

Assoc. Prof. MUSTAFA KAYA

Personal Information

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International Researcher IDs

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Publons / Web Of Science ResearcherID: AAH-3990-2021

ScopusID: 56225424200

Yoksis Researcher ID: 137317

Education Information

Doctorate, Middle East Technical University, Graduate School Of Natural And Applied Sciences, Aerospace Engineering, Turkey 2003 - 2008

Postgraduate, Middle East Technical University, Graduate School Of Natural And Applied Sciences, Aerospace Engineering, Turkey 2000 - 2003

Undergraduate, Middle East Technical University, Faculty Of Engineering, Aeronautical Engineering, Turkey 1995 - 2000

Foreign Languages

English, C1 Advanced

Certificates, Courses and Trainings

Renewable Energy Sources, AWEA Wind Resource and Project Energy Assessment Seminar, American Wind Energy Association, 2014

Vocational Training, Basic Aircraft Certification Training, Joint Aviation Authorities (JAA), 2014

Dissertations

Doctorate, Path optimization of flapping airfoils based on unsteady viscous flow solutions, Orta Doğu Teknik Üniversitesi, Türk Halkoyunları, Havacılık Mühendisliği (Dr), 2008

Postgraduate, Computation of viscous flows over flapping airfoils and parallel optimization of flapping parameters, Orta Doğu Teknik Üniversitesi, Türk Halkoyunları, Havacılık Mühendisliği (YI) (Tezli), 2003

Research Areas

Aeronautical Engineering , Aerodynamics

Academic Titles / Tasks

Associate Professor, Ankara Yıldırım Beyazıt University, Havacılık ve Uzay Bilimleri Fakültesi, Havacılık ve Uzay Mühendisliği Bölümü, 2021 - Continues

Assistant Professor, Ankara Yıldırım Beyazıt University, Havacılık ve Uzay Bilimleri Fakültesi, Havacılık ve Uzay Mühendisliği Bölümü, 2016 - 2021

Assistant Professor, University Of Turkish Aeronautical Association, Faculty Of Air Transport, Department Of Pilotage, 2011 - 2016

Research Assistant, Middle East Technical University, Faculty Of Engineering, Department Of Aerospace Engineering, 2000 - 2007

Academic and Administrative Experience

Vice Dean, Ankara Yıldırım Beyazıt University, Havacılık ve Uzay Bilimleri Fakültesi, Havacılık ve Uzay Mühendisliği Bölümü, 2020 - Continues

Türk Hava Kurumu Üniversitesi, Hava Ulaştırma Fakültesi, 2015 - 2016

Türk Hava Kurumu Üniversitesi, Hava Ulaştırma Fakültesi, Pilotaj Bölümü, 2011 - 2013

Courses

0030024002 Aeronautical Engineering Design, Postgraduate, 2017 - 2018

0030020014 Introduction to Aircraft Performance, Postgraduate, 2017 - 2018, 2016 - 2017

MAK 310 Numerical Methods, Postgraduate, 2017 - 2018

MAK 502 Mühendislikte Sayısal Yöntemler, Postgraduate, 2017 - 2018

UTP 108 UÇUŞ PRENSİPLERİ, Associate Degree, 2017 - 2018

0030023012 Flight Mechanics, Postgraduate, 2017 - 2018, 2016 - 2017

0030024020 Computational Fluid Dynamics, Postgraduate, 2017 - 2018

MAK 310 Numerical Methods, Undergraduate, 2017 - 2018

0030024002 Aeronautical Engineering Design, Associate Degree, 2017 - 2018

MAK 501 Mühendislik Matematiği, Postgraduate, 2017 - 2018

Jury Memberships

Doctorate, Doctorate, Orta Doğu Teknik Üniversitesi, September, 2023

Doctorate, Doctorate, Orta Doğu Teknik Üniversitesi, July, 2023

Doctorate, Doctorate, Orta Doğu Teknik Üniversitesi, September, 2018

Doctorate, Doctorate, Orta Doğu Teknik Üniversitesi, April, 2018

Doctorate, Doctorate, Orta Doğu Teknik Üniversitesi, February, 2018

Doctorate, Doctorate, Orta Doğu Teknik Üniversitesi, October, 2017

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Artificial neural network based wing planform aerodynamic optimization**
Dam B., PIRASACI T., KAYA M.
Aircraft Engineering and Aerospace Technology, vol.94, no.10, pp.1731-1747, 2022 (SCI-Expanded)
- II. **Estimation of electricity cost of wind energy using Monte Carlo simulations based on nonparametric and parametric probability density functions**
Ali Elfarrar M., KAYA M.
Alexandria Engineering Journal, vol.60, no.4, pp.3631-3640, 2021 (SCI-Expanded)
- III. **Taper stacking for the aerodynamic performance of wings**

