2026 11th International Conference on Recent Advances in Air and Space Technologies (RAST 2026)

Istanbul, Turkiye
13-15 May 2026

Pages 1–636

IEEE Catalog Number: CFP26819-POD
ISBN: 979-8-3195-4638-8

IEEE Advancing Technology for Humanity

Copyright © 2026, IEEE

All Rights Reserved

Copyright and Reprint Permissions:

Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

*** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.

IEEE Catalog Number:	CFP26819-POD
ISBN (Print-On-Demand):	979-8-3195-4638-8
ISBN (Online):	979-8-3195-4637-1
ISSN:	2994-9319

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA

Phone:	(845) 758-0400
Fax:	(845) 758-2633
E-mail:	curran@proceedings.com
Web:	www.proceedings.com

CURRAN ASSOCIATES INC. proceedings .com

TABLE OF CONTENTS

Performance Evaluation for Flying Vehicle on Mars 1
Crina Petrovici, Teodor-Viorel Chelaru

Machine Learning Based Scaling Approach for Hall Effect Thruster Preliminary Design 7
Betül Kaymaz, Gökay Deniz, Barış Çal, Duygu Çetin

Field-Scale Sunflower Head Detection and Spatial Distribution Patterns Analysis Using Multi-Temporal UAV Imagery and Deep Learning 13
Esra Yildirim, Ismail Colkesen, Umut Gunes Sefercik

From Conceptual Scenario to Quantitative Analysis: Simulation-Based Scenario–Consistency Framework 19
Vural Avci, Asli Aykaç, Özer Demir

Algorithm for Calculating the Characteristics of a Small Earth Remote Sensing Radar Spacecraft Based on CubeSat 25
Olga D. Zhaldybina, Tatyana V. Starostina

Gradient-Based Analysis of the Planar Trend Model for the Southern Hemisphere 31
Emir Efe Sezenis, Solen Kumbay Yildiz, Orhan Arikan, Feza Arikan

An Analytical Framework for Rapid Assessment of Supersonic Double-Wedge Inlet Performance in Off-Design Conditions 37
Erdal Melih Güventürk, Rahime Beyza Erkan, Atakan Değer, Aslıhan Sayaslan, Hüseyin Can Önel Human Amiri

Planning Unmanned Aerial Vehicles with Immune Plasma Algorithm: A Literature Summary 43
Selçuk Aslan, Tevfik Erkin

Baseline Distance Analysis of Helix Formation Flying SAR Satellites for Interferometric Imaging 48
Ersin Makas, Cengiz Onat Yapanel, Alim Rüstem Aslan

Generalized Flight Control for Fixed-Wing Aircraft Through Kinematics-Based Learning 53
Fatih Ahmet Sarigul, Ismail Bayezit

Reaction Wheel Desaturation via Magnetic Actuation for Orbit Operation Analysis 59
A. Bilal Ozcan, Ismail Bayezit

A System-Level Design Framework for Retrofit Variable Bypass Ratio Modulation in Conventional Turbofan Engines 65
Furkan Malay, Şükriye Dalkılıç, Doğan Şengül

Effect of Recycled CF Particles on Mode II Delamination Resistance of Adhesively Bonded CFRP Joints 70
Ruveyda Çevlik, Tahir Soyugüzel, Feyza Polat, Mustafa Emre Yılmazer, Melike Ağar, Hatice Kübra Aydın

Pixel-Level Assessment of Vegetation Recovery in High-Severity Burned Areas of a Mediterranean Landscape 76
Hasan Tonbul

Fuel-Optimal Shortest-Path Reference Tracking Using GWO-Tuned Fuzzy Logic Control 81
Ibrahim H. Cihan, Volkan Ates, Ali N. Sancak, Emir D. Guler, Göktug Keskin, Mustafa E. Ak

Control Lyapunov and Barrier Functions Based Quadratic Programming for Active Flutter Suppression Under Actuator Limits 87
Muhammet Enes Çıldır, Ahmet Salih Yiğit

Matrix Raster Angle Effects on Tensile Properties of Additively Manufactured Unidirectional Carbon Fiber/Polyamide Composites 93
Carlotta Nicole Huber, Görkem Eğemen Güloğlu

Optimal Placement of PCB Thermal Interfaces Using Genetic Algorithm for Conduction Dominant Environments 98
Barış Aksoy, Sertaç Çadırcı

Task Allocation Strategies for Cooperative Multi-UAV Systems in Dynamic Missions 103
Anıl Sezgin, Aytuğ Boyacı

Federated Learning with Chain of Recursive Thought Explainability for Fraud Detection in Distributed Aerospace Financial Systems 109
Dorsa Fadaei Arasi, Mustafa Kara, Hasan Hüseyin Balik

A-Star Driven Sequential Convex Programming for UAV Trajectory Planning 115
Ayşenur Aşçı, Yunus Dursun

End-to-End Deep Reinforcement Learning for Swarm UAV's in a Partially Observable Environment:Comparison with APF and Boids Algorithms with Dynamic Parameter Tuning 120
Asım Uçar, Ahmet Onat

Thermo-mechanical Performance and Filament Winding Optimization of Composite Airframe Structures for Supersonic Applications 126
Melek Cevşen Yücel, Elife Betül Erdem, Berra Özberak, Oğuzhan Güler, Abdullah Tayyip Çantav Mehmet Sunar, Mete Bakır

Multi-Objective Decision Making of Propulsion System Selection for Rendezvous and Docking Missions Using the NSGA-III Algorithm 132
Özden Yıldız, Tuncay Yunus Erkeç

Material-Dependent Electron Screening in Rare-Earth Metals and Its Potential Role in Future Fusion-Based Propulsion Concepts 138
Derin Çıvgın, Ali İhsan Kılıç, E. F. K. Kuştan, Orkun Hasekioğlu

