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ICUAS'21 TECHNICAL SESSIONS AND CONTENT LIST

Technical Program for Wednesday June 16, 2021

WeA1	Macedonia Hall
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Chair: Freddi, Alessandro	Università Politecnica Delle Marche
Co-Chair: Cristofaro, Andrea	Sapienza Università Di Roma
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Saiella, Lorenzo	Sapienza Università Di Roma
Cristofaro, Andrea	Sapienza Università Di Roma
Ferro, Marco	Sapienza Università Di Roma
Vendittelli, Marilena	Sapienza Università Di Roma
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Ng, Ee Meng	Nanyang Technological University
Low, Kin Huat	Nanyang Technological University
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Felicetti, Riccardo	Università Politecnica Delle Marche
Freddi, Alessandro	Università Politecnica Delle Marche
Longhi, Sauro	Università Politecnica Delle Marche
Monteriù, Andrea	Università Politecnica Delle Marche
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Castillo Zamora, Jose de Jesus	University Paris Saclay & IPSA
Hernández-Díez, José Enrique	Universidad Autónoma De San Luis Potosí
Boussaada, Islam	University Paris Saclay & IPSA
Escareno Castro, Juan Antonio	XLIM Research Institute, University of Limoges
Alvarez Muñoz, Jonatan Uziel	EXTIA
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Giribet, Juan Ignacio	Universidad De San Andrés
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Fu, Minrui	Nanjing University of Aeronautics and Astronautics
Yu, Ziquan	Nanjing University of Aeronautics and Astronautics
Zhang, Youmin	Concordia University
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Co-Chair: Dezan, Catherine	Université De Bretagne Occidentale
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Kafetzis, Ioannis	Aristotle University of Thessaloniki

Moysis, Lazaros	Aristotle University of Thessaloniki
Volos, Christos	Aristotle University of Thessaloniki
Stouboulos, Ioannis	Aristotle University of Thessaloniki
Valavanis, Kimon P.	University of Denver
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Ong, Edmond	National University of Singapore
Srigarom, Sutthiphong	National University of Singapore
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Sadhu, Arup Kumar	Tata Consultancy Services Ltd
Shukla, Shubham	Tata Consultancy Services Ltd
Sortee, Sarvesh	Tata Consultancy Services Ltd
Ludhiyani, Mohit	Tata Consultancy Services Ltd
Dasgupta, Ranjan	Tata Consultancy Services Ltd
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Arnegaard, Ola Trandum	Norwegian University of Science and Technology
Stendahl Leira, Frederik	Norwegian University of Science and Technology
Helgesen, Håkon Hagen	Norwegian University of Science and Technology
Kemna, Stephanie	Maritime Robotics AS
Johansen, Tor Arne	Norwegian University of Science and Technology
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Gómez Eguíluz, Augusto	Universidad De Sevilla
Martinez-de Dios, J.R.	Universidad De Sevilla
Ollero, Anibal	Universidad De Sevilla
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Dezan, Catherine	Université De Bretagne Occidentale
Espes, David	Université De Bretagne Occidentale
Branco, Kalinka Regina Lucas Jaquie Castelo	University of São Paulo
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Co-Chair: Pinto, Joao	Instituto Superior Técnico
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Pagliano, Alessandro	Politecnico Di Torino
Guglieri, Giorgio	Politecnico Di Torino
Rizzo, Alessandro	Politecnico Di Torino
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Yadla, Siddarth	Indian Institute of Technology Kharagpur

Hota, Sikha	Indian Institute of Technology Kharagpur
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Gopalabhatla, Avinash	Indian Institute of Technology Kharagpur
Tammineni, Harinarayana	Indian Institute of Technology Kharagpur
Hota, Sikha	Indian Institute of Technology Kharagpur
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Pinto, Joao	Instituto Superior Técnico
Guerreiro, Bruno J. N.	NOVA School of Science and Technology
Cunha, Rita	Instituto Superior Técnico
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Keshmiri, Shawn	University of Kansas
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Ramasamy, Subramanian	University of Illinois at Chicago
Reddinger, Jean-Paul	Army Research Lab
Dotterweich, James	Army Research Lab
Childers, Marshal	Army Research Lab
Bhounsule, Pranav	University of Illinois at Chicago
WeA4	Naoussa
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Chair: Rizzo, Alessandro	Politecnico Di Torino
Co-Chair: Alparslan, Onder	National Defense University Hezarfen
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Hu, Xiao	Technical University of Denmark
Olesen, Daniel	Technical University of Denmark
Knudsen, Per	Technical University of Denmark
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Cetin, Omer	National Defense University Hezarfen
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Peng, Rui	The University of Hong Kong
Lu, Peng	The University of Hong Kong
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Mohutsiwa, Lucky Odirile	Botswana International University of Science and Technology
Jamisola, Rodrigo S. Jr.	Botswana International University of Science and Technology
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Lima, Rogerio	West Virginia University