- KAYA M., Elfarra M.
Aircraft Engineering and Aerospace Technology, vol.92, no.7, pp.1101-1110, 2020 (SCI-Expanded)
- IV. **An experimental study on the dynamic behavior of an ultra high-strength concrete**
Gunay A. R., Karadeniz S., KAYA M.
Applied Sciences (Switzerland), vol.10, no.12, pp.1-15, 2020 (SCI-Expanded)
- V. **A CFD based application of support vector regression to determine the optimum smooth twist for wind turbine blades**
Kaya M.
Sustainability (Switzerland), vol.11, no.16, 2019 (SCI-Expanded)
- VI. **Optimization of the taper/twist stacking axis location of NREL VI wind turbine rotor blade using neural networks based on computational fluid dynamics analyses**
Kaya M., Elfarra M.
Journal of Solar Energy Engineering, Transactions of the ASME, vol.141, no.1, 2019 (SCI-Expanded)
- VII. **Comparison of optimum spline-based probability density functions to parametric distributions for the wind speed data in terms of annual energy production**
Elfarra M., Kaya M.
Energies, vol.11, no.11, 2018 (SCI-Expanded)
- VIII. **Aircraft vulnerability assessment against fragmentation warhead**
Konokman H. E., KAYRAN A., Kaya M.
Aerospace Science and Technology, vol.67, pp.215-227, 2017 (SCI-Expanded)
- IX. **Optimization of flapping motion parameters for two airfoils in a biplane configuration**
Kaya M., TUNCER İ. H., Jones K. D., Platzer M. F.
Journal of Aircraft, vol.46, no.2, pp.583-592, 2009 (SCI-Expanded)
- X. **Nonsinusoidal path optimization of a flapping airfoil**
Kaya M., TUNCER İ. H.
AIAA Journal, vol.45, no.8, pp.2075-2082, 2007 (SCI-Expanded)
- XI. **Optimization of flapping airfoils for maximum thrust and propulsive efficiency**
TUNCER İ. H., Kaya M.
AIAA Journal, vol.43, no.11, pp.2329-2336, 2005 (SCI-Expanded)
- XII. **Thrust generation caused by flapping airfoils in a biplane configuration**
TUNCER İ. H., Kaya M.
Journal of Aircraft, vol.40, no.3, pp.509-515, 2003 (SCI-Expanded)

Articles Published in Other Journals

- I. **Effect of taper modification on the performance of NREL VI wind turbine blade for low and mid wind speeds**
Kaya M., Elfarra M.
Wind Engineering, vol.43, no.4, pp.392-403, 2019 (Scopus)
- II. **Investigation of the Effect of Taper Stacking Location on Aerodynamic Loads for ONERA M6 Wing at a Fixed Angle of Attack**
KAYA M., ELFARRA M.
Havacılık ve Uzay Teknolojileri Dergisi, vol.12, no.1, pp.51-63, 2019 (Peer-Reviewed Journal)
- III. **CFD ANALYSIS OF THE EFFECT OF PARABOLIC TAPER DISTRIBUTION OF AN UNTWISTED HELICOPTER ROTOR BLADE**
ELFARRA M., KAYA M.
Havacılık ve Uzay Teknolojileri Dergisi (Journal of Aeronautics and Space Technologies), vol.11, no.2, pp.59-70, 2018 (Peer-Reviewed Journal)
- IV. **CFD based optimization of oscillatory wing motion for maximum energy harvesting from wind**
Kaya M., Elfarra M.