A CFD-Based Methodology for Pressure-Drop Measurement Standardization of Perforated Plates in High-Reynolds-Number Pipe Flow 144
Muhammed Enes Özcan, Ayşegül Keresteci, Nilay Sezer Uzol

High-Mach Capability of a Compact External-Compression Intake via Bleed Integration 150
Muhammed Enes Özcan, Nilay Sezer Uzol

Development of an Unmanned and Autonomous Surface Vessel for Inland Hydrographic Surveying 156
Ö. Kemal Kınacı, A. Kaan Karabüber, Reha M. Alkan, Mostafa Abdelkhalek, Serdar Erol, Bilal Mutlu M. Oğuz Selbesoğlu, Cihad Delen, Levent Ucun

Design and Characterization of Hybrid Re-entrant and Semi-Octagon Lattices for Enhanced Energy Absorption 162
Burak Alperen Ihtiyar, Ali Nabizadeh, Kaan Yildiz

Planetary Rover Mobility Evaluation on Mars Regolith Simulants Using PyBullet Terrain Simulation 168
Okan Aktuğ, Ozan Unsalan

AFDX vs TSN in Avionics IMA Networks: A Paired A/B Simulation Study Under Mixed-Criticality Traffic 174
Hüseyin Alkan, İpek Baz

Competitive Hyper-Heuristic Optimization for Multi-Objective Drone Task Assignment 180
Anıl Sezgin, Aytuğ Boyacı

Evaluating the Asymmetric Jamming Effectiveness of Low-Cost CubeSat Swarms Against LEO Satellite GNSS Receivers 186
Tugay Gül, Mert Karahan, Semih Ozden

Design and Production of Electric Fan Motorized (EDF) VTOL Unmanned Aerial Vehicle 192
Hüseyin Furkan Çelik, O. Ergüven Vatandaş

Explaining Urban Thermal Hotspots in Ankara Using Remote Sensing and Spatial Statistics 198
Rabia Bovkir, Hasan Tonbul

Experimental Investigation of a Fluidic Thrust Vectoring System with Coanda Effect 204
Emre Kara, Dilek Funda Kurtuluç

Hydrodynamic and Mechanical Design of a Reconfigurable Highly Maneuverable Underwater Vehicle for Multiple Purposes 210
Ertuğrul Kağan Karagöz, Furkan Kalali, Sinan Özgan, Doğu Çağdaş Atilla, Onur Ağma

Real-Time SRTM-Based 3D Terrain Visualization with Satellite Imagery Integration and Adaptive LOD Optimization 216
Mert Ünver, Ozan Şenyayla, Veli Bakırcıoğlu

A PSO-based gain optimization of an iterative learning controller for a robotic manipulator under torque uncertainty 222
Ammar Urgan, Yavuz Eren

K-Adaptive Low-Complexity Alamouti STBC Receiver for NTN-Enabled AIoT over LEO Rician Channels 228
Osman Kaya, Yasin Emre Tok, Sedat Çimen, Sümeye Nur Karahan

Autonomous Mass Balancing of a 3-DOF Spacecraft Simulator via Hardware Constrained Particle Swarm Optimization 233
Emre Sayin, A. Bilal Ozcan, Ismail Bayezit

Shaft Speed Regulation of Variable-Speed Turboshaft Engines Using Sliding Mode Control 239
Masoud Norouzi, Ismail Bayezit, Ali Tatar

Time-to-Intercept Adaptive Sequential Convex Programming for Fixed-Wing UAV Evasion Against Kamikaze Interceptors 245
Mostafa Abdelkhalek, Ismail Bayezit

Multimodal Remote Sensing Image Segmentation with Domain Adaptation: A Comparative Review 251
Büşra Çaki, Fatma Gumus

Evaluating Incremental Deep Learning for Cyberattack Detection in UAV Communication Networks 257
İzel Ece Aksu, Fatma Gumus

Modeling of Airfoil Maximum Lift Coefficient at Low Reynolds Numbers using Gaussian Process Regression 263
Emirhan Pınar, S. Mert Özer

Collision Avoidance and Fuel Efficient Station-Keeping of an Autonomous GPS Constellation for the Irregular Asteroid 433 Eros using Artificial Potential Fields and Deadband Control 269
Mahsa Azadmanesh, Krasin Georgiev, Dimitar Ginchev, Radina Nikolova, Michael Todorov

Hyperspectral and Multispectral Image Fusion based on a Parametric Model and Sparse Unmixing to Address Spectral Variability 274
Noura Mokhtari, Salah Eddine Brezini, Mohammed Dahmani, Mohammed Kadiri

Mamdani Type Fuzzy Assisted PI Control at Supersonic Free Jet Facility 280
Cemaleddin Günbey, Ersin İşci, Mustafa Akdeniz, Şeyma Nur Ekemen, Muhammet Öztürk, Hasan Tabanlı Yunus Emre Çetinkaya

An Adaptive Attitude-Position Fault Tolerant Backstepping Controller Design for Quadrotor UAV 286
Tolga Ulutaş, Fatih Adıgüzel, Onur Akbatı

Evaluation of U-Net Variants Using Sentinel-2 and Spectral Indices for Burned Area Segmentation: A Case Study in Çanakkale 292
Aşkınnur Türedi, Deniz Yavuz, Şaziye Özge Atik

An Optimizable K-Nearest Neighbor Model for Fault Detection in Geosynchronous Satellite Power Systems 297
Can Eyupoglu

ToF-Based Excitation and Damage Localization in a Steel Plate Using Ultrasonic Guided Waves with Predefined Pseudo-Sensor Triplets 302
Seyfullah Aktaşoğlu, Görkem Eğemen Güloğlu