Pereira, Guilherme	West Virginia University
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Safaei, Ali	McGill University
Sharf, Inna	McGill University
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Co-Chair: Bryne, Torleiv Håland	Norwegian University of Science and Technology
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Bryne, Torleiv Håland	Norwegian University of Science and Technology
Gryte, Kristoffer	Norwegian University of Science and Technology
Johansen, Tor Arne	Norwegian University of Science and Technology
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Rückert, Darius	University of Erlangen-Nuremberg
Stamminger, Marc	University of Erlangen-Nuremberg
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Makrigiorgis, Rafael	University of Cyprus
Kolios, Panayiotis	University of Cyprus
Ellinas, Georgios	University of Cyprus
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Flores, Alejandro	Center for Research in Optics, A.C
Flores, Gerardo	Center for Research in Optics, A.C
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Krajník, Tomas	Czech Technical University in Prague
Saska, Martin	Czech Technical University in Prague
WeB2	Kozani
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Chair: Alqahtani, Sarra	Wake Forest University
Co-Chair: Ide, Jaime, S.	Yale University & Lockheed Martin
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Tsoukalas, Athanasios	New York University Abu Dhabi
Xing, Daitao	New York University
Evangelidou, Nikolaos	New York University Abu Dhabi
Giakoumidis, Nikolaos	New York University Abu Dhabi
Tzes, Anthony	New York University Abu Dhabi
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Krishnamurthy, Prashanth	NYU Tandon School of Engineering
Tzes, Anthony	New York University Abu Dhabi
Khorrani, Farshad	NYU Tandon School of Engineering

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McCalmon, Joe	Wake Forest University
Zhang, Yixin	Wake Forest University
Myers, Daniel	Wake Forest University
Alqahtani, Sarra	Wake Forest University
Pauca, Paul	Wake Forest University

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Pope, Adrian, P	Primordial Labs
Ide, Jaime, S.	Yale University & Lockheed Martin
Micovic, Daria	Lockheed Martin
Diaz, Henry	Lockheed Martin
Rosenbluth, David	Lockheed Martin
Ritholtz, Lee	Lockheed Martin
Twedt, Jason	Lockheed Martin
Walker, Thayne	University of Denver & Lockheed Martin
Alcedo, Kevin	Lockheed Martin
Javorsek, Daniel	US Airforce

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Asarkaya, Ahmet	University of Minnesota
Aksaray, Derya	University of Minnesota
Yazicioglu, Yasin	University of Minnesota

WeB3 Edessa

Path Planning II (Regular Session)

Chair: Bertrand, Sylvain	ONERA
Co-Chair: Satler, Massimo	Scuola Superiore Sant'Anna

14:00-14:20 WeB3.1

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Nadour, Housseine	Gipsa-Lab, CNRS
Marchand, Nicolas	Gipsa-Lab, CNRS
Reveret, Lionel	INRIA
Legneur, Pierre	University Lyon I

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Petitprez, Etienne	ONERA
Georges, Frederic	ONERA
Raballand, Nicolas	ONERA
Bertrand, Sylvain	ONERA

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Sollie, Martin Lysvand Johansen, Tor Arne	Norwegian University of Science and Technology Norwegian University of Science and Technology
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Zaini, Abdul Hanif	Nanyang Technological University
Cao, Kun	Nanyang Technological University
Xie, Lihua	Nanyang Technological University
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Herrera Alarcon, Edwin Paul	Scuola Superiore Sant'Anna
Bagheri, Davide	Scuola Superiore Sant'Anna
Baris, Gabriele	Scuola Superiore Sant'Anna
Mugnai, Michael	Scuola Superiore Sant'Anna
Satler, Massimo	Scuola Superiore Sant'Anna
Avizzano, Carlo Alberto	Scuola Superiore Sant'Anna
WeB4	Naoussa
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Chair: Milutinovic, Dejan	University of California, Santa Cruz
Co-Chair: Malle, Nicolaj Haarhøj	University of Southern Denmark
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Baca, Tomas	Czech Technical University in Prague
Stibinger, Petr	Czech Technical University in Prague
Doubravova, Daniela	Advacam, S.r.o
Turecek, Daniel	Advacam, S.r.o
Solc, Jaroslav	Czech Metrology Institute
Rusnak, Jan	Czech Technical University in Prague
Saska, Martin	Czech Technical University in Prague
Jakubek, Jan	Advacam, S.r.o
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Jeong, Hyeon-Mun	Korea Advanced Institute of Science and Technology
Lee, Woo-Cheol	Korea Advanced Institute of Science and Technology
Choi, Han-Lim	Korea Advanced Institute of Science and Technology
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Carrasco, Paloma	Advanced Center for Aerospace Technologies (FADA-CATEC)
Cuesta, Francisco	Advanced Center for Aerospace Technologies (FADA-CATEC)
Caballero González, Rafael	Advanced Center for Aerospace Technologies (FADA-CATEC)
Perez-Grau, Francisco Javier	Advanced Center for Aerospace Technologies (FADA-CATEC)
Viguria, Antidio	Advanced Center for Aerospace Technologies (FADA-CATEC)
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Malle, Nicolaj Haarhøj	University of Southern Denmark
Nyboe, Frederik Falk	University of Southern Denmark
Ebeid, Emad Samuel Malki	University of Southern Denmark
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Holter, Steffen	New York University Abu Dhabi