Refereed Congress / Symposium Publications in Proceedings

- I. **Twist Optimization of a Helicopter Rotor Blade Using Support Vector Regression**
ÖZYILMAZ E. B., KAYA M., ELFARRA M.
AIAA AVIATION FORUM 2023, San Diego, United States Of America, 12 - 16 June 2023
- II. **Aerodynamic Investigation of Very Closely Flying Fighters to Develop New Formation Types**
Aydm S. M., Yavuz A. G., KAYA M.
ICAS 2022, 33rd Congress of the International Council of the Aeronautical Sciences, Stockholm, Sweden, 4 - 09 September 2022
- III. **Numerical Investigation of the Effect of Blade Manufacturing Tolerances on Axial Turbine Performance**
ELFARRA M., ÖNEL M. N., KAPTAN Y., KAYA M.
AIAA Science and Technology Forum and Exposition, San Diego, United States Of America, 03 January 2022
- IV. **Investigation of flapping wings as an alternative to axial flow fans**
ÖZYILMAZ E. B., KAYA M., Elfarrar M.
AIAA Science and Technology Forum and Exposition, AIAA SciTech Forum 2022, California, United States Of America, 3 - 07 January 2022
- V. **Solution of the Modified Point Mass Trajectory Model Using Object Oriented Programming by Modern Fortran**
Konokman H. E., KAYA M.
11th ANKARA INTERNATIONAL AEROSPACE CONFERENCE, Ankara, Turkey, 08 September 2021
- VI. **Determination of Shaped Charge Jet Characteristics Using a Neural Networks Model Based on Hydrocode Simulations**
AYISIT O., KAYA M.
10th Ankara International Aerospace Conference, Ankara, Turkey, 18 - 20 September 2019
- VII. **Effect of Taper Distribution on the Torque and Thrust Generated by a Wind Turbine Rotor Blade**
Kaya M., Elfarrar M.
10th International Renewable Energy Congress, IREC 2019, Sousse, Tunisia, 26 - 28 March 2019
- VIII. **Investigation of the effect of taper stacking location on drag force for onera m6 wing**
Kaya M., Elfarrar M., Kadioglu F.
AIAA Scitech Forum, 2019, California, United States Of America, 7 - 11 January 2019
- IX. **Çok Hafif Hava Aracı Olarak Konsept Bir Planör Tasarımı**
SAMANCI A., CAN A., KAYA M.
3. Uluslararası Endüstriyel Tasarım ve Mühendislik Sempozyumu, Antalya, Turkey, 22 - 24 November 2018
- X. **A parametric cfd study for the effect of spanwise parabolic chord distribution on the thrust of an untwisted helicopter rotor blade**
Elfarrar M., Kaya M., Kadioglu F.
AIAA Aerospace Sciences Meeting, 2018, Florida, United States Of America, 8 - 12 January 2018
- XI. **A parametric CFD study for the effect of taper/twist stacking point location on the torque of NREL VI wind turbine rotor blade**
Kaya M., Elfarrar M., Kadioglu F.
Wind Energy Symposium, 2018, Florida, United States Of America, 8 - 12 January 2018
- XII. **Reconstruction of Atmospheric Flow Field and Wind Resource Estimation based on Proper Orthogonal Decomposition Method**
SEVİNE T., LEBLEBİCİ E., KAYA M., TUNCER İ. H.
WESC2017 – Wind Energy Science Conference, Lyngby, Denmark, 26 - 29 June 2017
- XIII. **NUMERICAL OPTIMIZATION OF OSCILLATORY MOTION OF A FLAPPING AIRFOIL FOR MAXIMUM POWER PRODUCTION FROM WIND ENERGY**

