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Pages 1-688



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Content List of 2016 International Conference on Unmanned Aircraft Systems

Technical Program for Wednesday June 08, 2016

WeATT1	Georgetown A
Autonomy - I (Regular Session)	
Chair: Chakrabarty, Anjan	NASA Ames Res. Center
Co-Chair: Coopmans, Calvin	Utah State Univ
10:00-10:20	WeATT1.1
<i>Vision-Based UAV Landing on the Moving Vehicle</i> , pp. 1-7.	
LEE, HANSEOB	Korea Advanced Inst. of Science and Tech
JUNG, SEOKWOO	KAIST
Shim, David Hyunchul	Korea Advanced Inst. of Science and Tech
10:20-10:40	WeATT1.2
<i>A Real-Time Supervised Learning Approach for Sky Segmentation Onboard Unmanned Aerial Vehicles</i> , pp. 8-14.	
Carrio, Adrian	Univ. Pol. De Madrid
Sampedro, Carlos	Univ
Fu, Changhong	Nanyang Tech. Univ
Collumeau, Jean-François	Unemployed
Campoy, Pascual	Univ. Pol. Madrid
10:40-11:00	WeATT1.3
<i>Autonomous Location of Mobile Wireless Relay Nodes</i> , pp. 15-24.	
Shallcross, David	Applied Communication Sciences
van den Berg, Eric	Applied Communication Sciences
11:00-11:20	WeATT1.4
<i>Autonomous Indoor Object Tracking with the Parrot AR.Drone</i> , pp. 25-30.	
Chakrabarty, Anjan	NASA Ames Res. Center
Morris, Robert	NASA Ames Res. Center
Bouyssounouse, Xavier	NASA Ames Res. Center
HUNT, RUSTY	NASA Ames Res. Center
11:20-11:40	WeATT1.5
<i>Group Coordination and Path Replan Tactics in GPS Denied Environments</i> , pp. 31-39.	
Suresh, M	Ade, Drdo
Ghose, Debasish	Indian Inst. of Science
11:40-12:00	WeATT1.6
<i>Scalable Autonomy Concept for Reconnaissance UAVs on the Basis of an HTN Agent Architecture</i> , pp. 40-46.	
Rudnick, Georg	Univ. of the Bundeswehr, Munich
Schulte, Axel	Univ. of the Bundeswehr Munich
WeATT2	
Path Planning - I (Regular Session)	
Chair: Paley, Derek	Univ. of Maryland
Co-Chair: sharma, Rajnikant	Utah State Univ
10:00-10:20	WeATT2.1
<i>Multi Colony Ant Optimization for UAV Path Planning with Obstacle Avoidance</i> , pp. 47-52.	
Cekmez, Ugur	Yildiz Tech. Univ
Ozsignan, Mustafa	Turkish Air Force Acad

Sahingoz, Ozgur Koray	Turkish Air Force Acad
10:20-10:40	WeATT2.2
<i>Cooperative Bayesian Target Detection on a Real Road Network Using Aerial Vehicles</i> , pp. 53-61.	
Barkley, Brett	Univ. of Maryland
Paley, Derek	Univ. of Maryland
10:40-11:00	WeATT2.3
<i>Path Planning for a UAV with Kinematic Constraints in the Presence of Polygonal Obstacles</i> , pp. 62-67.	
Maini, Parikshit	Iit D
PB, Sujit	Indraprastha Inst. of Information Tech. Delhi
11:00-11:20	WeATT2.4
<i>Grey Wolf Optimization Based Sense and Avoid Algorithm for UAV Path Planning in Uncertain Environment Using a Bayesian Framework</i> , pp. 68-76.	
Radmanesh, Mohammadreza	Univ. of Cincinnati
Kumar, Manish	Univ. of Cincinnati
11:20-11:40	WeATT2.5
<i>Path Planner Based on Bidirectional Spline-RRT* for Fixed-Wing UAVs</i> , pp. 77-86.	
Lee, Dasol	Korea Advanced Inst. of Science and Tech
Shim, David Hyunchul	Korea Advanced Inst. of Science and Tech
11:40-12:00	WeATT2.6
<i>Analytical Time-Optimal Trajectory Generation and Control for Multirotors</i> , pp. 87-96.	
Beul, Marius	Univ. of Bonn
Behnke, Sven	Univ. of Bonn
WeATT3	
Control Architectures - I (Regular Session)	
Chair: Chen, Wen-Hua	Loughborough Univ
Co-Chair: Sun, Liang	New Mexico State Univ
10:00-10:20	WeATT3.1
<i>Disturbance Observer Based Control for Gust Alleviation of a Small Fixed-Wing UAS</i> , pp. 97-106.	
Smith, Jean	Loughborough Univ
Liu, Cunjia	Loughborough Univ
Chen, Wen-Hua	Loughborough Univ
10:20-10:40	WeATT3.2
<i>Tracking of Marine Surface Objects from Unmanned Aerial Vehicles with a Pan/Tilt Unit Using a Thermal Camera and Optical Flow</i> , pp. 107-117.	
Helgesen, Håkon Hagen	Norwegian Univ. of Science and Tech
Stendahl Leira, Frederik	Norwegian Univ. of Science and Tech
Johansen, Tor Arne	Norwegian Univ. of Sci. & Tech
Fossen, Thor I.	Norwegian Univ. of Sci and Tech
10:40-11:00	WeATT3.3
<i>A Control Approach for Transitioning VTOL UAVs with Continuously Varying Transition Angle and Controlled by Differential Thrust</i> , pp. 118-125.	

Theys, Bart	KU Leuven
De Vos, Guillaume	KU Leuven
De Schutter, Joris	KU Leuven

11:00-11:20 WeATT3.4

Geometric Path Following Control for Multirotor Vehicles Using Nonlinear Model Predictive Control and 3D Spline Paths, pp. 126-134.

Niermeyer, Philipp	Tech. Univ. of Munich
Akkinapalli, Venkata Sruvan	Tech. Univ. of Munich
Pak, Mikhail	Tech. Univ. of Munich
Holzapfel, Florian	Tech. Univ. München
Lohmann, Boris	Tech. Univ. Muenchen

11:20-11:40 WeATT3.5

Beyond Line-Of-Sight UAS Communication Link Simulation, pp. 135-143.

Soares Lira da Silva, Antonio	Inst. Tecnológico De Aeronáutica Lamounier
Tosta, Ricardo	Inst. Tecnológico De Aeronáutica - ITA
de Carvalho Bertoli, Gustavo	Inst. Tecnológico De Aeronautica
Ribeiro, Matheus	Inst. Tecnológico De Aeronautica
Adabo, Geraldo José	Inst. Tecnológico De Aeronáutica - ITA

11:40-12:00 WeATT3.6

Energy-Based Control for a Quadrotor using Unit Quaternions, pp. 144-151.

GUERRERO, MARIA EUSEBIA	CENIDET
Abaunza, Hernán	Univ. De Tech. De Compiègne
Castillo, Pedro	Unviersité De Tech. De Compiègne
Lozano, Rogelio	Univ. of Tech. of Compiègne
Garcia Beltran, Carlos Daniel	Centro Nacional De Investigación Y Desarrollo Tecnológico

WeATT4 Potomac A-B-C
Energy Efficient UAS (Regular Session)

Chair: Sabatini, Roberto	RMIT Univ
Co-Chair: Shang, Bo	Northeastern Univ. Shenyang

10:00-10:20 WeATT4.1

Quadrotor Aerial Manipulator Based on Dual Quaternions, pp. 152-161.

Abaunza, Hernán	Univ. De Tech. De Compiègne
Castillo, Pedro	Unviersité De Tech. De Compiègne
Lozano, Rogelio	Univ. of Tech. of Compiègne
Victorino, Alessandro	Univ. Univ. De Tech. De Compiègne

10:20-10:40 WeATT4.2

Vision-Based Lifespan and Strength Estimation of Sub-Cumulus Thermal Updrafts for Autonomous Soaring, pp. 162-169.

Stolle, Martin	Office National D'etudes Et De Recherches Aérospatiales (ONERA)
Watanabe, Yoko	Office National D'etudes Et De Recherches Aérospatiales (ONERA),
Döll, Carsten	Onera

Bolting, Jan ISAE

10:40-11:00 WeATT4.3

Evaluating the Energy Balance of High Altitude Platforms at Early Design Stages, pp. 170-177.

Schopferer, Simon	DLR (German Aerospace Center)
Brizon, Mathilde	KTH - Royal Inst. of Tech
Liersch, Carsten M.	DLR (German Aerospace Center), Inst. of Aerodynamics and Flo
Froese, Sarah	DLR (German Aerospace Center), Inst. of Composite Structures

11:00-11:20 WeATT4.4

Wind Characterization and Mapping Using Fixed-Wing Small Unmanned Aerial Systems, pp. 178-184.

Rodriguez Salazar, Leopoldo	Univ. De Sevilla
Cobano, Jose Antonio	Univ. of Seville
Ollero, Anibal	Univ. De Sevilla

11:20-11:40 WeATT4.5

Aerodynamic Analysis of Upper Surface Wing Morphing Efficiency for the S4 Éhecatl Unmanned Aerial System, pp. 185-194.

Sugar Gabor, Oliviu	Ec. De Tech. Superieure
Koreanschi, Andreea	Ec. De Tech. Superieure
Botez, Ruxandra	Ec. De Tech. Superieure

11:40-12:00 WeATT4.6

Influence of Propeller Configuration on Propulsion System Efficiency of Multi-Rotor Unmanned Aerial Vehicles, pp. 195-201.

Theys, Bart	KU Leuven
Dimitriadis, Grigorios	Univ. of Liege
Hendrick, Patrick	Univ. Libre De Bruxelles
De Schutter, Joris	KU Leuven

WeBTT1 Georgetown A
Autonomy - II (Regular Session)

Chair: Pack, Daniel	Univ. of Texas at San Antonio
Co-Chair: Sun, Liang	New Mexico State Univ

15:00-15:20 WeBTT1.1

The Target Differential Game with Two Defenders, pp. 202-210.

Casbeer, David	Air Force Res. Lab
Garcia, Eloy	Infoscitex Corp
Pachter, Meir	AFIT/ENG

15:20-15:40 WeBTT1.2

Stochastic Optimal Control Navigation with the Avoidance of Unsafe Configurations, pp. 211-218.

Munishkin, Alexey	Univ. of California, Santa Cruz
Milutinovic, Dejan	Univ. of California at Santa Cruz
Casbeer, David	Air Force Res. Lab

15:40-16:00 WeBTT1.3

VTOL Aircraft Concept, Suitable for Unmanned Applications, with Equivalent Performance Compared to Conventional Aeroplane, pp. 219-226.

Cabarbaye, Aurélien	Cinvestav
Lozano, Rogelio	Univ. of Tech. of Compiègne
Fabiani, Patrick	ONERA
Bonilla, Moises E.	CINVESTAV-IPN

16:00-16:20	WeBTT1.4
<i>UAV Obstacle Avoidance Scheme Using an Output to Input Saturation Transformation Technique</i> , pp. 227-234.	
Chauffaut, Corentin	ISAE Res. Center
Defay, François	ISAE-SUPAERO
Burlion, Laurent	ONERA France
de Plinval, Henry	ONERA - the French Aerospace Lab
16:20-16:40	WeBTT1.5
<i>Guidance Law Design for Tracking Mobile Ground Targets Using an Unmanned Aerial Vehicle with a Fixed Camera</i> , pp. 235-241.	
Sun, Liang	New Mexico State Univ
Pack, Daniel	Univ. of Texas at San Antonio
16:40-17:00	WeBTT1.6
<i>Development of an Intelligent Least Squares Based Linear Controller for Autonomous Helicopters</i> , pp. 242-251.	
KUBALI, Eser	TUSAS Aerospace Industry (TAI)
Yavrucuk, Ilkay	Middle East Tech. Univ
WeBTT2	Georgetown B
Path Planning - II (Regular Session)	
Chair: sharma, Rajnikant	Utah State Univ
Co-Chair: Pereira, Guilherme A. S.	Univ. Federal De Minas Gerais
15:00-15:20	WeBTT2.1
<i>Application of Virtual Target Based Guidance Laws to Path Following of a Quadrotor UAV</i> , pp. 252-260.	
Manjunath, Abhishek	Utah State Univ
Mehrook, Parwinder	Utah State Univ
sharma, Rajnikant	Utah State Univ
Ratnoo, Ashwini	Indian Inst. of Science
15:20-15:40	WeBTT2.2
<i>A Framework for Optimal Repairing of Vector Field-Based Motion Plans</i> , pp. 261-266.	
Pereira, Guilherme A. S.	Univ. Federal De Minas Gerais
Choudhury, Sanjiban	Carnegie Mellon Univ
Scherer, Sebastian	Carnegie Mellon Univ
15:40-16:00	WeBTT2.3
<i>Genetically Tuned LQR Based Path Following for UAVs under Wind Disturbance</i> , pp. 267-274.	
Kukreti, Sarthak	Univ. of Cincinnati
Kumar, Manish	Univ. of Cincinnati
Cohen, Kelly	Univ. of Cincinnati
16:00-16:20	WeBTT2.4
<i>Area Decomposition, Partition and Coverage with Multiple Remotely Piloted Aircraft Systems Operating in Coastal Regions</i> , pp. 275-283.	
Balampanis, Fotios	Univ. of Seville
Maza, Ivan	Univ. De Sevilla CIF Q-4118001-I
Ollero, Anibal	Univ. De Sevilla
16:20-16:40	WeBTT2.5
<i>Dubins Paths through a Sequence of Points: Lower and Upper Bounds</i> , pp. 284-291.	
Manyam, Satyanarayana Gupta	National Acad

Casbeer, David	Air Force Res. Lab
Rathinam, Sivakumar	Texas a & M Univ
16:40-17:00	WeBTT2.6
<i>Decentralized Prioritized Motion Planning for Multiple Autonomous UAVs in 3D Polygonal Obstacle Environments</i> , pp. 292-300.	
Ma, Xiaobai	Univ. of Michigan
Jiao, Ziyuan	Univ. of Michigan
Wang, Zhenkai	Univ. of Michigan
Panagou, Dimitra	Univ. of Michigan
WeBTT3	Georgetown C
Control Architectures - II (Regular Session)	
Chair: Zhang, Xiaodong (Frank)	Wright State Univ
Co-Chair: Verbeke, Jon	KU Leuven
15:00-15:20	WeBTT3.1
<i>Nonlinear Adaptive Control Design and Controller Integrity Monitoring for Quadrotor UAVs</i> , pp. 301-309.	
Avram, Remus Calin	Wright State Univ
Zhang, Xiaodong (Frank)	Wright State Univ
Muse, Jonathan	Air Force Res. Lab
Clark, Matthew	Air Force Res. Lab
15:20-15:40	WeBTT3.2
<i>A Constraint-Based Flight Control System Architecture for UAVs Using the Itasc Framework</i> , pp. 310-319.	
Verbeke, Jon	KU Leuven
Vantilt, Jonas	KU Leuven
Vanthienen, Dominick	KU Leuven
Vochten, Maxim	KU Leuven
Debruyne, Stijn	Katholieke Univ. Leuven
De Schutter, Joris	KU Leuven
15:40-16:00	WeBTT3.3
<i>Near to Optimal Design of PID Fractional-Order Speed Controller (FOPID) for Multirotor Motor-Rotor Simplified Model</i> , pp. 320-326.	
Giernacki, Wojciech	Poznan Univ. of Tech
16:00-16:20	WeBTT3.4
<i>Decentralized Control of Multiple Unmanned Aircraft for Target Tracking and Obstacle Avoidance</i> , pp. 327-331.	
Kim, Youngjoo	KAIST
Bang, Hyochoong	KAIST
16:20-16:40	WeBTT3.5
<i>AEROSTACK: An Architecture and Open-Source Software Framework for Aerial Robotics</i> , pp. 332-341.	
Sanchez-Lopez, Jose Luis	CSIC - Univ. Pol. De Madrid, Centro De Automatica Y
Suárez Fernández, Ramón A.	Univ. Pol. De Madrid
Bavle, Hriday	PhD Student at Univ. Pol. De Madrid
Sampedro, Carlos	Univ
Molina, Martin	Univ. Pol. De Madrid, Departamento Inteligencia Art
Pestana Puerta, Jesus	Computer Vision Group, Centre for Automation and Robotics, CSIC
Campoy, Pascual	Univ. Pol. Madrid

16:40-17:00	WeBTT3.6
<i>Heterogeneous Leader-Follower Formation Based on Kinematic Models</i> , pp. 342-346.	
Santana, Lucas Vago	Federal Inst. of Education, Science and Tech. of Espíri
Brandao, Alexandre Santos	Federal Univ. of Vicosa
Sarcinelli-Filho, Mário	Federal Univ. of Espirito Santo

16:40-17:00	WeBTT4.6
<i>Trajectory Tracking with Input Delay in Multi-Agent System: Double Integrator Case</i> , pp. 387-393.	
Mehra, Srishti	Indian Inst. of Tech. Kanpur
Sahoo, Soumya Ranjan	Indian Inst. of Tech. Kanpur

WeBTT4	Potomac A-B-C
UAS Swarming (Regular Session)	

Chair: Theilliol, Didier	Univ. of Lorraine
Co-Chair: Chandhar, Prabhu	Linköping Univ. Sweden

15:00-15:20	WeBTT4.1
<i>Massive MIMO As Enabler for Communications with Drone Swarms</i> , pp. 347-354.	
Chandhar, Prabhu	Linköping Univ. Sweden
Danev, Danyo	Linköping Univ
G. Larsson, Erik	Linköping Univ

15:20-15:40	WeBTT4.2
<i>A Flexible and Dynamic Mission Planning Architecture for UAV Swarm Coordination</i> , pp. 355-363.	
Sampedro, Carlos	Univ
Bavle, Hriday	PhD Student at Univ. Pol. De Madrid
Sanchez-Lopez, Jose Luis	CSIC - Univ. Pol. De Madrid, Centro De Automatica Y
Suárez Fernández, Ramón A.	Univ. Pol. De Madrid
Rodríguez-Ramos, Alejandro	PhD Student at Univ. Pol. De Madrid
Molina, Martin	Univ. Pol. De Madrid, Departamento Inteligencia Art
Campoy, Pascual	Univ. Pol. Madrid

15:40-16:00	WeBTT4.3
<i>UAVs Fleet Control Design Using Distributed Particle Swarm Optimization : A Leaderless Approach</i> , pp. 364-371.	
BELKADI, Adel	Univ. De Lorraine
CIARLETTA, Laurent	Univ. De Lorraine, Loria
Theilliol, Didier	Univ. of Lorraine

16:00-16:20	WeBTT4.4
<i>In-Flight Formation Control for a Team of Fixed-Wing Aerial Vehicles</i> , pp. 372-380.	
Whitzer, Michael	Univ. of Pennsylvania
Keller, James	GRASP Lab, Univ. of Pennsylvania
Bhattacharya, Subhrajit	Univ. of Pennsylvania
Kumar, Vijay	Univ. of Pennsylvania
Sands, Trevor	Lockheed Martin
Pope, Adrian	Lockheed Martin
Ritholtz, Lee	Lockheed Martin
Dickmann, Dean	Lockheed Martin

16:20-16:40	WeBTT4.5
<i>Aerial Swarms As Asymmetric Threats</i> , pp. 381-386.	
Wilkerson, Stephen	The Army Res. Lab
Korpela, Christopher	United States Military Acad
Gadsden, Stephen Andrew	Univ. of Maryland, Baltimore County

Technical Program for Thursday June 09, 2016

ThBTT1	Georgetown A
Autonomy - III (Regular Session)	
Chair: McLain, Timothy W.	Brigham Young Univ
Co-Chair: Ollero, Anibal	Univ. De Sevilla
14:00-14:20	ThBTT1.1
<i>Active Perception for 3D Range-Only Simultaneous Localization and Mapping with UAVs</i> , pp. 394-398.	
R.Fabresse, Felipe	Univ. of Seville
Caballero, Fernando	Univ. of Seville
Merino, Luis	Univ. Pablo De Olavide
Ollero, Anibal	Univ. De Sevilla
14:20-14:40	ThBTT1.2
<i>Cushioned Extended-Periphery Avoidance: A Reactive Obstacle Avoidance Plugin</i> , pp. 399-405.	
Jackson, James	Brigham Young Univ
Wheeler, David	Brigham Young Univ
McLain, Timothy W.	Brigham Young Univ
14:40-15:00	ThBTT1.3
<i>Distributed Infrastructure Inspection Path Planning for Aerial Robotics Subject to Time Constraints</i> , pp. 406-412.	
Papachristos, Christos	Univ. of Patras
Alexis, Kostas	Univ. of Nevada, Reno
GARCIA CARRILLO, Luis Rodolfo	Univ. of Nevada Reno
Tzes, Anthony	Univ. of Patras
15:00-15:20	ThBTT1.4
<i>3D Path Planning for Small UAS Operating in Low-Altitude Airspace</i> , pp. 413-419.	
sahawneh, laith	Brigham Young Univ
Argyle, Matthew	Brigham Young Univ
Beard, Randal W.	Brigham Young Univ
15:20-15:40	ThBTT1.5
<i>Obstacle Avoidance and Path Intersection Validation for UAS: A B-Spline Approach</i> , pp. 420-429.	
Keller, James	GRASP Lab, Univ. of Pennsylvania
Thakur, Dinesh	GRASP Lab, Univ. of Pennsylvania
Gallier, Jean	GRASP Lab, Univ. of Pennsylvania
Kumar, Vijay	Univ. of Pennsylvania
ThBTT2	Georgetown B
Navigation - I (Regular Session)	
Chair: Andert, Franz	German Aerospace Center (DLR)
Co-Chair: Romero, Hugo	Icbi - Uaeh
14:00-14:20	ThBTT2.1
<i>Estimation of Velocity and Position for a Quadrotor Aircraft in GPS Denied Environment</i> , pp. 430-436.	
Montiel, Alejandro	Cinvestav UMI-LAFMIA
Santos, Omar	Univ. Autónoma Del Estado De Hidalgo
Salazar, Sergio	Umi Lafmia Cinvestav
Romero, Hugo	Icbi - Uaeh

Martinez-Vasquez, Adrian	Umi Lafmia Cinvestav
Lozano, Rogelio	Univ. of Tech. of Compiègne
14:20-14:40	ThBTT2.2
<i>A Maneuverability Analysis of a Novel Hexarotor UAV Concept</i> , pp. 437-446.	
Mehmood, Hamza	Delft Univ. of Tech
Nakamura, Takuma	Georgia Inst. of Tech
Johnson, Eric N.	Georgia Inst. of Tech
14:40-15:00	ThBTT2.3
<i>Predictive GNSS Integrity Augmentation for Flight Planning and Real-Time Optimisation¹</i> , pp. N/A	
Sabatini, Roberto	RMIT Univ.
Terry, Moore	Univ. of Nottingham
Chris, Hill	Univ. of Nottingham
Ramasamy, Subramanian	RMIT Univ.
15:00-15:20	ThBTT2.4
<i>Cooperative Navigation in GPS-Challenging Environments Exploiting Position Broadcast and Vision-Based Tracking</i> , pp. 447-456.	
Vetrella, Amedeo Rodi	Univ. of Naples "Federico II"
Fasano, Giancarmine	Univ. of Naples "Federico II"
Accardo, Domenico	Univ. of Naples "Federico II"
15:20-15:40	ThBTT2.5
<i>Aircraft Dynamics Model Augmentation for RPAS Navigation and Guidance</i> , pp. 457-464.	
Cappello, Francesco	RMIT Univ
Sabatini, Roberto	RMIT Univ
Ramasamy, Subramanian	RMIT Univ
15:40-16:00	ThBTT2.6
<i>Radar-Aided Optical Navigation for Long and Large-Scale Flights Over Unknown and Non-Flat Terrain</i> , pp. 465-474.	
Andert, Franz	German Aerospace Center (DLR)
Lorenz, Sven	German Aerospace Center
Mejias Alvarez, Luis	Queensland Univ. of Tech
Bratanov, Dmitry	Queensland Univ. of Tech
ThBTT3	Georgetown C
Path Planning - III (Regular Session)	
Chair: Bhandari, Subodh	Cal Pol. Pomona
Co-Chair: Aguiar, A. Pedro	Faculty of Engineering, Univ. of Porto (FEUP)
14:00-14:20	ThBTT3.1
<i>Autonomous Takeoff and Landing of a Quadcopter</i> , pp. 475-484.	
Beck, Hadrien	Ec. De Tech. Supérieure
Lesueur, Julien	Ec. De Tech. Supérieure
Charland-Arcand, Guillaume	Ec. De Tech. Supérieure
Akhrif, Ouassima	Ec. De Tech. Superieure
Gagné, Samuel	Ec. De Tech. Supérieure
François, Gagnon	Ec. De Tech. Supérieure
Couillard, Denis	Ultra Electronics TCS
14:20-14:40	ThBTT3.2
<i>Initial Experimental Procedures for Modeling and Identification of a Fixed Wing Aerial Vehicle</i> , pp. 485-494.	
Abdulhamid, Rauhe	Inst. Tecnológico De Aeronáutica (ITA)

Santos, Marcelo Henrique	Inst. Tecnológico De Aeronáutica
Oliveira, Neusa Maria Franco de	Inst. Tecnológico De Aeronáutica de
Maciel, Benedito	Flight Tech. S/A
14:40-15:00	ThBTT3.3
<i>A Novel Landing System to Increase Payload Capacity and Operational Availability of High Altitude Long Endurance UAV</i> , pp. 495-504.	
Muskardin, Tin	German Aerospace Center (DLR)
Balmer, Georg Robert	German Aerospace Center (DLR)
Persson, Linnea	German Aerospace Center
Wlach, Sven	German Aerospace Center
Laiacker, Maximilian	DLR
Ollero, Anibal	Univ. De Sevilla
Kondak, Konstantin	DLR (German Aerospace Center)
15:00-15:20	ThBTT3.4
<i>Potential Flow Field Navigation with Virtual Force Field for UAS Collision Avoidance</i> , pp. 505-513.	
Burgos, Edward	Cal Pol. Pomona
Bhandari, Subodh	Cal Pol. Pomona
15:20-15:40	ThBTT3.5
<i>Online UAS Local Path-Planning Algorithm for Outdoors Obstacle Avoidance Based on Attractive and Repulsive Potential Fields</i> , pp. 514-520.	
Dimas Flores, Gary Elias	Centro De Investigación Y De Estudios Avanzados Del IPN
Espinoza Quesada, Eduardo Steed	Univ. Pol. De Pachuca
Salazar, Sergio	Umi Lafmia Cinvestav
GARCIA CARRILLO, Luis Rodolfo	Univ. of Nevada Reno
Lozano, Rogelio	Univ. of Tech. of Compiègne
15:40-16:00	ThBTT3.6
<i>A Convoy Protection Strategy Using the Moving Path Following Method</i> , pp. 521-530.	
Oliveira, Tiago	Portuguese Air Force
Aguiar, A. Pedro	Faculty of Engineering, Univ. of Porto (FEUP)
Encarnação, Pedro	Catholic Univ. of Portugal
ThBTT4	Potomac A-B-C
See-And-Avoid Systems (Regular Session)	
Chair: Zoldi, Dawn	United States Air Force Acad
Co-Chair: Lyu, Yang	Northwestern Pol. Univ
14:00-14:20	ThBTT4.1
<i>Cooperative and Non-Cooperative Sense-And-Avoid in the CNS+A Context: A Unified Methodology</i> , pp. 531-539.	
Ramasamy, Subramanian	RMIT Univ
Sabatini, Roberto	RMIT Univ
Gardi, Alessandro Giacomo Maria	RMIT Univ
14:20-14:40	ThBTT4.2
<i>Towards a Generic and Modular Geofencing Strategy for Civilian UAVs</i> , pp. 540-549.	
Gurriet, Thomas	Georgia Inst. of Tech
CIARLETTA, Laurent	Univ. De Lorraine, Loria
14:40-15:00	ThBTT4.3

<i>An Intruder Detection Algorithm for Vision Based Sense and Avoid System</i> , pp. 550-556.	
Zhang, Zhouyu	Nanjing Univ. of Aeronautics and Astronautics
Cao, Yunfeng	Nanjing Univ. of Aeronautics and Astronautics
Ding, Meng	Nanjing Univ. of Aeronautics and Astronautics
Zhuang, Likui	Nanjing Univ. of Aeronautics and Astronautics
Yao, Weiwen	Nanjing Univ. of Aeronautics and Astronautics
15:00-15:20	ThBTT4.4
<i>Studying the Interaction of UAS and Human Pilots Using the X-Plane Flight Simulator</i> , pp. 557-561.	
Lombardo, Craig	Lafayette Coll
Miller, Ian D.	Lafayette Coll
Wallace, Jon	Lafayette Coll
15:20-15:40	ThBTT4.5
<i>3D Obstacle Avoidance System Using Ellipsoid Geometry</i> , pp. 562-571.	
Adhy Sasongko, Rianto	Fakultas Teknik Mesin Dan Dirgantara (FTMD) - Inst. Teknologi
Rawikara, Seno Sahisnu	Inst. Teknologi Bandung
15:40-16:00	ThBTT4.6
<i>A UAV Sense and Avoid System Design Method Based on Software Simulation</i> , pp. 572-579.	
Lyu, Yang	Northwestern Pol. Univ
PAN, Quan	Northwestern Pol. Univ
Zhao, Chunhui	Northwestern Pol. Univ
Jinwen, Hu	Northwestern Pol. Univ
ThCTT1	Georgetown A
Sensor Fusion (Regular Session)	
Chair: Chen, Wen-Hua	Loughborough Univ
Co-Chair: Zhang, Youmin	Concordia Univ
16:30-16:50	ThCTT1.1
<i>A Novel Estimation Technique Based on Curve Fitting and Sigma-Point Kalman Filtering with Time-Delayed Measurements</i> , pp. 580-588.	
Sun, Liang	New Mexico State Univ
Pack, Daniel	Univ. of Texas at San Antonio
16:50-17:10	ThCTT1.2
<i>Multi-Sensor Robust Relative Estimation Framework for GPS-Denied Multirotor Aircraft</i> , pp. 589-597.	
Koch, Daniel P.	Brigham Young Univ
McLain, Timothy W.	Brigham Young Univ
Brink, Kevin	US Airforce
17:10-17:30	ThCTT1.3
<i>Vision-Based Multiple Model Adaptive Estimation of Ground Targets from Airborne Images</i> , pp. 598-607.	
Nakamura, Takuma	Georgia Inst. of Tech
Johnson, Eric N.	Georgia Inst. of Tech
17:30-17:50	ThCTT1.4
<i>Long-Term Aerial Robot Localization Based on Visual Odometry and Radio-Based Ranging</i> , pp. 608-614.	

Perez-Grau, Francisco Javier	Center for Advanced Aerospace Tech. (CATEC)
R.Fabresse, Felipe	Univ. of Seville
Caballero, Fernando	Univ. of Seville
Viguria, Antidio	FADA-CATEC
Ollero, Anibal	Univ. De Sevilla

17:50-18:10 ThCTT1.5

SLAM-Based Cooperative Calibration for Optical Sensors Array with GPS/IMU Aided, pp. 615-623.

Wang, Dong	Northwestern Pol. Univ
PAN, Quan	Northwestern Pol. Univ
Zhao, Chunhui	Northwestern Pol. Univ
Liu, Liu	Northwestern Pol. Univ
Tian, Limin	Northwestern Pol. Univ
Jinwen, Hu	Northwestern Pol. Univ

18:10-18:30 ThCTT1.6

Combining Model-Free and Model-Based Angle of Attack Estimation for Small Fixed-Wing UAVs Using a Standard Estimator Suite, pp. 624-632.

Wenz, Andreas Wolfgang	Norwegian Univ. of Science and Tech
Johansen, Tor Arne	Norwegian Univ. of Sci. & Tech
Cristofaro, Andrea	Norwegian Univ. of Science and Tech

ThCTT2 Georgetown B
Navigation - II (Regular Session)

Chair: McLain, Timothy W.	Brigham Young Univ
Co-Chair: Ai, Zhuming	Naval Res. Lab

16:30-16:50 ThCTT2.1

A Framework for Visual Return-To-Home Capability in GPS-Denied Environments, pp. 633-642.

Lewis, Benjamin	Brigham Young Univ
Beard, Randal W.	Brigham Young Univ

16:50-17:10 ThCTT2.2

Vision Algorithms for Fixed-Wing Unmanned Aerial Vehicle Landing System[†], pp. N/A

Ding, Meng	Nanjing Univ. of Aeronautics and Astronautics
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17:10-17:30 ThCTT2.3

Trajectory Tracking for UAV with Saturation of Velocities, pp. 643-648.

Santos, Milton Cesar Paes	Federal Inst. of Espirito Santo
Sarcinelli-Filho, Mário	Federal Univ. of Espirito Santo
Carelli, Ricardo	Univ. Nacional De San Juan

17:30-17:50 ThCTT2.4

LIDAR-Inertial Integration for UAV Localization and Mapping in Complex Environments, pp. 649-656.

Opromolla, Roberto	Univ. of Naples Federico II
Fasano, Giancarmine	Univ. of Naples "Federico II"
Rufino, Giancarlo	Univ. of Naples Federico II
Grassi, Michele	Univ. of Naples Federico II
Savvaris, Al	Cranfield Univ

17:50-18:10 ThCTT2.5

Target State Estimation for Vision-Based Landing on a Moving Ground Target, pp. 657-663.

Jung, Wooyoung	KAIST
Kim, Youngjoo	KAIST
Bang, Hyochoong	KAIST

18:10-18:30 ThCTT2.6

Real-Time Unmanned Aerial Vehicle 3D Environment Exploration in a Mixed Reality Environment[†], pp. 664-670

Ai, Zhuming	Naval Res. Lab
Livingston, Mark	Naval Res. Lab
Moskowitz, I.S.	NRL

ThCTT3 Georgetown C
Control Architectures - III (Regular Session)

Chair: Stol, Karl	Univ. of Auckland
Co-Chair: Coopmans, Calvin	Utah State Univ

16:30-16:50 ThCTT3.1

A Simple Autonomous Flight Control Method of Quadrotor Helicopter Using Only Single Web Camera, pp. 671-678.

Sato, Kazuya	Saga Univ
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16:50-17:10 ThCTT3.2

Aircraft System Identification Using Artificial Neural Networks with Flight Test Data, pp. 679-688.

Harris, Joshua	Texas A&M Univ
Arthurs, Frank	Texas A&M Univ
Henrickson, James V.	Texas A&M Univ
Valasek, John	Texas A&M Univ

17:10-17:30 ThCTT3.3

Hybrid Fuzzy-PID Control and Modeling of Coaxial Rotor Helicopter, pp. 689-694.

Shim, Taemin	Korea Advanced Inst. of Science and Tech
Kim, Youngjoo	KAIST
Bang, Hyochoong	KAIST

17:30-17:50 ThCTT3.4

Disturbance Accomodation Control for Wind Rejection of a Quadcopter, pp. 695-701.

Bannwarth, Jérémie Xavier Joseph	Univ. of Auckland
Chen, Zhenrong Jeremy	Univ. of Auckland
Stol, Karl	Univ. of Auckland
MacDonald, Bruce Alexander	Univ. of Auckland

17:50-18:10 ThCTT3.5

A Novel Modification for a Quadrotor Design, pp. 702-710.

Badr, Sherif	Mechanical Power Engineering Department, Faculty of Engineering,
Mehrez, Omar	Mechanical Power Engineering Department, Faculty of Engineering,
Kabeel, A.E.	Mechanical Power Engineering Department, Faculty of Engineering,

18:10-18:30 ThCTT3.6

Altitude Control Improvement for a Quadrotor UAV Using Integral Action in a Sliding-Mode Controller, pp. 711-716.

Gonzalez-Hernandez, Ivan	Cinvestav - IPN
Salazar, Sergio	Umi Lafmia Cinvestav
López, Jesús Ricardo	CINVESTAV

ThCTT4		Potomac A-B-C
Micro and Mini UAS - I (Regular Session)		
Chair: Altug, Erdinc	Istanbul Tech. Univ	
Co-Chair: Uchiyama, Kenji	Nihon Univ	
16:30-16:50	ThCTT4.1	
<i>Dynamics of a Quadrotor Undergoing Impact with a Wall</i> , pp. 717-726.		
Chui, Fiona	McGill Univ	
Dicker, Gareth	McGill Univ	
Sharf, Inna	McGill Univ	
16:50-17:10	ThCTT4.2	
<i>Ultralight Radar Sensor for Autonomous Operations by Micro-UAS</i> , pp. 727-735.		
Scannapieco, Antonio Fulvio	Univ. of Naples "Federico II"	
Renga, Alfredo	Univ. of Naples "Federico II"	
Fasano, Giancarmine	Univ. of Naples "Federico II"	
Moccia, Antonio	Univ. of Naples "Federico II"	
17:10-17:30	ThCTT4.3	
<i>Formation Flight of Fixed-Wing UAVs Based on Linear Quadratic Affine Game</i> , pp. 736-741.		
Chapa-Garcia, Ricardo	Autonomous Univ. of Nuevo Leon, San Nicolas, Nuevo Leon, Me	
Jimenez-Lizarraga, Manuel	Univ. Autonoma De Nuevo Leon	
Garcia Salazar, Octavio	CIIIA-FIME-UANL	
Espinoza Fraire, Arturo Tadeo	Univ. Autónoma De Nuevo León	
17:30-17:50	ThCTT4.4	
<i>Longitudinal Model Identification of a Small Fixed-Wing UAV Using Motion Capture Data</i> , pp. 742-751.		
Grymin, David J.	Air Force Res. Lab	
Farhood, Mazen	Virginia Tech	
17:50-18:10	ThCTT4.5	
<i>Manufacturing and Flight Tests of a Quadrotor UAS with Tilttable Rotors</i> , pp. 752-757.		
Senkul, Fatih	Istanbul Tech. Univ	
Gelbal, Şükrü Yaren	Istanbul Tech. Univ	
Altug, Erdinc	Istanbul Tech. Univ	
18:10-18:30	ThCTT4.6	
<i>ROSflight: A Lightweight, Inexpensive MAV Research and Development Tool</i> , pp. 758-762.		
Jackson, James	Brigham Young Univ	
Ellingson, Gary	Brigham Young Univ	
McLain, Timothy W.	Brigham Young Univ	

Technical Program for Friday June 10, 2016

FrATT1		Georgetown A
Airspace Management (Regular Session)		
Chair: Martin, Terrence Lance	Queensland Univ. of Tech	
Co-Chair: Chakrabarty, Anjan	NASA Ames Res. Center	
10:00-10:20		FrATT1.1
<i>Unmanned Aircraft Systems for Maritime Operations: Choosing "a" Good Design for Achieving Operational Effectiveness</i> , pp. 763-768.		
Kaymal, Turgut	Turkish War Coll	
10:20-10:40		FrATT1.2
<i>Robust and Scalable UAS Registration: KEY TECHNOLOGY ISSUES AND RECOMMENDATIONS[†]</i> . pp. N/A		
Ablon, Jared	AirMap	
10:40-11:00		FrATT1.3
<i>Designing Air Corridors for Suas in Consideration of Aerial Traffic Hazards</i> , pp. 769-778.		
Battista, Anthony	Univ. of Massachusetts, Amherst	
Ni, Daiheng	Univ. of Massachusetts, Amherst	
Geller, Jared	Univ. of Massachusetts Amherst	
11:00-11:20		FrATT1.4
<i>UAV Integration into the NAS: Challenges, Opportunities and the Prospect of Disruption[†]</i> . pp. N/A		
Martin, Terrence Lance	Queensland Univ. of Tech.	
Mcfadyen, Aaron	Queensland Univ. of Tech.	
11:20-11:40		FrATT1.5
<i>CNS+A Capabilities for the Integration of Unmanned Aircraft in the Controlled Airspace</i> , pp. 779-788.		
Gardi, Alessandro Giacomo Maria	RMIT Univ	
Ramasamy, Subramanian	RMIT Univ	
Kistan, Trevor	THALES Australia	
Sabatini, Roberto	RMIT Univ	
11:40-12:00		FrATT1.6
<i>Terminal Airspace Modelling for Unmanned Aircraft Systems Integration</i> , pp. 789-794.		
Mcfadyen, Aaron	Queensland Univ. of Tech	
Martin, Terrence Lance	Queensland Univ. of Tech	
FrATT2		Georgetown B
UAS Safety and Security (Regular Session)		
Chair: Quagliotti, Fulvia	Pol. Di Torino	
Co-Chair: Zoldi, Dawn	United States Air Force Acad	
10:00-10:20		FrATT2.1
<i>Lethal Autonomous Weapon Systems: Translating Legal Jargon for Engineers</i> , pp. 795-800.		
Letendre, Linell Ami	U.S. Air Force Acad	
10:20-10:40		FrATT2.2
<i>Aircraft Loss-Of-Control Autonomous Recovery: Mission Trajectory Tracking Restoration</i> , pp. 801-810.		
Zhao, Yue	Ohio Univ	
Zhu, J. Jim	Ohio Univ	
10:40-11:00		FrATT2.3
<i>Security of Unmanned Aerial Vehicles: Dynamic State</i>		

Estimation under Cyber-Physical Attacks, pp. 811-819.

Petnga, Leonard Univ. of Maryland, Coll. Park
 Xu, Huan Univ. of Maryland, Coll. Park

11:00-11:20 FrATT2.4

Countering the Small Unmanned Aircraft System Threat in the United States Homeland: Technological and Legal Challenges, pp. 820-829.

Zoldi, Dawn United States Air Force Acad
 Speirs, Greg JAG Corp
 Reith, Peter USAF

11:20-11:40 FrATT2.5

Unmanned Aerial System Security Using Real-Time Autopilot Software Analysis, pp. 830-839.

Dolgikh, Andrey Binghamton Univ
 Stracquadaine, Christina Binghamton Univ

11:40-12:00 FrATT2.6

Challenges and Safety Aspects of a Disaster Relief Exercise, pp. 840-848.

Novaro Mascarello, Laura Pol. Di Torino
 Quagliotti, Fulvia Pol. Di Torino

FrATT3 Georgetown C
Real-Time Vision and Image Processing (Regular Session)

Chair: Chen, Wen-Hua Loughborough Univ
 Co-Chair: Zhang, Youmin Concordia Univ

10:00-10:20 FrATT3.1

Vision-Based Control of a Quadrotor for an Object Inspection Scenario, pp. 849-857.

Mathe, Antal Koppany Tech. Univ. of Cluj-Napoca
 Busoniu, Lucian Tech. Univ. of Cluj-Napoca, Romania

Barabas, Laszlo Babes-Bolyai Univ
 Miclea, Liviu Tech. Univ. of Cluj-Napoca
 Braband, Jens Tech. Univ. of Braunschweig
 Iuga, Cristea-Ioan Tech. Univ. of Cluj-Napoca

10:20-10:40 FrATT3.2

Colour Based Semantic Image Segmentation and Classification for Unmanned Ground Operations, pp. 858-867.

Coombes, Matthew Loughborough Univ
 Eaton, William Loughborough Univ
 Chen, Wen-Hua Loughborough Univ

10:40-11:00 FrATT3.3

Unmanned Ground Operations Using Semantic Image Segmentation through a Bayesian Network, pp. 868-877.

Coombes, Matthew Loughborough Univ
 Eaton, William Loughborough Univ
 Chen, Wen-Hua Loughborough Univ

11:00-11:20 FrATT3.4

Cooperative Estimation for a Vision-Based Target Tracking System, pp. 878-885.

Sakamaki, Joshua Y. Brigham Young Univ
 Beard, Randal W. Brigham Young Univ
 Rice, Michael BYU

11:20-11:40 FrATT3.5

Fast Horizon Detection for Airborne Visual Systems, pp.

886-891.	Hiba, Antal	Hungarian Acad. of Sciences Inst. for Computer Science And
	Zsedrovits, Tamás	Pázmány Péter Catholic Univ
	Bauer, Peter	Inst. for Computer Science and Control, Hungarian Academy of S
	Zarándy, Ákos	Computer and Automation Res. Inst

11:40-12:00 FrATT3.6

Insulator Identification from Aerial Images Using Support Vector Machine with Background Suppression, pp. 892-897.

Wang, Xian	Concordia Univ
Zhang, Youmin	Concordia Univ

FrATT4 Potomac A-B-C
UAS Applications - I (Regular Session)

Chair: Darrah, Marjorie	West Virginia Univ
Co-Chair: Chen, YangQuan	Univ. of California, Merced

10:00-10:20 FrATT4.1

ResQuad: Toward a Semi-Autonomous Wilderness Search and Rescue Unmanned Aerial System, pp. 898-904.

Agcayazi, M. Talha	North Carolina State Univ
Cawi, Eric	Washington Univ
Jurgenson, Arsenie	George Mason Univ
Ghassemi, Parham	Virginia Pol. Inst. and State Univ
Cook, Gerald	George Mason Univ

10:20-10:40 FrATT4.2

Optimized Flight Path for 3D Mapping of an Area with Structures Using a Multirotor, pp. 905-910.

Mera Trujillo, Marcela	West Virginia Univ
Darrah, Marjorie	West Virginia Univ
Speransky, Kirill	4D Tech
DeRoos, Bradley	4D Tech
Wathen, Mitchell	Army Res. Lab

10:40-11:00 FrATT4.3

Towards Autonomous Flight of an Unmanned Aerial System in Plantation Forests, pp. 911-919.

Jiang, Shutong	The Univ. of Auckland
Stol, Karl	Univ. of Auckland
Xu, Weiliang	Univ. of Auckland

11:00-11:20 FrATT4.4

Utilization of Unmanned Aircraft Systems in Maritime Domain: Challenges and Opportunities, pp. 920-925.

OKCU, HÜSEYİN	TURKISH WAR Coll
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11:20-11:40 FrATT4.5

Implementation of a Low Cost UAV for Photogrammetry Measurement Applications, pp. 926-932.

Segales, Antonio	Univ. Nacional De Asunción, Facultad De Ingeniería
Gregor Recalde, Raul Igmar	Univ. Nacional De Asunción, Facultad De Ingeniería
Rodas, Jorge	Univ. Nacional De Asunción, Facultad De Ingeniería
Gregor Recalde, Derlis Orlando	Univ. Nacional De Asunción, Facultad De Ingeniería
Toledo Gallardo, Sergio	Univ. Nacional De Asunción, Facultad De Ingeniería

11:40-12:00 FrATT4.6

Infrastructure Assessment with Small Unmanned Aircraft Systems, pp. 933-942.

Henrickson, James V.	Texas A&M Univ
Rogers, Cameron	Texas A&M Univ
Lu, Han-Hsun	Texas A&M Univ
Valasek, John	Texas A&M Univ
Shi, Yeyin	Texas A&M Univ

FrBTT1 Georgetown A
Control Architectures - V (Regular Session)

Chair: Coopmans, Calvin	Utah State Univ
Co-Chair: Fossen, Thor I.	Norwegian Univ. of Sci and Tech

13:00-13:20 FrBTT1.1

Landing Sequencing Modelling with Fuzzy Logic: Opportunistic Approach for Unmanned Aerial Systems, pp. 943-948.

OREN, ALPER	TURKISH AIR FORCE NCO Coll
KOCYIGIT, YUCEL	CBU

13:20-13:40 FrBTT1.2

An Open-Source Real-Time UAS Flight Control Prototyping and Testing Platform with Fractional-Order Horizontal Controller Example, pp. 949-956.

Coopmans, Calvin	Utah State Univ
Hoffer, Nathan	AggieAir, Utah State Univ. (USU)
Podhradsky, Michal	Utah State Univ

13:40-14:00 FrBTT1.3

Quadrotor Control Based on an Estimator of External Forces and Moments, pp. 957-963.

Rodriguez Cortes, Hugo	CINVESTAV-IPN
Corona-Sanchez, José J.	ESIME Azcapotzalco
Tlatelpa-Osorio, Y. Elizabeth	CINVESTAV-IPN

14:00-14:20 FrBTT1.4

Coordinated Control Concept for Recovery of a Fixed-Wing UAV on a Ship Using a Net Carried by Multirotor UAVs, pp. 964-973.

Klausen, Kristian	Norwegian Univ. of Science and Tech
Borgen Moe, Jostein	Norwegian Univ. of Science and Tech
van den Hoorn, Jonathan Cornel	Delft Univ. of Tech
Gomola, Alojz	Slovenská Tech. Univ. V Bratislave
Fossen, Thor I.	Norwegian Univ. of Sci and Tech
Johansen, Tor Arne	Norwegian Univ. of Sci. & Tech

14:20-14:40 FrBTT1.5

Robust Control of an Uncertain UAV Via High-Order Sliding Mode Compensation[†], pp. N/A

Davila, Jorge	National Pol. Inst. (IPN, Mexico)
Salazar, Sergio	UMI LAFMIA CINVESTAV

FrBTT2 Georgetown B
Fail-Safe Systems - I (Regular Session)

Chair: Tsourdos, Antonios	Cranfield Univ
Co-Chair: Aalmoes, Roalt	National Aerospace Lab. NLR, the

Netherlands	
13:00-13:20	FrBTT2.1
<i>An Analysis of Human Causal Factors in Unmanned Aerial Vehicle (uav) Accidents†</i> . pp. N/A	
YILDIZ, SULEYMAN	TURKISH ARMY WAR Coll.
13:20-13:40	FrBTT2.2
<i>Integrated Reconfigurable Control and Guidance Based on Evaluation of Degraded Performance</i> , pp. 974-979.	
Shin, Hyo-Sang	Cranfield Univ
Casaban Lillo, Ernest	ZF TRW Conekt
Tsourdos, Antonios	Cranfield Univ
Lappas, Vaios	Univ. of Surrey
13:40-14:00	FrBTT2.3
<i>Adaptive Fault-Tolerant Control of Unmanned Quadrotor Helicopter Using Linear Parameter Varying Control Technique</i> , pp. 980-985.	
Liu, Zhixiang	Concordia Univ
Yuan, Chi	Concordia Univ
Zhang, Youmin	Concordia Univ
14:00-14:20	FrBTT2.4
<i>Design of a Crash-Resistant PD-Controlled Quadcopter Using Coaxial Propeller System</i> , pp. 986-992.	
Tashreef, Shahryar	North South Univ
Iftekhar, Lamia	North South Univ
Azmeen-ur-Rahman, Saad	North South Univ
14:20-14:40	FrBTT2.5
<i>Simulation of Unmanned Aerial Vehicles in the Determination of Accident Locations</i> , pp. 993-1002.	
Haartsen, Yvonne	Delft Univ. of Tech
Aalmoes, Roalt	National Aerospace Lab. NLR, the Netherlands
Cheung, Yuk Shan	NLR
FrBTT3	Georgetown C
UAS and Cyber-Human Systems (Regular Session)	
Chair: Chen, YangQuan	Univ. of California, Merced
Co-Chair: Baomar, Haitham	Univ. Coll. London
13:00-13:20	FrBTT3.1
<i>Some Impacts of Risk-Centric Certification Requirements for UAS</i> , pp. 1003-1012.	
Neogi, Natasha	NASA Langley Res. Center
Hayhurst, Kelly	NASA Langley Res. Center
Maddalon, Jeffrey	NASA Langley Res. Center
Verstynen, Harry	Whirlwind Engineering, LLC
13:20-13:40	FrBTT3.2
<i>Natural User Interfaces for Human-Drone Multi-Modal Interaction</i> , pp. 1013-1022.	
Suárez Fernández, Ramón A.	Univ. Pol. De Madrid
Sanchez-Lopez, Jose Luis	CSIC - Univ. Pol. De Madrid, Centro De Automatica Y
Sampedro, Carlos	Univ
Bavle, Hriday	PhD Student at Univ. Pol. De Madrid
Molina, Martin	Univ. Pol. De Madrid, Departamento Inteligencia Art
Campoy, Pascual	Univ. Pol. Madrid

13:40-14:00	FrBTT3.3
<i>An Intelligent Autopilot System That Learns Piloting Skills from Human Pilots by Imitation</i> , pp. 1023-1031.	
Baomar, Haitham	Univ. Coll. London
Bentley, Peter	Univ. Coll. London
14:00-14:20	FrBTT3.4
<i>Learning-Based Preferential Surveillance Algorithm for Persistent Surveillance by Unmanned Aerial Vehicles</i> , pp. 1032-1040.	
Ramasamy, Manickam	Indian Inst. of Science
Ghose, Debasish	Indian Inst. of Science
14:20-14:40	FrBTT3.5
<i>Real-Time Retasking of Multiple Coordinated Assets</i> , pp. 1041-1048.	
Darrah, Marjorie	West Virginia Univ
Mera Trujillo, Marcela	West Virginia Univ
Wathen, Mitchell	Army Res. Lab
DeRoos, Bradley	4D Tech
FrBTT4	Potomac A-B-C
UAS Applications - II (Regular Session)	
Chair: Chen, YangQuan	Univ. of California, Merced
Co-Chair: Johansen, Tor Arne	Norwegian Univ. of Sci. & Tech
13:00-13:20	FrBTT4.1
<i>Cooperative Quadrotors Carrying a Suspended Load</i> , pp. 1049-1055.	
Pizetta, Igor	Federal Univ. of Espirito Santo
Sarcinelli-Filho, Mário	Federal Univ. of Espirito Santo
Brandao, Alexandre Santos	Federal Univ. of Vicosa
13:20-13:40	FrBTT4.2
<i>Unmanned Aerial Surveillance System for Hazard Collision Avoidance in Autonomous Shipping</i> , pp. 1056-1065.	
Johansen, Tor Arne	Norwegian Univ. of Sci. & Tech
Perez, Tristan	The Univ. of Newcastle Callaghan
13:40-14:00	FrBTT4.3
<i>A Proposed Architecture for Coordinating First Response through Small Unmanned Aerial Systems</i> , pp. 1066-1074.	
Hasnain, Zohaib	Univ. of Maryland
Hubbard Jr., James E.	Univ. of Maryland
Cunningham, Michael, A	Univ. of Maryland
14:00-14:20	FrBTT4.4
<i>A Robust Decentralised Strategy for Multi-Task Control of Unmanned Aerial Systems. Application on Underactuated Aerial Manipulator</i> , pp. 1075-1084.	
Acosta, José Ángel	Univ. De Sevilla
Rodríguez de Cos, Carlos	Univ. De Sevilla
Ollero, Anibal	Univ. De Sevilla
14:20-14:40	FrBTT4.5
<i>Aerial Vehicle Trajectory Design for Spatio-Temporal Task Aggregation</i> , pp. 1085-1094.	
Madria, Sanjay	Missouri Univ. of Science and Tech
Linderman, Mark	AFRL-Roma, NY
Mekala, Amarender	Missouri Univ. of Science and Tech

FrCTT1		Georgetown A
Control Architectures - IV (Regular Session)		
Chair: Fossen, Thor I.	Norwegian Univ. of Sci and Tech	
Co-Chair: Coopmans, Calvin	Utah State Univ	
14:40-15:00		FrCTT1.1
<i>Robust Tube Based MPC for PVTOL Trajectory Tracking Using Systems Flatness Property</i> , pp. 1095-1101.		
Petkar, Sharmila Jitendra	Mumbai Univ. Ramrao Adik Inst. of Tech	
15:00-15:20		FrCTT1.2
<i>Adaptive Nonlinear Design Plant Uncertainty Cancellation for a Multirotor</i> , pp. 1102-1110.		
Akkinapalli, Venkata Sravan	Tech. Univ. of Munich	
Niermeyer, Philipp	Tech. Univ. of Munich	
Lohmann, Boris	Tech. Univ. Muenchen	
Holzappel, Florian	Tech. Univ. München	
15:20-15:40		FrCTT1.3
<i>Altitude Control of a Quad-Rotor Using Adaptive Sliding Mode</i> , pp. 1111-1116.		
López, Jesús Ricardo	CINVESTAV	
Salazar, Sergio	Umi Lafmia Cinvestav	
Martinez-Vasquez, Adrian	Umi Lafmia Cinvestav	
Gonzalez-Hernandez, Ivan	Cinvestav - IPN	
Lozano, Rogelio	Univ. of Tech. of Compiègne	
15:40-16:00		FrCTT1.4
<i>Sensor Fault Diagnosis and Fault Tolerant Control Using Intelligent-Output-Estimator Applied on Quadrotor UAV</i> , pp. 1117-1123.		
Al Younes, Younes	Higher Coll. of Tech	
RABHI, ABDELHAMID	MIS	
NOURA, Hassan	United Arab Emirates Univ	
El hajjaji, ahmed	Univ. of Picardie Jules Verne	
16:00-16:20		FrCTT1.5
<i>Attitude and Altitude Control on Board of an Ornithopter</i> , pp. 1124-1130.		
Zenteno Torres, Jazmin	CINVESTAV	
Davila, Jorge	National Pol. Inst. (IPN, Mexico)	
Lozano, Rogelio	Univ. of Tech. of Compiègne	
FrCTT2		Georgetown B
UAS Communications (Regular Session)		
Chair: Mancini, Adriano	Univ. Pol. Delle Marche	
Co-Chair: Chen, YangQuan	Univ. of California, Merced	
14:40-15:00		FrCTT2.1
<i>Comparing Approaches for Coordination of Autonomous Communications UAVs</i> , pp. 1131-1139.		
Charlesworth, Philip	Airbus Group Innovations	
Giagkos, Alexandros	Aberystwyth Univ	
Wilson, Myra	Aberystwyth Univ	
Tuci, Elio	Aberystwyth Univ	
15:00-15:20		FrCTT2.2
<i>Optimal Positioning of Communication Relay Unmanned Aerial Vehicles in Urban Environments</i> , pp. 1140-1147.		
Ladosz, Pawel	Loughborough Univ	
Oh, Hyondong	Loughborough Univ	

Chen, Wen-Hua	Loughborough Univ	
15:20-15:40		FrCTT2.3
<i>A Multi/Hyper-Spectral Imaging System for Land Use/Land Cover Using Unmanned Aerial Systems</i> , pp. 1148-1155.		
Mancini, Adriano	Univ. Pol. Delle Marche	
Frontoni, Emanuele	Univ. Pol. Delle Marche	
Zingaretti, Primo	Univ. Pol. Delle Marche	
15:40-16:00		FrCTT2.4
<i>Orthogonal Frequency Division Multiplexing and Channel Models for Payload Communications of Unmanned Aerial Systems</i> , pp. 1156-1161.		
vahidi, vahid		Unlv
Saberinia, Ebrahim		Univ. of Nevada Las Vegas
FrCTT3		Georgetown C
UAS Payloads (Regular Session)		
Chair: Coopmans, Calvin	Utah State Univ	
Co-Chair: Chandhar, Prabhu	Linköping Univ. Sweden	
14:40-15:00		FrCTT3.1
<i>Stand-Off Measurement of Industrial Air Pollutant Emissions from Unmanned Aircraft</i> , pp. 1162-1171.		
Gardi, Alessandro Giacomo		RMIT Univ
Maria		RMIT Univ
Sabatini, Roberto		RMIT Univ
Ramasamy, Subramanian		RMIT Univ
15:00-15:20		FrCTT3.2
<i>Conceptual Design of a Multirotor Aerial System Incorporating Secondary Rotors for Attitude Correction</i> , pp. 1172-1181.		
Kaila, Vivek		Defence Res. and Development Organisation
Singh, Parminder		Defence Res. and Development Organisation
Khatri, K		Defence Res. and Development Organisation
Rane, Atul		Defence Res. and Development Organisation
Prabhakar, N		Defence Res. and Development Organisation
15:20-15:40		FrCTT3.3
<i>Precision Onboard Sensor System with Control Actuator Feedback for Small Unmanned Air Vehicle System Identification[†]</i> , pp. N/A		
Arthurs, Frank		Texas A&M Univ.
Valasek, John		Texas A&M Univ.
15:40-16:00		FrCTT3.4
<i>Feasibility Study of a Circularly Towed Cable-Body System for UAV Applications</i> , pp. 1182-1191.		
Merz, Mariann		Norwegian Univ. of Science and Tech. (NTNU)
Johansen, Tor Arne		Norwegian Univ. of Sci. & Tech
16:00-16:20		FrCTT3.5
<i>A Multi-Payload Simulator for Cooperative UAS Missions</i> , pp. 1192-1199.		
Ruiz, Juan Jesus		Univ. of Seville
Martinez-de Dios, J.R.		Univ. of Seville
Cobano, Jose Antonio		Univ. of Seville
Ollero, Anibal		Univ. De Sevilla

FrCTT4	Potomac A-B-C
UAS Applications - III (Regular Session)	
Chair: Zhang, Youmin	Concordia Univ
Co-Chair: Quagliotti, Fulvia	Pol. Di Torino
14:40-15:00	FrCTT4.1
<i>Vision-Based Forest Fire Detection in Aerial Images for Firefighting Using UAVs</i> , pp. 1200-1205.	
Yuan, Chi	Concordia Univ
Liu, Zhixiang	Concordia Univ
Zhang, Youmin	Concordia Univ
15:00-15:20	FrCTT4.2
<i>Cooperative Forest Monitoring and Fire Detection Using a Team of UAVs-UGVs</i> , pp. 1206-1211.	
Ghamry, Khaled A.	Concordia Univ
Kamel, Mohamed A.	Concordia Univ
Zhang, Youmin	Concordia Univ
15:20-15:40	FrCTT4.3
<i>A Distributed Framework for Surveillance Missions with Aerial Robots Including Dynamic Assignment of the Detected Intruders</i> , pp. 1212-1219.	
Acevedo, José Joaquín	FADA-CATEC
Arrue, B.C.	Escuela Superior De Ingenieros, Univ. De Sevilla
Maza, Ivan	Univ. De Sevilla
Ollero, Anibal	Univ. De Sevilla
15:40-16:00	FrCTT4.4
<i>Applicability of Unmanned Aerial Vehicles for Leak Detection</i> , pp. 1220-1227.	
Smith, Brendan	Univ. of California, Merced
John, Garrett	Univ. of California, Merced
Stark, Brandon	Univ. of California, Merced
Christensen, Lance	JPL
Chen, YangQuan	Univ. of California, Merced
16:00-16:20	FrCTT4.5
<i>Fractional Order Robust Visual Servoing Control of a Quadrotor UAV with Larger Sampling Period</i> , pp. 1228-1234.	
Shang, Bo	Northeastern Univ. Shenyang
Liu, Jianxin	Xihua Univ
Zhao, Tiebiao	MESA LAB at UC Merced
Chen, YangQuan	Univ. of California, Merced

FrDTT1	Georgetown A
Micro and Mini UAS - II (Regular Session)	
Chair: Altug, Erdinc	Istanbul Tech. Univ
Co-Chair: Uchiyama, Kenji	Nihon Univ
16:40-17:00	FrDTT1.1
<i>Design of Frequency Shaped LQR Considering Dynamic Characteristics of the Actuator</i> , pp. 1235-1239.	
Kawai, Yuki	Nihon Univ
Uchiyama, Kenji	Nihon Univ
17:00-17:20	FrDTT1.2
<i>Design of a Flapping-Wing Aerial Vehicle Based on Four-Bar Mechanism</i> , pp. 1240-1245.	
İşbitirici, Abdurrahman	AVL Res. AND ENGINEERING

Altug, Erdinc	TURKEY Istanbul Tech. Univ
17:20-17:40	FrDTT1.3
<i>Unmanned Airship Design with Sliding Ballast: Modeling and Experimental Validation</i> , pp. 1246-1253.	
Lanteigne, Eric	Univ. of Ottawa
Gueaieb, Wail	Univ. of Ottawa
Recoskie, Steven	Univ. of Ottawa
Robillard, Dominic	Univ. of Ottawa

17:40-18:00	FrDTT1.4
<i>Implementation of Detection and Tracking Mechanism for Small UAS</i> , pp. 1254-1260.	
Ganti, Sai Ram	Univ. of Nevada Las Vegas
Kim, Yoohwan	Univ. of Nevada, Las Vegas

FrDTT2	Georgetown B
Fail-Safe Systems - II (Regular Session)	

Chair: Shang, Bo	Northeastern Univ. Shenyang
Co-Chair: Kamel, Mohamed A.	Concordia Univ

16:40-17:00	FrDTT2.1
<i>Fault-Tolerant Control for Cooperative Unmanned Aerial Vehicles Formation Via Fuzzy Logic</i> , pp. 1261-1266.	

Hafez, Ahmed Taimour	Queen's Univ
Kamaleldin	
Kamel, Mohamed A.	Concordia Univ

17:00-17:20	FrDTT2.2
<i>Real-Time Fault-Tolerant Cooperative Control of Multiple UAVs-UGVs in the Presence of Actuator Faults</i> , pp. 1267-1272.	

Kamel, Mohamed A.	Concordia Univ
Ghamry, Khaled A.	Concordia Univ
Zhang, Youmin	Concordia Univ

17:20-17:40	FrDTT2.3
<i>Fault Tolerant Margins for an UAV at Uncertain Environment</i> , pp. 1273-1279.	

Ashokkumar, Chimpalthradi	US Air Force Acad
York, George	Acad. Center for Unmanned Aircraft Systems Res

Gruber, Scott	United States Air Force Acad
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17:40-18:00	FrDTT2.4
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<i>Fault-Tolerant Control for a Quadrotor Unmanned Helicopter Subject to Sensor Faults</i> , pp. 1280-1286.	
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Qin, Ligu	Tsinghua Univ. Beijing
He, Xiao	Tsinghua Univ
Zhou, Yan	Tsinghua Univ
Zhou, Donghua	Tsinghua Univ

18:00-18:20	FrDTT2.5
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<i>Predictive Ground Collision Avoidance System for UAV Applications</i> , pp. 1287-1292.	
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Lee, Seongheon	KAIST
Lee, Dongjin	Hanseon Univ
Bang, Hyochoong	KAIST

FrDTT3	Georgetown C
UAS Testbed and Simulation Designs (Regular Session)	

Chair: Theilliol, Didier	Univ. of Lorraine
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Co-Chair: Nahon, Meyer	McGill Univ
16:40-17:00	FrDTT3.1
<i>Field Experiment of a Fully Autonomous Multiple UAV/UGS Intruder Detection and Monitoring System</i> , pp. 1293-1302.	
Rasmussen, Steven	Miami Valley Aerospace LLC
kalyanam, krishnamoorthy	AFRL
Kingston, Derek B.	Air Force Res. Lab
17:00-17:20	FrDTT3.2
<i>Modeling Dynamics of Agile Fixed-Wing UAVs for Real-Time Applications</i> , pp. 1303-1312.	
Khan, Waqas	McGill Univ
Nahon, Meyer	McGill Univ
17:20-17:40	FrDTT3.3
<i>Multirotor Design Optimization Using a Genetic Algorithm</i> , pp. 1313-1318.	
Arellano-Quintana, Victor Manuel	IPN-ESIME Azcapotzalco
Edgar Alfredo, Portilla Flores	Cidetec Ipn
Merchan-Cruz, Emmanuel Alejandro	IPN-ESIME Azcapotzalco
Niño-Suarez, Paola-Andrea	CINVESTAV
17:40-18:00	FrDTT3.4
<i>Semi-Empirical Estimation and Experimental Validation of the Mass and the Center of Gravity Location of the Unmanned Aerial System - UAS-S4 of Hydra Technologies</i> , pp. 1319-1326.	
TONDJI CHENDJOU, Yvan Wilfried	Ec. De Tech. Supérieure De Montreal
Botez, Ruxandra	Ec. De Tech. Superieure
18:00-18:20	FrDTT3.5
<i>Design Considerations for a Large Quadrotor with Moving Mass Control</i> , pp. 1327-1334.	
Haus, Tomislav	Univ. of Zagreb
Orsag, Matko	Univ. of Zagreb
Bogdan, Stjepan	Univ. of Zagreb
18:20-18:40	FrDTT3.6
<i>The MAV3DSim Hardware in the Loop Simulation Platform for Research and Validation of UAV Controllers</i> , pp. 1335-1341.	
Lugo Cardenas, Israel	CINVESTAV
Salazar, Sergio	Umi Lafmia Cinvestav
Lozano, Rogelio	Univ. of Tech. of Compiègne

FrDTT4	Potomac A-B-C
UAS Applications - IV (Regular Session)	

Chair: Quagliotti, Fulvia	Pol. Di Torino
Co-Chair: Chen, YangQuan	Univ. of California, Merced
16:40-17:00	FrDTT4.1
<i>An Analysis of the Effect of the Bidirectional Reflectance Distribution Function on Remote Sensing Imagery Accuracy from Small Unmanned Aircraft Systems</i> , pp. 1342-1350.	
Stark, Brandon	Univ. of California, Merced
Zhao, Tiebiao	MESA LAB at UC Merced
Chen, YangQuan	Univ. of California, Merced
17:00-17:20	FrDTT4.2
<i>Multispectral Mapping in Agriculture: Terrain Mosaic Using an Autonomous Quadcopter UAV</i> , pp. 1351-1358.	

Colorado, Julian	Pontificia Univ. Javeriana Bogota
Mondragón Bernal, Iván Fernando	Pontificia Univ. Javeriana
Patino, Diego	Pontificia Univ. Javeriana
Navia Vela, Jose Libardo	Soluciones Innovadoras En Tecnologia Empresarial S.A.S
17:20-17:40	FrDTT4.3
<i>Initial Flight Experiments of a Canopy Sampling Aerial Manipulator</i> , pp. 1359-1365.	
Kutia, James	Univ. of Auckland
Stol, Karl	Univ. of Auckland
Xu, Weiliang	Univ. of Auckland
17:40-18:00	FrDTT4.4
<i>Challenges in Water Stress Quantification Using Small Unmanned Aerial System (sUAS): Lessons from a Growing Season of Almond</i> , pp. 1366-1370.	
Zhao, Tiebiao	MESA LAB at UC Merced
Stark, Brandon	Univ. of California, Merced
Chen, YangQuan	Univ. of California, Merced
Ray, Andrew	UCCE, Univ. of California, Div. of ANR
Doll, David	Univ. of California, Div. of ANR
18:00-18:20	FrDTT4.5
<i>Extended Kalman Filter on SE(3) for Geometric Control of a Quadrotor UAV</i> , pp. 1371-1380.	
Goodarzi, Farhad	The George Washington Univ
Lee, Taeyoung	George Washington Univ