Tsoukalas, Athanasios
 Evangeliou, Nikolaos
 Giakoumidis, Nikolaos
 Tzes, Anthony

New York University Abu Dhabi
 New York University Abu Dhabi
 New York University Abu Dhabi
 New York University Abu Dhabi

Technical Program for Thursday, June 17, 2021

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Chair: Furlas, George K.	University of Thessaly
Co-Chair: Haaland, Ole Max	Norwegian University of Science and Technology
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Haaland, Ole Max	Norwegian University of Science and Technology
Johansen, Tor Arne	Norwegian University of Science and Technology
Gryte, Kristoffer	Norwegian University of Science and Technology
Hann, Richard	Norwegian University of Science and Technology
Wenz, Andreas Wolfgang	Norwegian University of Science and Technology
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Rey, Rafael	Universidad Pablo De Olavide
Cobano, Jose Antonio	Universidad Pablo De Olavide
Merino, Luis	Universidad Pablo De Olavide
Caballero, Fernando	Universidad De Sevilla
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Furlas, George K.	University of Thessaly
Karras, George	University of Thessaly
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Iglésis, Enzo	Coventry University
Horri, Nadjim	Coventry University
Dahia, Karim	ONERA
Brusey, James	Coventry University
Piet-Lahanier, Hélène	ONERA
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Barsi Haberfeld, Gabriel	University of Illinois at Urbana-Champaign
Gahlawat, Aditya	University of Illinois at Urbana-Champaign
Hovakimyan, Naira	University of Illinois at Urbana-Champaign
12:10-12:30	ThA1.6
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Sharma, Prashin	University of Michigan
Atkins, Ella	University of Michigan
ThA2	Kozani
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Chair: Rodas, Jorge	Universidad Nacional De Asunción
Co-Chair: Boukal, Yassine	Altran by Capgemini

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Labbadi, Moussa	Mohammed V University in Rabat
Boudaraia, Karima	Mohammed V University in Rabat
Boukal, Yassine	Altran by Capgemini
Zerrougui, Mohamed	Aix Marseille University
Cherkaoui, Mohamed	Mohammed V University in Rabat
10:50-11:10	ThA2.2
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Cheng, Zihuan	South China University of Technology
Pei, Hai-Long	South China University of Technology
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Kali, Yassine	Ecole De Technologie Superieure
Fallaha, Charles	Ecole De Technologie Superieure
Rodas, Jorge	Universidad Nacional De Asunción
Saad, Maarouf	Ecole De Technologie Superieure
Lesme, Fernando	Universidad Catolica Nuestra Senora De La Asuncion
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Coates, Erlend M.	Norwegian University of Science and Technology
Griffiths, Jenny Bogen	Norwegian University of Science and Technology
Johansen, Tor Arne	Norwegian University of Science and Technology
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Reinhardt, Dirk	Norwegian University of Science and Technology
Johansen, Tor Arne	Norwegian University of Science and Technology
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Miranda-Moya, Armando	Tecnologico De Monterrey
Castaneda, Herman	Tecnologico De Monterrey
Wang, Hesheng	Shanghai Jiaotong University
ThA3	Edessa
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Chair: Monteriù, Andrea	Università Politecnica Delle Marche
Co-Chair: Skaltsis, George Marios	Cranfield University
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E K, Midhun	Indian Institute of Science
Ratnoo, Ashwini	Indian Institute of Science
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Skaltsis, George Marios	Cranfield University
Shin, Hyo-Sang	Cranfield University
Tsourdos, Antonios	Cranfield University
11:10-11:30	ThA3.3

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Harinarayana, Tammineni	Indian Institute of Technology Kharagpur
Krishnan, Siva Vignesh	Indian Institute of Technology Kharagpur
Hota, Sikha	Indian Institute of Technology Kharagpur
Kushwaha, Rahul	Indian Institute of Technology Kharagpur

11:30-11:50 ThA3.4

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Corona, Jose	The Arctic University of Norway
Kristiansen, Raymond	The Arctic University of Norway
Andersen, Tom Stian	The Arctic University of Norway

11:50-12:10 ThA3.5

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Papaioannou, Savvas	University of Cyprus
Kolios, Panayiotis	University of Cyprus
Theocharides, Theocharis	University of Cyprus
Panayiotou, Christos	University of Cyprus
Polycarpou, Marios M.	University of Cyprus

12:10-12:30 ThA3.6

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Islam, S.M. Towhidul	Georgia State University
Hu, Xiaolin	Georgia State University

ThA4 Naoussa

UAS Applications I (Regular Session)

Chair: Nikolakopoulos, George	Luleå University of Technology,
Co-Chair: Kim, Dongbin	University of Nevada, Las Vegas

10:30-10:50 ThA4.1

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Koval, Anton	Luleå University of Technology
Sharif Mansouri, Sina	Luleå University of Technology
Kanellakis, Christoforos	Luleå University of Technology
Nicolakopoulos, George	Luleå University of Technology

10:50-11:10 ThA4.2

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Goricaneć, Jurica	University of Zagreb
Ivanovic, Antun	University of Zagreb
Markovic, Lovro	University of Zagreb
Pavlak, Ivan	University of Zagreb
Bogdan, Stjepan	University of Zagreb

11:10-11:30 ThA4.3

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Smrcka, Daniel	Czech Technical University in Prague
Baca, Tomas	Czech Technical University in Prague
Nascimento, Tiago	Universidade Federal Da Paraiba
Saska, Martin	Czech Technical University in Prague

11:30-11:50 ThA4.4

Towards Robust and Efficient Plane Detection from 3D Point Cloud, pp. 560-566.

Sharif Mansouri, Sina	Luleå University of Technology
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Kanellakis, Christoforos Pourkamali-Anaraki, Farhad Nikolakopoulos, George	Luleå University of Technology University of Massachusetts Lowell Luleå University of Technology
11:50-12:10	ThA4.5
<i>Toward Avatar-Drone: A Human-Embodied Drone for Aerial Manipulation</i> , pp. 567-574.	
Kim, Dongbin Oh, Paul	University of Nevada, Las Vegas University of Nevada, Las Vegas
12:10-12:30	ThA4.6
<i>Aircraft Inspection by Multirotor UAV Using Coverage Path Planning</i> , pp. 575-581.	
Silberberg, Patrick Leishman, Robert	Naval School of Aviation Safety Air Force Institute of Technology
ThB1 Macedonia Hall	
Reliability of UAS (Regular Session)	
Chair: Zhang, Youmin Co-Chair: Konert, Anna	Concordia University Lazarski University
14:00-14:20	ThB1.1
<i>Which Is the Best Real-Time Operating System for Drones? Evaluation of the Real-Time Characteristics of NuttX and ChibiOS</i> , pp. 582-590.	
Zhang, Mingyang Timmerman, Martin Perneel, Luc Toon, Goedemé	KU Leuven Dedicated Systems Experts NV Dedicated Systems Experts NV KU Leuven
14:20-14:40	ThB1.2
<i>Safely Flying BVLOS in the EU with an Unreliable UAS</i> , pp. 591-601.	
Terkildsen, Kristian Husum Schultz, Ulrik Pagh Jensen, Kjeld	University of Southern Denmark University of Southern Denmark University of Southern Denmark
14:40-15:00	ThB1.3
<i>Legal and Ethical Aspects of Rules for the Operation of Autonomous Unmanned Aircraft with Artificial Intelligence</i> , pp. 602-609.	
Konert, Anna Balcerzak, Tomasz	Lazarski University Lazarski University
15:00-15:20	ThB1.4
<i>Flight Test Validation and Verification of the Novel Ln Guidance for Unmanned Aerial Systems</i> , pp. 610-618.	
Xu, Jeffrey Keshmiri, Shawn	University of Kansas University of Kansas
15:20-15:40	ThB1.5
<i>UAVAT Framework: UAV Auto Test Framework for Experimental Validation of Multirotor sUAS Using a Motion Capture System</i> , pp. 619-629.	
Jepsen, Jes Hundevadt Terkildsen, Kristian Husum Hasan, Agus Jensen, Kjeld Schultz, Ulrik Pagh	University of Southern Denmark University of Southern Denmark Norwegian University of Science and Technology University of Southern Denmark University of Southern Denmark

ThB2 Kozani	
Control Design II (Regular Session)	
Chair: Sarcinelli-Filho, Mário Co-Chair: Chowdhury, Mozammel	Federal University of Espirito Santo University of Kansas

14:00-14:20	ThB2.1
<i>Scaled Nonlinear H Infinity Control of an Aerial Manipulator</i> , pp. 630-638.	
Morais Aquino, Junio Eduardo	Federal University of Minas Gerais
Raffo, Guilherme Vianna	Federal University of Minas Gerais
14:20-14:40	ThB2.2
<i>Design and Flight Test Validation of a UAS Lateral-Directional Model Predictive Controller</i> , pp. 639-646.	
Chowdhury, Mozammal	University of Kansas
Keshmiri, Shawn	University of Kansas
Xu, Jeffrey	University of Kansas
14:40-15:00	ThB2.3
<i>Energy-Aware Model Predictive Control with Obstacle Avoidance</i> , pp. 647-655.	
Santos, Marcelo Alves	Federal University of Minas Gerais
Ferramosca, Antonio	University of Bergamo
Raffo, Guilherme Vianna	Federal University of Minas Gerais
15:00-15:20	ThB2.4
<i>Singularity-Free Quaternion Representation to Control a UGV-UAV Formation Performing Trajectory-Tracking Tasks</i> , pp. 656-665.	
Marciano, Harrison	Federal University of Espirito Santo
Brandao, Alexandre Santos	Federal University of Vicosa
Sarcinelli-Filho, Mário	Federal University of Espirito Santo
15:20-15:40	ThB2.5
<i>Robust Visual Tracking Control Based on Adaptive Sliding Mode Strategy: Quadrotor UAV - Catamaran USV Heterogeneous System</i> , pp. 666-672.	
Gonzalez-Garcia, Alejandro	Tecnologico De Monterrey
Miranda-Moya, Armando	Tecnologico De Monterrey
Castaneda, Herman	Tecnologico De Monterrey
ThB3	Edessa
Path Planning IV (Regular Session)	
Chair: Schwung, Michael	Ruhr-Universität Bochum
Co-Chair: Lorenzo Becce, Lorenzo	Politecnico Di Torino
14:00-14:20	ThB3.1
<i>Minimum-Time Path Planning for Autonomous Landing of UAV on Aerial Drone Carrier</i> , pp. 673-678.	
Alijani, Morteza	Università Di Trento
Osman, Anas	Università Di Trento
14:20-14:40	ThB3.2
<i>Inspection Path Planning for Aerial Vehicles Via Sampling-Based Sequential Optimization</i> , pp. 679-687.	
Shi, Liping	Aarhus University
Mehrooz, Golizheh	University of Southern Denmark
Jacobsen, Rune	Aarhus University
14:40-15:00	ThB3.3
<i>A UAV Global Planner to Improve Path Planning in Unstructured Environments</i> , pp. 688-697.	
Rocha, Lidia	Federal University of São Carlos
Santos, Marcela	Federal University of São Carlos
Igor, Araújo	Federal University of São Carlos
Kelen, Vivaldini	Federal University of São Carlos
15:00-15:20	ThB3.4
<i>Optimal Path Planning for Autonomous Spraying UAS Framework in Precision Agriculture</i> , pp. 698-707.	
Becce, Lorenzo	Politecnico Di Torino
Bloise, Nicoletta	Politecnico Di Torino

Guglieri, Giorgio	Politecnico Di Torino
15:20-15:40	ThB3.5
<i>Online Trajectory Planning with Application to an UAV Relay Station</i> , pp. 708-713.	
Schwung, Michael	Ruhr-Universität Bochum
Lunze, Jan	Ruhr-Universität Bochum
ThB4	Naoussa
UAS Applications II (Regular Session)	
Chair: Flores, Gerardo	Center for Research in Optics, A.C
Co-Chair: Xie, Wenfang	Concordia University
14:00-14:20	ThB4.1
<i>A UAS Equipped with a Thermal Imaging System with Temperature Calibration for Crop Water Stress Index Computation</i> , pp. 714-720.	
Montes de Oca Rebolledo, Andres	Center for Research in Optics, A.C
Flores, Gerardo	Center for Research in Optics, A.C
14:20-14:40	ThB4.2
<i>A Multi-UAV System for Exploration and Target Finding in Cluttered and GPS-Denied Environments</i> , pp. 721-729.	
Zhu, Xiaolong	Queensland University of Technology
Vanegas Alvarez, Fernando	Queensland University of Technology
Gonzalez, Luis Felipe	Queensland University of Technology (QUT)/ QUT Centre for Roboti
Sanderson, Conrad	Data61/CSIRO
14:40-15:00	ThB4.3
<i>Collaboration between Multiple UAVs for Fire Detection and Suppression</i> , pp. 730-737.	
Moffatt, Andrew	California State Polytechnic University, Pomona
Turcios, Nicholas	California State Polytechnic University, Pomona
Edwards, Chase	California State Polytechnic University, Pomona
Karnik, Atharva	California State Polytechnic University, Pomona
Kim, David	California State Polytechnic University, Pomona
Kleinman, Andrew	California State Polytechnic University, Pomona
Nguyen, Hien	California State Polytechnic University, Pomona
Ramos, Victor Javier	California State Polytechnic University, Pomona
Earvin Ranario, Earvin	California State Polytechnic University, Pomona
Sato, Tomo	California State Polytechnic University, Pomona
Uryeu, Dzianis	California State Polytechnic University, Pomona
Bhandari, Subodh	California State Polytechnic University, Pomona
15:00-15:20	ThB4.4
<i>Detecting and Localizing Objects on an Unmanned Aerial System (UAS) Integrated With a Mobile Device</i> , pp. 738-743.	
Kim, Jinho	United States Military Academy
Lin, Kevin	United States Military Academy
Nogar, Stephen	U.S. Army Research Laboratory
Larkin, Dominic	United States Military Academy
Korpela, Christopher	United States Military Academy
15:20-15:40	ThB4.5
<i>Forest Fire Detection and Localization Using Thermal and Visual Cameras</i> , pp. 744-749.	
Sadi, Mohsen	Concordia University
Zhang, Youmin	Concordia University
Xie, Wenfang	Concordia University
Hossain, F. M. Anim	Concordia University

ThC1		Macedonia Hall
Micro and Mini UAS (Regular Session)		
Chair: Castillo, Pedro	Unviersité De Technologie De Compiègne	
Co-Chair: Behera, Laxmidhar	Indian Institute of Technology Kanpur	
17:00-17:20		ThC1.1
<i>Least Airspeed Reduction Strategy & Flight Recuperation of a Fixed-Wing Drone</i> , pp. 750-757.		
Alatorre, Armando	Université De Technologie De Compiègne	
Castillo, Pedro	Université De Technologie De Compiègne	
Lozano, Rogelio	Université De Technologie De Compiègne	
17:20-17:40		ThC1.2
<i>MicroBrosh UAV: A Basic Risk Operation Self Handled Platform</i> , pp. 758-766.		
Lucena, Alysson	Universidade Federal Do Rio Grande Do Norte	
Goncalves, Luiz M. G.	Universidade Federal Do Rio Grande Do Norte	
17:40-18:00		ThC1.3
<i>Sum of Square Based Event-Triggered Control of Nano-Quadrotor in Presence of Packet Dropouts</i> , pp. 767-776.		
Singh, Padmini	Indian Institute of Technology Kanpur	
Gupta, Sandeep	Indian Institute of Technology Kanpur	
Behera, Laxmidhar	Indian Institute of Technology Kanpur	
Verma, Nishchal Kumar	Indian Institute of Technology Kanpur	
18:00-18:20		ThC1.4
<i>The MiniHawk-VTOL: Design, Modeling, and Experiments of a Rapidly-Prototyped Tiltrotor UAV</i> , pp. 777-786.		
Carlson, Stephen	University of Nevada, Reno	
Papachristos, Christos	University of Nevada, Reno	
18:20-18:40		ThC1.5
<i>Extinguishing of Ground Fires by Fully Autonomous UAVs Motivated by the MBZIRC 2020 Competition</i> , pp. 787-793.		
Walter, Viktor	Czech Technical University in Prague	
Spurny, Vojtech	Czech Technical University in Prague	
Petrlik, Matej	Czech Technical University in Prague	
Baca, Tomas	Czech Technical University in Prague	
Žaitlík, David	Czech Technical University in Prague	
Saska, Martin	Czech Technical University in Prague	
ThC2		Kozani
Control Design III (Regular Session)		
Chair: Zhang, Youmin	Concordia University	
Co-Chair: Osborne, Matthew Hewitt	Cranfield University	
17:00-17:20		ThC2.1
<i>A Review of Safe Online Learning for Nonlinear Control Systems</i> , pp. 794-803.		
Osborne, Matthew Hewitt	Cranfield University	
Shin, Hyo-Sang	Cranfield University	
Tsourdos, Antonios	Cranfield University	
17:20-17:40		ThC2.2
<i>Cooperative Aerial Slung Load Transportation Using a Novel Adaptive Sliding Mode Controller</i> , pp. 804-813.		
N. S., Abhinay	Tata Consultancy Services Ltd	
Shobhit, Shubhankar	Tata Consultancy Services Ltd	
Sridhar, Nithya	Tata Consultancy Services Ltd	
Das, Kaushik	Tata Consultancy Services Ltd	
17:40-18:00		ThC2.3
<i>Integrated Guidance and Control for Autonomous Rendezvous of Unmanned Aerial Vehicle During Aerial Refueling</i> , pp. 814-820.		
Zhao, Wenbi	Northwestern Polytechnical University	

Duan, You	Northwestern Polytechnical University
Yu, Ziquan	Nanjing University of Aeronautics and Astronautics
Qu, Yaohong	Northwestern Polytechnical University
Zhang, Youmin	Concordia University
18:00-18:20	ThC2.4
<i>Flatness-Based Control of a Gimballed Fixed-Wing UAS</i> , pp. 821-826.	
Morgan, Hayden	Brigham Young University
Beard, Randal W.	Brigham Young University
18:20-18:40	ThC2.5
<i>An Ellipsoidal-Polytopic Based Approach for Aggressive Navigation Using Nonlinear Model Predictive Control</i> , pp. 827-835.	
Pereira, Jean Carlos	CEFET-MG/Campus Divinopolis
Leite, Valter J. S.	CEFET-MG/Campus Divinopolis
Raffo, Guilherme Vianna	Federal University of Minas Gerais
ThC3	Edessa
Path Planning V (Regular Session)	
Chair: Tanner, Herbert G.	University of Delaware
Co-Chair: Eslamiat, Hossein	Southern Illinois University Carbondale
17:00-17:20	ThC3.1
<i>Exact Reactive Receding Horizon Motion Planning for Aerial Vehicles</i> , pp. 836-842.	
Yadav, Indrajeet	University of Delaware
Tanner, Herbert G.	University of Delaware
17:20-17:40	ThC3.2
<i>Discrete Time Optimal Trajectory Generation and Transversality Condition with Free Final Time</i> , pp. 843-852.	
Eslamiat, Hossein	Southern Illinois University Carbondale
Sanyal, Amit	Syracuse University
Lindsay, Clark	Southern Illinois University Carbondale
17:40-18:00	ThC3.3
<i>Curvature-Constrained Vector Field for Path Following Guidance</i> , pp. 853-857.	
Shivam, Amit	Indian Institute of Science
Ratnoo, Ashwini	Indian Institute of Science
18:00-18:20	ThC3.4
<i>NMPC-Based UAV 3D Target Tracking in the Presence of Obstacles and Visibility Constraints</i> , pp. 858-867.	
Tyagi, Prakrit	Delhi Technological University
Kumar, Yogesh	IIT Delhi
Baliyarasimhuni, Sujit P.	IISER Bhopal
18:20-18:40	ThC3.5
<i>MK-RRT*: Multi-Robot Kinodynamic RRT* Trajectory Planning</i> , pp. 868-876.	
Cain, Brennan	University of South Carolina
Kalaitzakis, Michail	University of South Carolina
Vitzilaios, Nikolaos	University of South Carolina
ThC4	Naoussa
UAS Applications III (Regular Session)	
Chair: Vitzilaios, Nikolaos	University of South Carolina
Co-Chair: Castaneda, Herman	Tecnologico De Monterrey
17:00-17:20	ThC4.1
<i>3D Multi-Camera Coverage Control of Unmanned Aerial Multirotors</i> , pp. 877-884.	
Huang, Sunan	National University of Singapore

Leong, Wai Lun Teo, S. H.	National University of Singapore National University of Singapore
17:20-17:40	ThC4.2
<i>Visual Rotational Constraints of General UAS Configurations</i> , pp. 885-894.	
Morgan, Hayden Beard, Randal W.	Brigham Young University Brigham Young University
17:40-18:00	ThC4.3
<i>UAS Sensor Deployment and Retrieval to the Underside of Structures</i> , pp. 895-900.	
Carroll, Sabrina Kalaitzakis, Michail Vitzilaios, Nikolaos	University of South Carolina University of South Carolina University of South Carolina
18:00-18:20	ThC4.4
<i>Payload Swing Attenuation of a Fully-Actuated Hexacopter Via Extended High Gain Observer Based Adaptive Sliding Control</i> , pp. 901-908.	
Arizaga-Leon, Jorge Manuel Castaneda, Herman Castillo, Pedro	Tecnologico De Monterrey Tecnologico De Monterrey Université De Technologie De Compiègne
18:20-18:40	ThC4.5
<i>A Distributed Task Allocation Protocol for Cooperative Multi-UAV Search and Rescue Systems</i> , pp. 909-917.	
Pignaton de Freitas, Edison Basso, Maik Arlis Santos da Silva, Antonio Schein, Mateus Schein Rodrigues Vizzotto, Marcos	Federal University of Rio Grande Do Sul Federal University of Rio Grande Do Sul Federal University of Rio Grande Do Sul Federal University of Rio Grande Do Sul Federal University of Rio Grande Do Sul

Technical Program for Friday, June 18, 2021

FrA1	Macedonia Hall
Autonomy I (Regular Session)	
Chair: Valavanis, Kimon P. Co-Chair: Monteriù, Andrea	University of Denver Università Politecnica Delle Marche
09:00-09:20	FrA1.1
<i>ICARUS: Automatic Autonomous Power Infrastructure Inspection with UAVs</i> , pp. 918-926.	
Savva, Antonis Zacharia, Angelos Makrigiorgis, Rafael Anastasiou, Andreas Kyrkou, Christos Kolios, Panayiotis Panayiotou, Christos Theocharides, Theocharis	University of Cyprus University of Cyprus University of Cyprus University of Cyprus University of Cyprus University of Cyprus University of Cyprus University of Cyprus
09:20-09:40	FrA1.2
<i>Hyperion: A Robust Drone-Based Target Tracking System</i> , pp. 927-933.	
Anastasiou, Andreas Makrigiorgis, Rafael Kolios, Panayiotis Panayiotou, Christos	University of Cyprus University of Cyprus University of Cyprus University of Cyprus
09:40-10:00	FrA1.3
<i>Autonomous Fire Fighting with a UAV-UGV Team at MBZIRC 2020</i> , pp. 934-941.	
Quenzel, Jan	University of Bonn

Splietker, Malte	University of Bonn
Pavlichenko, Dmytro	University of Bonn
Schleich, Daniel	University of Bonn
Lenz, Christian	University of Bonn
Schwarz, Max	University of Bonn
Schreiber, Michael	University of Bonn
Beul, Marius	University of Bonn
Behnke, Sven	University of Bonn

10:00-10:20 FrA1.4

[Autonomous Cave Exploration Using Aerial Robots](#), pp. 942-949.

Dharmadhikari, Mihir Rahul	University of Nevada, Reno
Nguyen, Huan	Norwegian University of Science and Technology
Mascarich, Frank	University of Nevada, Reno
Khedekar, Nikhil Vijay	University of Nevada, Reno
Alexis, Konstantinos	Norwegian University of Science and Technology

10:20-10:40 FrA1.5

[Autonomous Flight in Unknown GNSS-Denied Environments for Disaster Examination](#), pp. 950-957.

Schleich, Daniel	University of Bonn
Beul, Marius	University of Bonn
Quenzel, Jan	University of Bonn
Behnke, Sven	University of Bonn

FrA2 Kozani

Control Design IV (Regular Session)

Chair: Koumboulis, Fotis N.	National and Kapodistrian University of Athens
Co-Chair: Baldini, Alessandro	Università Politecnica Delle Marche

09:00-09:20 FrA2.1

[Trim Point Transitions Via I/O Decoupling Controllers for 6DOF Quadrotors](#), pp. 958-967.

Kouvakas, Nikolaos	National and Kapodistrian University of Athens
Koumboulis, Fotis N.	National and Kapodistrian University of Athens

09:20-09:40 FrA2.2

[Talking to Autonomous Drones: Command and Control Based on Hierarchical Task Decomposition](#), pp. 968-977.

Jünger, Franz	German Aerospace Center (DLR)
Schopferer, Simon	German Aerospace Center (DLR)
Benders, Sebastian	German Aerospace Center (DLR)
Dauer, Johann	German Aerospace Center (DLR)

09:40-10:00 FrA2.3

[Optimal Hovering Control of a Tail-Sitter Via Model-Free Fast Terminal Slide Mode Controller and Cuckoo Search Algorithm](#), pp. 978-984.

Zou, Xu	School of Aviation, Northwestern Polytechnical University
Liu, Zhenbao	Northwestern Polytechnical University
Zhao, Wen	School of Aviation, Northwestern Polytechnical University
Chao, Zhang	Northwestern Polytechnical University

10:00-10:20 FrA2.4

[Attitude Tracking Control of a Light Aircraft Using Classical and Incremental Nonlinear Dynamic Inversion Approaches](#), pp. 985-993.

Jayaraman, Balaji	Indian Institute of Technology, Kanpur
Giri, Dipak Kumar	Indian Institute of Technology, Kanpur
Ghosh, A. K. Ghosh	Indian Institute of Technology, Kanpur

10:20-10:40 FrA2.5

[Hierarchical Control of Redundant Aerial Manipulators with Enhanced Field of View](#), pp. 994-1002.

Coelho, Andre
 Sarkisov, Yuri
 Lee, Jongseok
 Balachandran, Ribin
 Franchi, Antonio
 Kondak, Konstantin
 Ott, Christian

German Aerospace Center (DLR)
 Skolkovo Institute of Science and Technology
 German Aerospace Center (DLR)
 German Aerospace Center (DLR)
 University of Twente
 German Aerospace Center (DLR)
 German Aerospace Center (DLR)

FrA3		Edessa
Path Planning VI (Regular Session)		
Chair: Theilliol, Didier		University of Lorraine
Co-Chair: Orsag, Matko		University of Zagreb
09:00-09:20		FrA3.1
<i>Multiple Lane UAV Corridor Planning for Urban Mobility System Applications</i> , pp. 1003-1009.		
Challa, Vinay		Indian Institute of Science
Gupta, Mohit		Indian Institute of Science
Ratnoo, Ashwini		Indian Institute of Science
Ghose, Debasish		Indian Institute of Science
09:20-09:40		FrA3.2
<i>UAS Flight Path Planning Using Numerical Potential Fields in Dense Non-Segregated Airspace</i> , pp. 1010-1019.		
M. A., Sajid Ahamed		Indian Institute of Science
Kushwaha, Satya Prakash		Indian Institute of Science
Jana, Shuvrangshu		Indian Institute of Science
Ghose, Debasish		Indian Institute of Science
09:40-10:00		FrA3.3
<i>Decentralized Path Planning Approach for Crowd Surveillance Using Drones</i> , pp. 1020-1028.		
Nagrare, Samiksha		Indian Institute of Science
Chopra, Onkar		Indian Institute of Science
Jana, Shuvrangshu		Indian Institute of Science
Ghose, Debasish		Indian Institute of Science
10:00-10:20		FrA3.4
<i>Quadrotor UAV 3D Path Planning with Optical-Flow-Based Obstacle Avoidance</i> , pp. 1029-1036.		
Allasia, Giancarlo		Politecnico Di Torino
Rizzo, Alessandro		Politecnico Di Torino
Valavanis, Kimon P.		University of Denver
10:20-10:40		FrA3.5
<i>3D Real-Time Energy Efficient Path Planning for a Fleet of Fixed-Wing UAVs</i> , pp. 1037-1046.		
Aiello, Giuseppe		Politecnico Di Torino
Valavanis, Kimon P.		University of Denver
Rizzo, Alessandro		Politecnico Di Torino

FrA4		Naoussa
UAS Applications IV (Regular Session)		
Chair: Yang, Chenhao		University of Tübingen
Co-Chair: Freddi, Alessandro		Università Politecnica Delle Marche
09:00-09:20		FrA4.1
<i>Learning-Based Camera Relocalization with Domain Adaptation Via Image-To-Image Translation</i> , pp. 1047-1054.		
Yang, Chenhao		University of Tübingen
Liu, Yuyi		Kyoto University
Zell, Andreas		University of Tübingen

09:20-09:40 FrA4.2

SwarmPaint: Human-Swarm Interaction for Trajectory Generation and Formation Control by DNN-Based Gesture Interface, pp. 1055-1062.

Serpiva, Valerii	Skolkovo Institute of Science and Technology
Karmanova, Ekaterina	Skolkovo Institute of Science and Technology
Fedoseev, Aleksey	Skolkovo Institute of Science and Technology
Perminov, Stepan	Skolkovo Institute of Science and Technology
Tsetserukou, Dzmityr	Skolkovo Institute of Science and Technology

09:40-10:00 FrA4.3

Design of an Aerial Manipulator System Applied to Capture Missions, pp. 1063-1069.

Zhang, Wenyu	Beihang University
Liu, Qianyuan	Beihang University
Wang, Meng	Beihang University
Jia, Jindou	Beihang University
Lyu, Shangke	Beihang University
Guo, