyin Furkan Çelik, Yahya Kemal Kıran and Osman Ergüven Vatandaş. Patent Applicant: Istanbul Gelisim University, Application Date: 29.09.2023, Application Publication No. TR 2023 012223 A2, Patent Certificate Issuance Date: 21.05.2024.

10. Duties

- Head of Aeronautical Eng. Department, Istanbul Gelisim University (05.2020 – 10.2022)
- Head of Aviation Management Department, Istanbul Gelisim University (03.2017 – 05.2020)
- Head of Aircraft Mechanic-Engine Maintenance Department, Istanbul Gelisim University (11.2018 – 03.2020)
- Academic Staff Member of Mechatronics Eng. Department, Istanbul Gelisim University (09.2017 – 05.2019)
- Visiting Academic Staff Member, Altinbas University Graduate School, Machine Eng. (03.2020-07.2021)
- Director of the Institute of Aeronautics and Astronautics, National Defense University (07.2016-02.2017)
- Visiting Academic Staff Member, İstanbul Arel University Graduate School, Machine Eng. (01.2015-06.2017)
- Head of Aeronautical and Space Eng. Department, Air Force Academy (08.2014 - 07.2016)
- Head of Planning, Evaluation and Development Branch Office, Air Force Academy, (07.2009 - 08.2014)
- Head of Measurement and Evaluation Branch Office, Air Force Academy, (07.2008 - 07.2009)
- Deputy Head of Aerospace Engineering Department, Air Force Academy (01.2008-07.2008)
- Head of Department, Air Force Academy, Department of Aeronautical Engineering (2005 - 2007)
- Educational Counselor, Azerbaijan Air Force Academy (Baku) (2000 - 2001)

11. Memberships in Scientific and Professional Organizations

- Member of the board of Istanbul Gelişim University Scientific Research Projects Application and Research Center. (10.25.2018-18.10.2022).
- Member of Istanbul Gelişim University School of Applied Sciences Board of Directors. (06.11.2018-26.05.2020)
- Member of Higher Education Board, Air Force Academy, (2014 - 2017)
- Member of Science Committee, National Defense University, Institute of Aeronautics and Astronautics (2014 - 2017)

- Member of the Board of Directors of the Institute, National Defense University, Institute of Aeronautics and Astronautics (07.2016 - 01.2017)

12. Awards

- Received TUBITAK International Publications Incentive Award five (5) times in the following years. 2004, 2006, 2007 (twice for two publications), in 2008.

13. Undergraduate and graduate level courses in the last two years

Academic Year	Semester	Course Name	Weekly Hours		Number of Students
			Theoretical	Practice	
2020-2021	Fall	Introduction to Aeronautical Engineering and Ethics	2	0	60
		Aerodynamics - I	3	0	65
		Numerical Analysis in Engineering (MSc)	3	0	2
	Spring	Fluid Mechanics	4	0	60
		Aeronautical Engineering and Design	1	2	70
		Unmanned Aerial Vehicle Design (M.Sc)	3	0	2
		Computational Methods in Engineering (M.Sc)	3	0	11
2021-2022	Fall	Introduction to Aeronautical Engineering and Ethics	2	0	80
		Flight Mechanics	3	0	65
		Numerical Analysis in Engineering (M.Sc)	3	0	5
	Spring	Fluid Mechanics	4	0	89
		Aeronautical Engineering and Design	1	2	76
		Unmanned Aerial Vehicle Design (M.Sc)	3	0	14
		Principles of Aircraft Design	2	0	100
2022-2023	Fall	Introduction to Aeronautical Engineering and Ethics	2	0	70
		Flight Mechanics	3	0	6
		Numerical Analysis in Engineering (M.Sc)	3	0	100
	Spring	Fluid Mechanics	4	0	100
		Aeronautical Engineering and Design	1	2	7
		Unmanned Aerial Vehicle Design (M.Sc)	3	0	70
		Principles of Aircraft Design	2	0	70

Other courses offered:

- Advanced Fluid Mechanics (MSc)
- Compressible Flow (MSc)

- National and International Aviation Organizations
- Computer Aided Mathematical Calculations
- Aircraft General Knowledge
- Introduction to Civil Aviation
- Gas Turbine Engines and Applications I
- Aviation Safety
- Computational Methods in Engineering (Graduate)
- Aerodynamics – I and II

14. Editorial and Refereeing

- Scientific Advisory Board member in the International Journal of Engineering Technologies (e-ISSN: 2149-5262) (September 2022 – present)
- Editor in Journal of Aeronautics and Space Technologies (e-ISSN: 2148-1059) (2014 - 2017)
- Member of Editorial Advisory Board in Journal of Aviation Research (e-ISSN: 2687-3338) (2020 - present)

Scientific Committee Membership and / or Referee:

- Turkish Journal of Electrical Engineering & Computer Sciences (ISSN: 1300-0632)
- International Journal of Aerospace Science and Technology (ISSN: 1270-9638)
- International Journal of Inverse Problems in Science and Engineering (ISSN: 1741-5977)
- International Journal of Numerical Methods in Fluids (ISSN: 1097-0363)
- International Journal of Aircraft Engineering and Aerospace Technology (ISSN: 0002-2667)
- TÜBİTAK TEYDEB projects refereeing (6 projects)
- Jury memberships for associate professorship (for 13 faculty members) (01.2018-08.2022)
- Jury membership for the master's thesis titled “Online Loss Of Control Prevention Of An Agile Aircraft: Lyapunov-Based Dynamic Command Saturation Approach” in ITU Aeronautical Eng. (May 2023)
- Jury membership for the master's thesis titled “Fractional Calculus-Based Modeling Of Mechanical Systems: A Case Study On Inverted Pendulum Dynamics” in ITU Aeronautical Eng. (May 2023)
- Jury membership for the Ph.D. thesis titled “Performance Enhancing Additives for Hybrid Rockets” in ITU Aeronautical Eng. (April 2023)
- Jury membership for the master thesis entitled “Aircraft Trajectory Optimization Under Wind Effect By Using Optimal Control: Environmental Impact Assessment” in ITU Aeronautical Eng. (November 2022)
- Jury membership for the master thesis entitled “Robust Trajectory Optimization Of Constrained Re-entry Flight Via Stochastic Collocation Based Ensemble Pseudospectral Optimal Control” in ITU Aeronautical Eng. (September 2022)
- Jury membership for the master thesis entitled “Flight Safety Risk Awareness At Flight Test Activities With Analytical Hierarchy Process Method” in ITU Aeronautical Eng. (May 2022)
- 19 Jury memberships for the master thesis in ITU Aeronautical Engineering Department (2013-2021).

- 8 Jury memberships for the master thesis in Altinbas University Mechanical Engineering Department (2020).
- The 7th Nanosatellite symposium, the 4th Mission Idea Contest, and the 4th UNISEC-Global Meeting, October 17-23, 2016, Istanbul (Local Organizing Committee member)
- RAST-2015 and 2017, Recent Advances in Space Technologies Conference, Istanbul, (Organizing Committee member)
- III. National Aviation Technology and Applications Congress / UHAT-2013 and 2015, (Scientific Committee member)
- VII. Atmospheric Sciences Symposium with International Participation (28th and 30th April 2015 ITU and Istanbul Aydın University) (Scientific Committee member)
- Jury membership for the master thesis entitled "Vortex Cage Applications for Propeller" in ITU OSTIV 2013 Meteorology Panel (20-21 September 2013, Istanbul Technical University and Istanbul Aydın University) (Scientific Committee member)
- IV. Ulusal Havacılık ve Uzay Konferansı (National Aerospace Conference) September 14-17, 2012 (UHUK-2012) İstanbul, (Scientific Committee member)
- International Unmanned Vehicles Workshop UVW2010 10-12 June 2010, Istanbul, (Scientific Committee member)
- TÜBİTAK Fast Support Project refereeing

15. Work Experience

- Group Chief of Aircraft Accessories Shops; 2nd Air Supply and Maintenance Center / Kayseri (1990-1993)
- F-16 Projects, Government Quality Assurance Representative; Turkish Aerospace Industries (TAI) / Ankara (1993-1996)

16. Other Trainings

- F-16 Systems and manufacturing methods training; Turkish Aerospace Industry (TAI) / Ankara (1993-1994)