Conceptual Design of a Hybrid-Powered Unmanned Air Vehicle as a Lead Force in Network-Centric Warfare 307
Mustafa Kagan Cakir, Mustafa Tolga Yavuz, Musa Yildirim, Vural Avci, Barkin Karahan, Erhan Ciftci Ozer Demir

Nonlinear Modeling and PSO-Based LQR Control of a 6-DOF Helicopter Under Wind Gust Disturbances 313
Esra Cengiz, Alim Rüstem Aslan

Strengthening of Secondary-Bonded Carbon Fiber/Epoxy Joints via Interfacial Reinforcement with Non-woven Thermoplastic Veils 319
Görkem Eğemen Güloğlu, Barış Akış, Ahmet Çevik

A Hybrid Multi-Frame SRGAN Framework for Enhanced LEO Satellite Imaging via Sub-Pixel Motion Exploitation 324
Cem Yiğit Üstündağ, Hasan Karaşalli, Galip Orkun Arican

A Synthetic Optical Image Simulator for LEO and GEO Space Surveillance 330
Taha Muharrem Lahaçlar, Aydın Kaya

Grey Wolf Optimization Based System Identification of a Supersonic Free Jet Facility 336
Yunus Emre Çetinkaya, Hasan Tabanlı, Muhammet Öztürk

PRNU Stability Analysis of Göktürk-2 Satellite 341
Mustafa Teke

Design and Evaluation in FAMA over Nakagami-m Fading Channel 344
Mevlana Halit Aldemir, Muhammet Ali Karabulut, A. F. M. Shahen Shah

Large-Eddy Simulation of Non-Reacting Supersonic Flow in a Scramjet Combustor Using a Developed OpenFOAM Solver 349
Veli Uysal, Fırat Oğuz Edis

Trade-Off Analysis of Single and Multi-Temperature Zone Heat Pipe Networks for GEO Spacecraft Radiators 355
Giray Özen, Yunus Murat, Selin Arabaci

An Experimental Evaluation of GPS/Galileo Integrated Precise Point Positioning with Ambiguity Resolution for Dynamic Vehicular Applications 361
Sinan Birinci, Mehmet Halis Saka

Agile Maneuvering of Autonomous Quadrotor UAV Using Sliding Mode Position and Gain Scheduling Attitude Controllers 366
Dorukhan Astekin, Eyüp Okumuş, Fatih Adıgüzel, Buse Tacal Ucun

Model-Based Controller Design for Multi-UAV Swarms with Improved Artificial Potential Fields for Terminal Engagement 372
Muhammet Metin Altuncu, Mehmet Canım, Levent Ucun

Substantiation of Dent Damage on B737-800 Fuselage Skin 378
Erhan Savaş, Timuçin Karcıoğlu, Serkan Karagöz, Bayıkancan Öztürk

Comparative Analysis of Constitutive Models for Ballistic Impact on Laminated Structures 384
Adil Fatih İlhan, Faruk Nom, Esra Altinbaş, Alperen Kömürcügil, Kaan Berkay Arslan, Uğur Doğan Mesut Uyaner

A Singularity-Free Model Reference Adaptive Attitude and Position Controller for Quadrotor UAV 390
Nur Erkılıçoğlu, Eyüp Okumuş, Fatih Adıgüzel

Autonomous Topic Evolution in News Mining Using Active Learning-Based Dynamic LDA 396
Aydın Karadayı, Baha Şen

Lyapunov Based Robust Proportional Navigation Guidance for Highly Accelerated Targets 402
Selim Sivrioglu

Switching-Frame Extended Kalman and Square-Root Unscented Kalman Filtering for Attitude and Rate Estimation Using Moon-Direction Measurements 407
Mustafa Yılmaz, Demet Cilden Guler

Evaluation of Differential-Mode Radiated Susceptibility of COTS Equipment in Different Test Methods 413
Elifnur Kara, Fatih Üstüner

CL-SARA: Cross-Layer Resource Allocation for DVB-S2X VL-SNR Satellite Downlink Under Reactive Load-Aware Jamming 419
Buse Canbaz, Fatih Alagöz

FPGA-Based Software Conception of Binning Processing On board Hyperspectral Imager 425
Youcef Ghelamallah, Azzeddine Rachedi

Multi-Mode Attitude Control of CubeSats: Integrating the Detumbling, Target Pointing and Momentum Desaturation 431
Eren Turan, Harun Çelik

Double-Crest Matérn Modeling of the Equatorial Ionization Anomaly Using PSO 437
Yusuf Ocak, Feza Arikan, Solen Kumbay Yildiz, Orhan Arikan

Micro-Sat Structural Design and Development for a Very High-Resolution Earth Observation Payload 443
Bilge Memiş, Onur Öztekin, Alim Rüstem Aslan

A Geometric Approach to Instrument Landing System Modeling and Simulation 449
Mehmet Şahin, M. Berat Dikmen, Malik Mert Olgun

Design and Aerodynamic Analysis of a Protective System for Helicopter Engine Air Intakes 455
Onur Parlak, Hayri Acar, Alper Şanli, Veli Uysal

Comparative Analysis of Constitutive Models for Ballistic Impact on Laminated Structures 461
Adil Fatih İlhan, Faruk Nom, Esra Altinbaş, Alperen Kömürcügil, Kaan Berkay Arslan, Uğur Doğan Mesut Uyaner

Learning-Based Alignment Gain Adaptation for Multi-Agent Flocking 467
Nejat Tukenmez, Hossein B. Jond, Veli Bakırcıoğlu, Seta O. Bogosyan

A Pythagorean Fuzzy Approach to Stochastic Navigation of Autonomous UAVs for Border Surveillance 473
Büşra Bişkin Dursun, Hakan Ayhan Dağistanli

