ISUDEF 2021 (International Symposium on Unmanned Systems and the Defense Industry) Program

(Washington DC GMT-4)

25 October 2021 - 16:00-16:30 (GMT-4) - Virtual Cocktail & Zoom Rehearsal
Zoom ID:977 6315 0579 & Passcode:749194
Zoom Link: https://zoom.us/j/97763150579?pwd=WXBuaXhDaE1Hai9Fa2pSZyt5NTR5dz09

(GMT-4) Washington DC Time		**26 October 2021** - Zoom ID:977 6315 0579 & Passcode:749194
		Zoom Link: https://zoom.us/j/97763150579?pwd=WXBuaXhDaE1Hai9Fa2pSZyt5NTR5dz09
09:00 - 10:00	Opening Session	Tuncay Döğeroğlu, Honorary Chair of ISUDEF'21, Rector - Eskişehir Technical University, Turkey
		John Anderson, Dean of the College of Engineering and Architecture, Howard University, USA
		Nadir Yılmaz, Chair of ISUDEF'21, Prof. and Department Chair of Mechanical Eng., Howard University, USA
		Siripong Atipan, Chair of ISSA'21
		Ravi Rajamani, Chair of ISEAS'21
		T. Hikmet Karakoç, Founding Chair of SARES Symposiums
10:00 - 11:30	1st Keynote Session	Session Chair: **Nadir Yılmaz**
		Predicting Evolution: Airplanes and Helicopters
		Adrian Bejan, Duke University, USA
		Numerical Analysis of Propeller-Wing Interaction in a UAV with Distributed Electric Propulsion
		Ramesh Agarwal, Washington University in St. Louis, USA
		A More Powerful Approach to Engineering Safer Systems
		Nancy Leveson, Massachusetts Institute of Technology, USA
11:30-11:45		Short Break
11:45 - 13:15	2nd Keynote Session	Session Chair: **T. Hikmet Karakoc**
		Development and Applications of Unmanned Aircraft System Industry in Malaysia
		Abd Rahim Abu Talib, Universiti Putra Malaysia, Malaysia
		Securing Unmanned Aerial Vehicular Networks
		Danda Rawat, Howard University, USA
		Methods for Retrieving Information About Remote Objects From Received Signals
		Felix J. Yanovsky, National Aviation University, Ukraine
13:15 - 13:45		Network Break
13:45 - 14:45	1st Technical Session - UAV-1	Session Chair: **Işıl Yazar**
		The Artificial Immune System Paradigm for Generalized Unmanned Aerial System Monitoring and Control
		Ryan Gerald Mclaughlin
		Transonic Airfoil Development for an Unmanned Air System
		Kasım Biber
		Detection of Unmanned Air Vehicles Using Multi-Camera Architectures
		Ana Veiga, S. Warwick, P. Oliveira and A. Suleman
		Concept Design and Analysis for A Fixed-Wing Unmanned Aerial Vehicle to Perform Surveillance and Mapping Missions
		Osman Kumuk, Mustafa Ilbas
14:45-15:45	2nd Technical Session - Kalman Filter Application- Space - Flight Performance and Aerodynamics - 1	Session Chair: **Kasım Biber**
		Fault Tolerant Estimation of Relative Motion of Satellites in Cluster
		Tuncay Yunus Erkec, Chingiz Hajiyev
		GNSS Aided Satellite Localization by Using Various Kalman Filters
		Mert Sever, Chingiz Hajiyev
		Flow Patterns in Double Planar Synthetic Jets
		Eva Muñoz Salamanca, Soledad Le Clainche Martínez
		Higher-Order Dynamic Mode Decomposition to Model Reacting Flows
		Adrián Corrochano, Giuseppe D'alessio, Alessandro Parente, Soledad Le Clainche

(GMT-4) Washington DC Time	27 October 2021 - Zoom ID:977 6315 0579 & Passcode:749194	
	Zoom Link: https://zoom.us/j/97763150579?pwd=WXBuaXhDaE1Hai9Fa2pSZyt5NTR5dz09	
09:00-09:45	1st Invited Speaker Session	Session Chair: Alper Dalkıran
		Leveraging Unmanned Systems to Solve the Next 50 Years' Challenges
		Keely Griffith, Association for Unmanned Vehicle Systems International (AUVSI), USA
		Resilient Exploration in Underground Spaces
		Sebastian Scherer, Carnegie Mellon University, USA
09:45-11:00	Workshop	Session Chair: **A. Haydar Ercan**
		Workshop on Pico/Micro/Nano-Satellite Engineering (Life Cycle of PNMSat Mission & Live Demo of Classroom Satellite Kit)
		Sharan Asundi, Old Dominion University, USA
11:00 - 11:15	Short Break	
11:15 - 12:15	2nd Invited Speaker Session	Session Chair: **Felix J. Yanovsky**
		The Future of Unmanned Aerial Vehicles: Autonomy, Morphing & Biomimicry
		Ranjan Vepa, Queen Mary University of London, UK
		Deep Learning and Data-driven Reduced Order Models Based on Physical Principles
		Soledad Le Clainche Martinez, Universidad Politécnica de Madrid, Spain
		Tomographic Emission Spectroscopy for the Characterization of Solid Propellant Plumes
		Yudaya Sivathanu, En'Urga Inc., USA
12:15 - 12:30	Short Break	
12:30 - 13:30	3rd Invited Speaker Session	Session Chair: **Jelena Svorcan**
		Aerospace Programs on a Budget
		Michael Hatfield, University of Alaska, USA
		UAS Enabled Weather Prediction System Prototype Development
		Dávid Sziroczák, Budapest University of Technology and Economics, Hungary
		Fiber Optic Multi-parameter Sensing for 3D Printed Pressure Vessel
		Hyung D. Bae, Howard University, USA
13:30 - 14:00	Short Break	
14:00 - 15:30	3rd Technical Session Environment-Sustainability-Energy-Simulation Studies - 1	Session Chair: **Afzal Suleman**
		Thermal Study of Cylindrical Lithium-Ion Battery At Different Discharge Rates
		Ugur Moralı
		Modeling and Simulation of Vertical Landing Dynamics of an Aircraft Based on A Model System
		Selim Sivrioglu
		Improving The Risk Matrix
		Sam Myung Hyun Yoo, Dro Gregorian, Andrew Kopeikin, Nancy Leveson
		Drone Simulation, Mapping and Navigation Via Ros
		Demet Canpolat Tosun
		Comparison of 5th Generation Fighters: Evaluation of Trends in Military Aviation
		Murat Ayar, Tahir Hikmet Karakoc
		Nonlinear Six-Degree-of-Freedom Flight Modelling of a Single-Propeller Airplane
		Kasım Biber
15:30 - 15:45	Short Break	
15:45 - 17:00	4th Technical Session - UAV2	Session Chair: **Soledad Le Clainche Martinez**
		Trajectory Tracking Control of an Unmanned Ground Vehicle Based on Fractional Order Terminal Sliding Mode Controller
		Hayriye Tugba Sekban, Abdullah Basci
		The Architecture of A Modular UAV With Additively Manufactured Frame: Preliminary Flight and Performance Evaluations
		Roberto Torre, Salvatore Brischetto
		Hierarchical Adaptive Fault-Tolerant Model Predictive Control of A Quadrotor
		Binyan Xu, Yang Shi, Afzal Suleman
		Submersible Seaplanes As The Path to Hybrid Flying and Diving Craft
		Keith Francis Joiner, Ahmed Swidan, Edison Jewson, Nicolas Carroll, David Champ, Gennady Shpak
		Inference of Civil Infrastructure Vibrations Using Unmanned Aerial Vehicles
		Abeer Jazzar, Utku Kale

(GMT-4) Washington DC Time	28 October 2021 - Zoom ID:977 6315 0579 & Passcode:749194	
	Zoom Link: https://zoom.us/j/97763150579?pwd=WXBuaXhDaE1Hai9Fa2pSZyt5NTR5dz09	
09:00-10:00	Special Session	Session Chair: **Yudaya Sivathanu**
		Lighter, Faster, Stronger, Cheaper: How Generative Design is Transforming Design & Manufacturing
		Gaby Waldman-Fried , Autodesk Inc., USA
10:00 - 11:00	5th Technical Session - UAV-3	Session Chair: **Utku Kale**
		Nonlinear Control of Multi-Quadrotor Flight Formations
		Diogo Santos Ferreira, Afzal Suleman, Paulo Oliveira
		Dynamic Modeling of Main Landing Gear of A High Altitude Long Endurance UAV
		Ali Dinc, Yousef Gharbia
		Aerodynamic Shape Optimization of the Morphing Leading Edge for the UAS-S45 Winglet
		Musavir Bashir, Simon Longtin-Martel and Ruxandra Mihaela Botez, Tony Wong
		Applications of Drones in the Field of Health and Future Perspectives
		Kursat Alp Yigit, Alper Dalkiran, T. Hikmet Karakoc
11:00 - 11:15	Short Break	
11:15-12:15	6th Technical Session Environment- Sustainability- Energy-Simulation Studies - 2	Session Chair: **Dávid Sziroczák**
		Examination of Supercapacitors in Terms of Sustainability in Aviation
		Cansu Gorgulu, Isil Yazar, Hikmet Tahir Karakoc
		Wind Energy Conversion for Stratospheric Balloon in Real Environment
		Oznur Kayhan
		The Effect of Control Cylinder Placed at Different Angles in Front of A Heated Cylinder on Heat Transfer
		Dogan Burak Saydam, Coskun Ozalp, Ertac Hurdogan
		Optimization of Energy Efficiency According to Freud's Disk Theory Depending on Propell Pitch Angles
		Ukbe Ucar, Zehra Ural Bayrak, Burak Tanyeri
12:15 - 13:15	7th Technical Session Aircraft Technologies - Design - Materials Structures Composites	Session Chair: **Hyung D. Bae**
		Electrical System Design for Very Light Aircraft
		Merve Aluc
		Stem Opportunities in Flight Testing Sunlight Reflector Ultralights
		Narayanan M. Komerath, Ravi Deepak, Adarsh Deepak
		Marketing of Innovative Transportation Options: Urban Air Mobility
		Volkan Yavas, Rustem Baris Yesilay
		Synthesis and Application of Composite Materials for 3D Printing Based on Polymers Filled With Carbon Nanostructures
		Oleksandr D. Zolotarenko, Elena Pavlovna Rudakova, Nazym Yerlanovna Akhanova, Anatolii D. Zolotarenko et al.
13:15-13:45	Short Break	
13:45 - 14:45	8th Technical Session - UAV-4	Session Chair: **Chingiz Hajiyev**
		Mobile Hydrogen Power Station for Unmanned Aerial Vehicles
		Anatolii Dmitrovich Zolotarenko, Oleksandr D. Zolotarenko, Nazym Yerlanovna Akhanova et al.
		Coordinated Path Following for Multi-Agent Fixed-Wing Aircraft
		Hugo Sequeira Costa, Stephen Warwick, Paulo Oliveira, Afzal Suleman
		Onboard Trajectory Coordination of Multiple Unmanned Air Vehicles
		James Sease, Stephen Warwick, Afzal Suleman
		In-Flight Nonlinear System Identification for UAS Adaptive Control
		Sean Bazzocchi, Afzal Suleman
14:45 - 15:45	9th Technical Session - Kalman Filter Application- Space - Flight Performance and Aerodynamics - 2	Session Chair: **Ali Dinc**
		Comparison of KalmanFilter Typer ın Orientation of UGV With Using İntertial Navigation System
		Semih Ozden, Orhun Dos, Haluk Gozde
		A Test-Bed for Attitude Determination and Control System of Nanosatellite
		Aykut Kutlu, Demet Cilden-Guler, Chingiz Hajiyev
		Satellite Formation Flight Via Thrusters and PID Control Aproaches
		Tuncay Yunus Erkec, Chingiz Hajiyev
		Adaptive Kalman Filter Based Sensor Fault Detection, Isolation and Accommodation for B-747 Aircraft
		Akan Güven, Chingiz Haciyev
15:45 - 16:00	Closing Remarks	