- KAYA M., ELFARRA M.
8th ANKARA INTERNATIONAL AEROSPACE CONFERENCE, Ankara, Turkey, 10 - 12 September 2015
- XIV. **RÜZGAR ENERJİSİNDEN MAKSİMUM GÜÇ ÜRETİMİ VE VERİMİ İÇİN SALINIR KANAT KESİTLERİNİN SALINMA HAREKETİ ENİYİLEMESİ**
KAYA M., ELFARRA M.
V. ULUSAL HAVACILIK VE UZAY KONFERANSI, Kayseri, Turkey, 8 - 10 September 2014
- XV. **Analysis of aircraft survivability against fragmenting warhead threat**
Konokman H. E., KAYRAN A., Kaya M.
55th AIAA/ASME/ASCE/AHS/SC Structures, Structural Dynamics, and Materials Conference - SciTech Forum and Exposition 2014, National Harbor, MD, United States Of America, 13 - 17 January 2014
- XVI. **Autonomous trajectory tracking and imaging via a quadrotor type UAV: A system integration approach**
Efe M. Ö., Kaya M., Elfarra M., Özdemir R.
20th Annual International Conference on Mechatronics and Machine Vision in Practice, M2VIP 2013, Ankara, Turkey, 20 September 2013, pp.1-8
- XVII. **SURVIVABILITY ANALYSIS OF AIRCRAFT UNDER FRAGMENTATION WARHEAD THREAT**
Konokman H. E., KAYRAN A., KAYA M.
7th ANKARA INTERNATIONAL AEROSPACE CONFERENCE, Ankara, Turkey, 11 - 13 September 2013
- XVIII. **Döner Kanatlı İnsansız Hava Aracı Kullanarak Bölgesel Gözetim Amaçlı Kişi veya Nesne Taikibi**
Özdemir R., KAYA M., ELFARRA M., EFE M. Ö.
IV. ULUSAL HAVACILIK VE UZAY KONFERANSI, İstanbul, Turkey, 12 - 14 September 2012
- XIX. **Path optimization of dual airfoils flapping in a biplane configuration with RSM in a parallel computing environment**
Kaya M., TUNCER İ. H.
20th International Series of Meetings on Parallel Computational Fluid Dynamics, CFD 2008, Lyon, France, 19 - 22 May 2008, pp.83-90
- XX. **Meteorolojik Hava Tahminleri İçin Uyumlu Dik Ayrışım (POD) Yöntemiyle Veri Asimilasyonu**
AHMET G., KUMRU S., KAYA M., TUNCER İ. H.
III. Ulusal Havacılık ve Uzay Konferansı, Eskişehir, Turkey, 16 - 18 September 2010
- XXI. **DEVELOPMENT AND APPLICATION OF A POD BASED DATA ASSIMILATION METHOD FOR METEOROLOGICAL FLOWFIELDS**
KAYA M., AHMET G., KUMRU S., TUNCER İ. H.
5th ANKARA INTERNATIONAL AEROSPACE CONFERENCE, Ankara, Turkey, 17 - 19 August 2009
- XXII. **AN IMPLEMENTATION OF PARALLEL GMRES SOLUTION METHOD ON A 3-D UNSTRUCTURED FLOW SOLVER**
KAYA M., AK M. A., TUNCER İ. H.
5th ANKARA INTERNATIONAL AEROSPACE CONFERENCE, Ankara, Turkey, 17 - 19 August 2009
- XXIII. **Non-Sinusoidal Path Optimization of Dual Airfoils Flapping in a Biplane Configuration**
KAYA M., TUNCER İ. H.
Parallel Computational Fluid Dynamics 2007, Antalya, Turkey, 21 - 24 May 2007
- XXIV. **PATH OPTIMIZATION OF THRUST PRODUCING FLAPPING AIRFOILS USING RESPONSE SURFACE METHODOLOGY**
KAYA M., TUNCER İ. H.
5th European Congress on Computational Methods in Applied Sciences and Engendering, Venedik, Italy, 30 June - 05 July 2008
- XXV. **Optimization of aeroelastic flapping motion of thin airfoils in a biplane configuration for maximum thrust**
Kaya M., TUNCER İ. H., Jones K. D., Platzer M. F.
37th AIAA Fluid Dynamics Conference, Miami, FL, United States Of America, 25 - 28 June 2007, vol.3, pp.1758-1766
- XXVI. **Path Optimization of Flapping Airfoils Based on NURBS**
KAYA M., TUNCER İ. H.

- Parallel Computational Fluid Dynamics 2006, Busan, South Korea, 15 - 18 May 2006
- XXVII. **RESPONSE SURFACE METHOD FOR THE MAXIMIZATION OF THRUST IN FLAPPING AIRFOILS**
KAYA M., TUNCER İ. H.
4th ANKARA INTERNATIONAL AEROSPACE CONFERENCE, Ankara, Turkey, 10 - 12 September 2007
- XXVIII. **Optimization of flapping motion of airfoils in biplane configuration for maximum thrust and/or efficiency**
Kaya M., TUNCER İ. H., Jones K. D., Platzer M. F.
45th AIAA Aerospace Sciences Meeting 2007, Reno, NV, United States Of America, 8 - 11 January 2007, vol.9, pp.5812-5822
- XXIX. **İki Çırpan Kanadın Ürettiği İtkinin Hareket Eden ve Bozulan Çözüm Ağlarında Eniyileştirilmesi**
KAYA M., TUNCER İ. H.
I. Ulusal Havacılık ve Uzay Konferansı, Ankara, Turkey, 21 - 23 September 2006
- XXX. **Thrust and Efficiency of Propulsion by Oscillating Foils**
Young J., Lai J. C., KAYA M., TUNCER İ. H.
Third International Conference on Computational Fluid Dynamics, ICCFD3, Toronto, Canada, 12 - 16 June 2004
- XXXI. **Maximum İtki İçin Çırpan Kanat Kesitlerinde Yörünge Eniyileştirilmesi**
KAYA M., TUNCER İ. H.
XIV. Ulusal Mekanik Kongresi, Antakya, Turkey, 12 - 16 September 2005
- XXXII. **PATH OPTIMIZATION OF FLAPPING AIRFOILS FOR MAXIMUM THRUST BASED ON UNSTEADY VISCOUS FLOW SOLUTIONS**
KAYA M., TUNCER İ. H.
3rd Ankara International Aerospace Conference, Ankara, Turkey, 22 - 25 August 2005
- XXXIII. **NUMERICAL INVESTIGATION OF 3-D EFFECTS ON THRUST GENERATION OF FLAPPING AIRFOILS**
KAYA M., TUNCER İ. H., Spentzos A., Barakos G. N.
3rd Ankara International Aerospace Conference, Ankara, Turkey, 22 - 25 August 2005
- XXXIV. **Parallel Optimization of Flapping Airfoils in a Biplane Configuration for Maximum Thrust**
TUNCER İ. H., KAYA M.
Parallel Computational Fluid Dynamics 2004, Gran Canaria, Spain, 24 - 27 May 2004
- XXXV. **Çırpan Kanat Kesitlerinde İtkinin Yapay Zeka İle Eniyileştirilmesi**
KAYA M., TUNCER İ. H.
HITEK 2004 Havacılıkta İleri Teknolojiler Konferansı, İstanbul, Turkey, 9 - 10 December 2004
- XXXVI. **Çırpan Kanat Kesitlerinde İtki Üretiminin Hesaplanması ve Deneysel Sonuçlarla Karşılaştırılması**
KAYA M., TUNCER İ. H.
V. Kayseri Havacılık Sempozyumu, Kayseri, Turkey, 13 - 14 May 2004
- XXXVII. **Üst Üste Çırpan İki Kanat Kesitinin Maksimum İtki İçin Paralel Eniyileştirilmesi**
KAYA M., TUNCER İ. H.
V. Kayseri Havacılık Sempozyumu, Kayseri, Turkey, 13 - 14 May 2004
- XXXVIII. **Optimization of flapping airfoils for maximum thrust**
TUNCER İ. H., Kaya M.
41st Aerospace Sciences Meeting and Exhibit 2003, Reno, NV, United States Of America, 6 - 09 January 2003
- XXXIX. **OPTIMIZATION OF FLAPPING AIRFOILS FOR MAXIMUM THRUST AND PROPULSIVE EFFICIENCY**
TUNCER İ. H., KAYA M.
3rd International Conference on Advanced Engineering Design, Prag, Czech Republic, 1 - 04 June 2003
- XL. **Parallel Computation of Flows Around Flapping Airfoils in Biplane Configuration**
TUNCER İ. H., KAYA M.
Parallel Computational Fluid Dynamics 2002, Kansai Science City, Japan, 20 - 22 May 2002
- XLI. **Çırpan Kanat Kesitlerinde İtkinin Paralel Olarak Hesaplanması ve Eniyileştirilmesi**
KAYA M., TUNCER İ. H.
IV. Kayseri Havacılık Sempozyumu, Kayseri, Turkey, 13 - 15 May 2002

Supported Projects

Kaya M., Elfarrar M., TUBITAK Project, Numerical and Experimental Investigation of Oscillating Wings for Power Production from Wind Energy, 2013 - 2015

Efe M. Ö., Kaya M., Elfarrar M., Development Agency, Low-altitude UAV for Regional Supervision and Ground Station Development, 2011 - 2013

Tuncer İ. H., Kaya M., Ahmet G., TUBITAK Project, Application and Development of Data Assimilation Models in Parallel Computing Environments for MM5 Program Used in Meteorological Forecasting, 2007 - 2008

Metrics

Publication: 57

Citation (WoS): 245

Citation (Scopus): 393

H-Index (WoS): 8

H-Index (Scopus): 9

Non Academic Experience

TÜBİTAK-SAGE Hedef Balistiği ve Tapa Birimi

TÜBİTAK-SAGE Hedef Balistiği Birimi