Optimization of Optical Design and Pointing Error Constraints for Low-Orbit Satellite Based Entanglement Quantum Key Distribution 479
Elif Türkan Akşit Kaya, Mustafa Doğan, Kadir Durak, Özgür Karcı

Metaheuristic Parameter Optimization for Ghost Imaging Reconstruction: A Comparative Study on EuroSAT Remote Sensing Data 485
Emine Us, Fatma Betül Okur, M. Faruk Şahin, H. Umut Okur, Ahmet Özcan

Noise Reduction in Mini-UAVs Through the Acoustic Design Navigator 491
Ümit Burak Alan, Tuncay Yunus Erkeç, Alper Şanlı

Quintic S-Curve Quaternion Guidance for Three-Axis Spacecraft Attitude Control 497
Gokhan Ozdogan, Farid Gulmammadov, Ozgur Akca

Adaptive Internal Model Control for Disturbance Rejection in Quadrotor UAVs Using Quaternions 503
Muhammet Ali Güneş, Fatih Adıgüzel

Nonlinear Dynamic Inversion Control Reinforced with a Second Order Sliding Mode Disturbance Observer for a Fixed-Wing Aircraft System 509
Muhammet Ali Güneş, Fatih Adigızel

The Effects of 3D Printing Orientation and Temperature on the Tensile Strength of Materials in FDM Technology 515
Zehra Demirhan, Hacer Nur Karadeniz, Beyza Nur Altun, Beyza Sül, Fatih Usta, Gürcan Özdemir

Operator-Level Preemption for Real-Time Neural Network Inference on Edge AI Platforms 520
Ömer Faruk İşcanlı

Atomic Oxygen Erosion Modelling and Calculation Methods for Spacecraft Materials 526
Nurdan Gediklioğlu, Tuncay Yunus Erkec

Detection of Misalignment Errors Using Point Spread Function and Deep Learning in Small Satellite Optical Telescope Subsystems 532
Alper Şanlı, Alim Rüstem Aslan, Musa Şen, Tuncay Yunus Erkeç, Serhat Yılmaz

A Wideband Circularly Polarized Diamond-Shaped Antenna Array with 1:6 Circular Power Divider 538
Arda Çetin, Ahmet Caner Gül, Semih Doğu

Optical Design of a Star Tracker for Low-Earth Orbit Satellites 543
Gül Erçetin, Özgür Karcı

Thermal Model Correlation Of Flight Model Of A Geostationary Satellite 549
Furkan Ahmet Tok, Ata Sariçoban, Selin Arabaci

Layered Explainable Anomaly Detection in Satellite Telemetry Using Spectrogram-Based 2D-CNN Autoencoders with Event-Aware EWMA Filtering 555
Bekir Berk Yıldırım, Yaren Dinç, Mert Özdemir, Abdulmajeed Alremali, Hilal Arslan Abdullah Nuri Somuncuoğlu

Comparative Performance Analysis of Semi-Empirical Conceptual Sizing and Regression-Based Modeling Approaches 561
Merve Kinaci Kadioglu, Fatih Kutay Akpinar, Ugur Ozdemir

Condition-Aware MeshGraphNets for Aerodynamic Surface Pressure Prediction 567
Yasin Yeşilyurt, Huseyin Avni Yasar

Deep Learning Predictions of Critical Buckling Loads in Polymer Matrix Composites 573
Anıl Burak Karalar, Seda Tepe, Tahir Soyugüzel, Demet Balkan, Halit Süleyman Türkmen

Physics-Based Estimation of Boundary-Layer Bleed Requirement for an External-Compression Intake 579
Muhammed Enes Özcan, Nilay Sezer Uzol

Orbit Determination of GEO Satellite Using Grid Based Data Driven Neural Networks 585
Esra Özbağ, Arif Armağan Gözütok, Kemal Kemal Sarı

Parametric Sensitivity Analyses for Dynamics-Based Quadrotor Navigation 591
Umut Can Yıldız, Halil Ersin Söken

A Comparative Evaluation of LoRa Mesh, Peer-to-Peer and Satellite Communication Systems for Lunar IoT Applications 597
Nouman Nteli Impraim, Şengül Bayrak

CFD Analysis of the Aerodynamic Performance for Supersonic Sounding Rockets with Different Nose Cone Fineness Ratios 603
Hayrunisa Yavuz, Melahat Cihan

Impact of Casing Material and Thermal Protection on Payload Performance: An Index-Based Evaluation 609
Omar Lamini, Hemza Layachi, Khaled Teffah

DEM-Constrained Constellation Optimization for Lunar South Pole Navigation 614
Aytaç Arıkan, İrem Beyza özdemir, Ramazan Yeniçeri

Development and Characterization of a High-Flux p-Be Neutron Source for In-Situ Neutron Radiation Effects Testing of Avionics 620
Egemen Göver, Melahat Bilge Demirköz, Doğa Veske

Scalable High Performance Simulation of Large Scale UAV Swarms 626
Furkan Aydos, Melike Çobankaya, Hatice Rüveyda Akça, Hilal Arslan, Berke Bayrı, Can Öznurlu

Addressing Data Leakage in UAV Cyberattack Detection: A Realistic Machine Learning Benchmark 632
Serif Mert Çeker, Güldal Akçiçek, Sıla İlayda Dönmez, Aziz Burak Kaçar

Development and Analysis of Solar-Powered Auxiliary Electric Systems for Light Sport Aircraft 637
Furkan Sağlam, Mustafa Bilal Solak, Murat Taflan

Machine Learning–Based Aerodynamic and Aeroacoustic Prediction of Bézier-Parameterized Airfoils 643
Mehmet Alim, Baha Zafer

Constrained Passive Sensor Placement for Bearings-Only Tracking under Uncertainty 649
Melike Güneş, Hüseyin Avni Yaşar

An Explainable Deep Learning Based Signal Recovery Framework for Avionics Communication 655
İlayda Akınet, Can Kankılıç, Ahmet Yusuf Demir, Hilal Arslan, Yasemin Can

A Verification-Oriented Modular 6DOF Simulation Framework for Lift+Cruise VTOL UAVs 661
Daglar Duman, Kutadgu Gokalp Demirci

Parameter-Efficient Fine-Tuning of a Vision–Language Model for Rock Type Classification from Thin-Section Images 667
Oğuzhan Derviş Yavuz, Okan Bursa, Ozan Unsalan, Stalyn Paucar

An Explainable Deep Learning Based Signal Recovery Framework for Avionics Communication 673
İlayda Akınet, Can Kankılıç, Ahmet Yusuf Demir, Hilal Arslan, Yasemin Can

Gain Scheduling Nonlinear Disturbance Observer via PSO-Based RL for Robust Control of Quadrotor 679
Muhammed Sait Karadeniz, Tarık Kahraman, Samet Hasan Köse, Fatih Adıgüzel

Robust Controller Design for Two-Axis Gimbal with IMU/GPS Sensor Fusion 685
Furkan Sevimli, Levent Ucun

Relative Navigation of Satellites Flying in Formation Using UKF and LKF 691
Mert Sever, Chingiz Hajiyev

Passive Athermalization Design for a High Precision, Ø1.0 m Aperture Ritchey-Chrétien Collimator Telescope 696
Muhammed Çakır, Sertaç Çelik, Mecid Uğur Dilberoğlu, Mustafa Doğan, Can Berk Boyraz
Mustafa Enes Kaya, Sibel Velioğlu, Özgür Karcı

AI-Assisted Topographic Terrain Classification from Reconnaissance Satellite Imagery Using Convolutional Neural Networks 702
Nail Furkan Terlemez, Tuncay Yunus Erkec

Differential Fringe Counting under Non-Collimated Illumination for Monitoring Cavity-Spacing Variations in a Fabry-Perot Interferometer 708
Erhan Eryiğit, İbrahim Yıldız, Melik Ziya Yakut

Investigation of Reaction Wheel–Induced Micro-Vibrations on Satellite Camera Line-of-Sight Stability 714
Sibel Velioğlu, Uğur Murat Leloğlu, Özgür Karcı

AI-Native Communication-Aware Coordination for UAV Swarms in 6G-Integrated Networks 720
Sedat Çimen, Osman Kaya

A Semi-Analytical Performance Parameter for Predicting Bearing Strength in Composite Plate Bolted Joints 726
Aytekin Aydoğdu, Ebubekir Araz, Ege Dursun, Kemal Abdullah, Uğur Doğan, Mesut Uyaner

Design and Characterization of A Student-Developed Solid Rocket Motor 732
Najwa Rashika Az-Zahra Raharema, Muhammad Hilmy Aryanda, Reno Artha Persada Kusdinar Muhammad Khairul Anam, Yazdi Ibrahim Jenie

Space Weather and Thermosphere Density Driven Modeling of Atmospheric Decay at LEO: GOKTURK-2 Case 738
Arif Armağan Gözütok, Ömer Ataş

Airfoil Aeroacoustic Shape Optimization Using a GAN Algorithm 744
Yusuf Aktas, Baha Zafer

Robust Control of Quadrotor with Incremental Backstepping 750
Muhammed Rasit Kartal, Dmitry Ignatyev, Argyrios Zolotas

Fault-Tolerant Roll Control of a Fighter Aircraft Using Filtered INDI with Adaptive Effectiveness Estimation 756
Sevda Ceren Keçecioğlu, Ahmet Salih Yiğit

Large Eddy Simulation of Reactive Flow Inside a Coaxial Combustor via Hybrid Lattice Boltzmann-Finite Difference Approach 762
Burakhan Sukuroglu, Alihan Atilla Cinar, Ayse Gul Gungor

Classification of Potentially Hazardous Asteroids Using a Stacking-Based Ensemble Learning Approach 768
Musa Şen, Melih Beceren, Hale Yenginer

2D Parametric Finite Element Investigation of Column-Supported Rib-Like Microstructures for Lightweight Drone Wings 773
Mustafa Murat Yavuz

Public Acceptance of AI-enabled Urban Air Mobility in Smart Cities: Survey Evidence from the UAE 778
Sumaiya Firoz Nomani, Mohammad Rababa, Eman Salamah, Hussain Al-Ahmad, Husameldin Mukhtar Nasiruddeen Muhammad, Saad Ali Amin, Burkhard Schafer

Hybrid FEM–SPH Modelling of Shock Acoustic Emission Waves in Whipple Shields under Hypervelocity Impact 782
Abdullah Samet Köse, Samet Çeri

Preliminary Mission Analysis and Design of a Continuous Surveillance and Early Warning Satellite System 788
İbrahim Doğa Ergin, Enes Dağ, Mustafa Ekinci, Gökhan Kurt, Muzaffer Çetin, Hilmi Sundu Çağatay Yavuzyılmaz, Barış Çal, Emrah Öncü, Erdinç Mermer, Buğse Beril Arı Kovan, Ayça Kalkan Mehmet Karahan, Bülent Avenoğlu, Mustafa Mehmet Nefes

A Spherical Fuzzy Decision-Making Framework for Passenger Selection in Space Tourism 794
Fatma Kutlu Gündoğdu, Meltem Aslantas

Orbit Determination Software of TUBITAK UZAY for Earth and Lunar Orbiting Spacecraft 800
Yasin Gungor, Abdulkadir Koker, Aleyna Erdogan, Enes Dag, Sahin Ulas Koprucu, Burak Yaglioglu

Comparison of Time-Domain Cross-Correlation and FFT-Based Methods for X-Ray Pulsar Phase Estimation in Spacecraft Navigation 806
Yasin Gungor, Halil Ersin Soken

Modular and Reusable On-Board Computer Architecture for Multi-Orbit and Deep Space Missions 812
Onur Turhan, Mustafa Ceylan, Coşkun Çelik, Mehmet Oturak, Ahmet Melih Gedikli, Cihan Erzen

Design of 0.4 m Aperture Ritchey-Chrétien Collimator Telescope for Ground Verification of Spaceborne Optical Instrument 818
M.Uğur Dilberoğlu, Haluk Akbaş, Can Berk Boyraz, Muhammed Çakır, Sibel Velioğlu, Mustafa Doğan Özgür Karcı

Experimental Investigation of Time-Delay-Integration (TDI) Imaging Sensor Characterization Based on EMVA 1288 Standard 824
Ayşegül Şen Merttürk, Mustafa Doğan, Özgür Karcı

RS-HDMR Based Weight Optimization for Improved Forest Fire Risk Mapping 830
Bekir Kapukaya, Gülşen Taşkın, Hüseyin Kaya, Nebiye Musaoğlu, Cumhur Güngöroğlu

Euler Force Effects on Rotating Blade Frequencies: Nonlinear Spin-Up/Spin-Down Asymmetry 834
Hüseyin Ural, Özge Özdemir

A Proportional Navigation–Inspired Reward Framework for Reinforcement Learning–Based Missile Guidance 840
Berke Cansiz, Emin Akpinar, Melek Aydin, Murat Taskiran, Melih Doğanay Sazak, Mehmet Akif Ahrazoglu Bülent Bolat, Nihan Kahraman, Bora Isildak, Bilge Kagan Gorur

Optimization of Effective Body Geometry for Viscous-Inviscid Interaction Problems 846
Rumeysa Demir, Zehra Akpınar, Gülnur Köksal, Kader Taşar, Sinan Emre Özen, Mustafa Kaya

Detection of Weak Fluorescent Targets in Aerial Active Imaging Systems 852
Ataberk Köşger, Arda Güneş, Enes Altındirek, İsmail Buğra Kuru, Muhammed Faruk Şahin Can Eyüpoğlu

DNA-Based Secure Storage of Critical Aviation Data Using Metaheuristic Optimization 858
Beyza Öztürk, Ayşenur İgit, Aylin Kaya, Zeynep Tuğsem Çamlıca, Selen Arıcı, M.Faruk Şahin Can Eyüpoğlu

Integrated Lander-Propulsion-GNC Framework for Autonomous Lunar Powered Descent 864
Emre Aklan, Fatih Seker, Bekir Gencalioglu, Mehmet Batuhan Kaya, Yigit Serceoglu, Furkan Yavuz Omer Burak Iskender, Burak Yaglioglu

Intermediate-Velocity Impact Comparison of Scutoid and Honeycomb Cores 870
Kağan Yaşar, Samet Çeri

Semiannual Anomaly of TEC in Northern Midlatitude Regions During Low Solar Activity Years 876
Melih Demirkasaoglu, Altuncan Huban Gülen, Solen Kumbay Yildiz, Feza Arikan

Enhancing Aeroelastic Flutter Stability through Closed-Loop Control Implementation 882
Büşra Akbalık, Mehmet İhsan Akdeniz, Seher Eken

Optimization of Satellite Imaging Schedule Under Attitude Constraints 888
Berkay Daşer, Erhan Topal, Ugur Murat Leloglu

Antenna Placement Optimization in Single-Target Focused Energy Distribution: Comparison of BES, PSO and GWO 895
Büşra Günay, Beril Şevval Develioğlu, Meryem Serttaşoğlu, M. Faruk Şahin

Performance Benchmarking of Lightweight YOLO Architectures for Drone Detection in Thermal Imagery 901
Rabia Yavuz, Cansel Fıçıcı, Mehmet Cem Çatalbaş

Integrated Attitude Determination and Magnetorquer-Based Relative Attitude Control for a GRACE-Like Satellite Formation 907
Mohaiminul Mesko, Ismail Bayezit

On the Potential of TESLA Protocol for NGEO Satellite Networks 913
Yüksel Eren Şen, Fatih Alagöz

Optimizing UAV Path Following Using Dynamic Reward-Based Q-Learning 919
Hüseyin Ateş Hergül, Cansel Fıçıcı, Mehmet Cem Çatalbaş

Bridging the Generalization Gap in CNN-Based Spectrum Sensing for Non-Stationary Aerial Channels 925
Hayder Almamoori, Münif Zeybek

Deep Reinforcement Learning–Based Missile Guidance for Highly Maneuvering Targets Using Proximal Policy Optimization 931
Melih Doğanay Sazak, Mehmet Akif Ahrazoğlu, Müge Canpolat Şahin, Berke Cansız, Murat Taşkıran

A Comprehensive Review of Computational Intelligence in Modern Electronic Warfare: From Deterministic Approaches to Hybrid Meta-Heuristic Optimization 937
Emine Us, Bilal Yaser Kaymakcı, Esra Corbacı, M.Faruk Sahin

Design of a Universal Separation System for Spacecraft from the Payload Adapter 943
Viktor Maiorov, Olga Zhaldybina

Deep Learning-Based Multimodal UGV and UAV Secure Command Relay System: An Active and Reinforcement Learning Approach 949
Mehmet Hakan Terzi, Duygu Ayvaz, Yıldıran Yılmaz

Comparative Analysis of PID and Off-Policy Control for Quadrotor UAVs under Uncertainty 955
Nejat Tukenmez, Seta O. Bogosyan

Design of Experimental Wing Model: Integration of Manufacturing Process and Flow Field Analysis 961
Doğa Çavlı, Umut Bucak, Muhammed Faruk Keleş, Tuğçe Kılcı, Pars Asilhan Çıldır, Süleyman Topci Yasin Farfar, Hasan Mutlu, Hüseyin Metin Erikli, Ilgın Çolak, Merve Eşdur, Berkan Anılır Fadile Yudum Çömez, Emre Kara, Erhan Solakoğlu, Mehmet Önder Efe, Dilek Funda Kurtuluş

Cavity-Backed Wideband Circularly Polarized Cross-Dipole Antenna for Ku-Band CubeSat Applications 967
Furkan Çağrı Babacan, Ahmet Caner Gül, Semih Doğu

Satellite-Based Exploration and Mapping of Lunar Surface and Subsurface Resources Mission 972
Fahrettin Genç, Efekan Tanır, Melisa Kıvcı, Ufuk Sakarya

Illumination Process Simulation of the Earth's Surface by a Solar Sail Spacecraft 978
Olga L. Starinova, Tatiana V. Starostina, Irına V. Chernyakina, Olga D. Zhaldybina

A Semi-Analytical Approach to Predict Bearing Strength in Double-Lap Composite Bolted Joints 984
Aytekin Aydoğdu, Ebubekir Araz, Ege Dursun, Kemal Abdullah, Uğur Doğan, Mesut Uyaner

Comparison of Current and Future Satellite Gravimetry Missions: Capabilities and Detection Limits 990
Uğur Doğukan Doğu, Tuncay Yunus Erkeç

Ultra-Precise Polishing of a 400 mm Aperture Light-Weighted Aspheric Zerodur Glass-Ceramic Mirror 996
Mehmet Can Çetinkaya, Orhan Öztürk, Yusuf Tutel, Özgür Karcı

Compressive and Energy Absorption Behavior of Polyurethane Foam-Reinforced FCC and Octet Lattice Structures 1002
Atiye Yumuk, Yasin Bağcı, Kerim Selim Turan, Ebeda Nur Beşdok, Fatih Usta

Reliability-Aware Benchmarking of Visual LOS and Single-Frame Range for Guidance-Oriented Measurement Handoff 1007
Huseyin Avni Yasar, Mehmet Akif Ahrazoğlu

Ballistic Analysis of the Surface-Landing Mission to Jupiter's Moon Callisto 1013
O. L. Starinova, V. V. Kovalev, T. V. Starostina, A. R. Sharipova

Multi-Wave UAV Swarm Defense Under Identity Uncertainty: A Bi-Objective MILP Model 1019
İrem Çetinkaya, Rabia Çok, Cihat Öztürk

Trim-Point Stability Assessment and Fault-Tolerant Control Validation of a FW-eVTOL Aircraft 1025
Daglar Duman, Kutadgu Gokalp Demirci

A 3.3–3.8 GHz High-Efficiency Doherty Power Amplifier for Sub-6 GHz Air and Space Communication Transmitters 1030
Sefa Aksoy, Sabahattin Doruk Yıldön, İsmail Şişman, Tugba Haykir Ergin

Comparison of Sliding Mode Control and PID for Nadir-Pointing Spacecraft in Elliptical Orbits 1035
Amine El Aruk, Seda Nur Çakıcı, Nur Sena Kocakılıç, Muhammet Öztürk, Mustafa Karabacak

A Sensor Fusion Approach for Deep-Space Angle-Only Navigation Using sCMOS and Event-Based Camera 1040
Seda Aydin, Şemsettin Numan Sözen, Kürşat Yenidoğan, Rabia Tüylek Tok

Geolocation of Ground RF Sources from LEO Using a 2U Cubesat With SDR and a Phased-Array Antenna 1046
Claudette Nishimwe, Sandrine Igihozo, Jules Dusabamahoro, Ahmet Güngör Pakfiliz, Ugur Murat Leloglu

Reinforcement Learning Based Exploration in UAVs 1052
Osama Elbagory, Erkan Uslu

Preliminary Design and Aerodynamic–Hydrostatic Balance Analysis of a Hybrid Air–Water Vehicle 1058
Melek Mendi, Hayri Acar

Modeling and Simulation-Based Evaluation of a Flyback Converter Using Classical and Learning-Based Control Methods Under Avionics-Oriented Power Conditions 1062
Hüseyin Kurnaz, Salih Barış Öztürk

Exploring the Potential of Water as a Strategic Space Propellant: KUSTIL's Experimental Investigations and Platform Development 1068
Djamal Darfilal, Fatima Alhammadi, Abderrahim Nabi, Elena Fantino, Abdul Hai, Sean Swei

Machine Learning-Based Flood Mapping Using Multi-Source Data: Sentinel-1, Sentinel-2 and DEM 1073
Şevval Çeştan, Samet Gözgören, Şaziye Özge Atik

On-Board Multi-Channel Satellite Telemetry Anomaly Detection via Autoencoder-Based Edge AI on AMD Kria KR260 SoM 1079
Yusuf Yiğitbaşı, İhsan Çiçek

Design and Certification of an Aircraft Cabin Air Filter Based on DO-160 and CS-25 Requirements 1085
Ünal Sınar, Erhan Savaş

SAF-ThermoTwin: Validated Non-Ideal Brayton Cycle Framework for Thermodynamic Performance and Emissions Modelling of SAF Blends in Micro Turbojet Engines 1091
Berkay Eren Emin

Low-Cost Star Tracker: A Software-Based Approach Using Consumer-Grade Hardware for Moving Platforms 1097
Giray Yıllıkçı, Ramazan Yeniçeri

Electromagnetic Scattering Characteristics of Floating Corner Reflectors and Decoy Systems Against Next-Generation Anti-Ship Missiles 1102
Kursat Faruk Yildiz, Pinar Ozturk Ozdemir, Aytug Boyaci

A Comparative Study of iFEM and Peridynamic-Enhanced iFEM for Digital Twinning of Aerospace Structures 1108
Hasan Huseyin Camuz

Optimal Landing with Gradient Descending Algorithm and Soft Constraints 1113
Ion-Valentin Stan, Teodor-Viorel Chelaru

Numerical Investigation of Secondary Injection Effects on Multiple Dual Bell Nozzle Configurations 1119
Leya Sharrouf, Rami Hammoud, Fadl Moukalled

Real-Time Tactical Penetration Path-planning for UAVs 1125
Ahmet Gunes, Serkan Aksoy

Virtual Noise Model Based on Allan Variance and Power Spectral Density Matching for MEMS Gyros 1130
Akın Soylu, Ufuk Guner, Hüseyin Canbolat

Crashworthiness Evaluation of eVTOL Seats via LS-DYNA Based Emergency Landing Simulations 1135
Hasan Totoş, Çağlar Üçler, Hacer İrem Erten Kaplan

Effect of Mechanically Recycled Micro Carbon Fibers on the Mechanical Performance of Epoxy Matrix Composites 1141
Hatice Kübra Aydın, Tahir Soyugüzel

A Comparative Simulation Study of a Reconfigurable Graphene-Based Patch Antenna for Ku-Band Space Applications 1147
FaizaMerad, Ahmed-Ali Kanoun, Mohammed Amin Rabah

GPS-Based Small Satellite Localization Using EKF Under Time-Varying Satellite Visibility Conditions 1151
Ahmet Talha Bektaş, Chingiz Hajiyev

A New Path Planner Based on Back-and-Forth Algorithm for Unmanned Aerial Vehicles 1157
Selçuk Aslan, Tevfik Erkin

Conformable Fractional Order PID Trajectory Tracking Controller for a Quadrotor Unmanned Aerial Vehicle 1162
Mert Bilgen, Erdem Ilten

Comparison of Different Shielding Materials for Total Ionizing Dose in Low Earth Orbit Satellites Using SPENVIS, OMERE, and FASTRAD 1168
Terlan Doğan, Sera İflazoğlu, İlknur Baylakoğlu

Regression-Based Modeling and Comparison of Guidance Methods for Rotary-Wing UAV 1174
Mehmet Tunahan Kara, Celal Aksoy, M. Berat Dikmen, Mehmet Şahin

Mathematical Modelling and Simulation-Based Failure Analysis of Rotorcraft Landing Gear: Impact on Flight Dynamics in Adverse Conditions 1180
Mehmet Şahin, Malik Mert Olgun, Selin Mina Kütük, Emre Arınç

An Adaptive Direction-of-Arrival Tracking and Beamforming Framework for Interference Suppression in LEO Satellite Communication Links 1186
Bora Meral, Mert Karahan

Low-Cost GNSS Anti-Jamming Through 2-Bit Phase Shift Beamforming with Machine Learning 1192
Burak Soner, Ekin Uzun, Can Aksoy

AI-Based Reconstruction of Sparse Pressure Pulsation Signals in Turbomachinery 1198
Haram Oh, Younjea Kim

Nano Mesh Material Driven Deuterium + Deuterium Fusion Enhancement for Nuclear Propulsion Systems 1204
Ali İhsan Kılıç, E. F. K. Kuştan, Orkun Hasekioğlu

Design of a Fully Annular Turbine Cascade 1209
Mustafa Bilgiç, Tolga Yasa, Fevzi Çınar

Anomaly Analysis for ILS Final Approach Using Clustering and LSTM-VAE 1215
Gürhan Öztürk, Bilal Erol

Hybrid Impedance Control Using Selective-Permeability Strategy for Micro-Debris Mitigation in Satellite Swarms 1221
Mahsa Azadmanesh, Krasin Georgiev, Dimitar Ginchev, Radina Nikolova, Ali Marioryad, Michael Todorov

Determination of Stress Instensity Factor for a Plate with Reinforced Hole 1226
Emine Gülşah Yıldırım

Integrated Satellite and UAV Remote Sensing Approaches: A Comprehensive Review 1231
Fatma Betul Okur, Can Eyupoglu

GNSS-Driven Closed-Loop Navigation and Attitude Control Architecture for Small Satellites 1237
Mehmet Umut Türker, Demet Cilden-Guler, Alim Rüstem Aslan

Impact of Ionospheric Scintillation Parameters on the Performance and Integrity of SoL GPS/SBAS Receivers in GBAS CAT-I Operations 1243
Oguzhan Kemal Bahar, Caner Savas

Active Disturbance Rejection and PID-Based Missile Attitude Control Under Actuator Limits 1249
Hakan Özdar, Fatma Döner, Muhammet Enes Çıldır, Ahmet Salih Yiğit

A Hybrid Sequential Decision-Making Framework for the Autonomous Aircraft Search and Service (A2S2) Problem 1255
Bulent Soykan, Emrah Koksalmis

Reuse of Mechanically Recycled Carbon Fiber Waste as Secondary Reinforcement in CFRP Composite Laminate 1261
Ezheran Nur Saçar, Tahir Soyugüzel, Abdulvahap Gül, Habibe Midi, Osman Bulut, Ömer Canbey Cücemen

Numerical Investigation of the Thermal Behaviour of HALE1500 Hall Effect Thruster Developed at TUBITAK UZAY 1267
Gökay Deniz, Duygu Çetin, İlksen Burat, Yusuf Yurttaş, Seda Kayra Güllü, Barış Çal, Mehmet İlbağı Berk Taşyürek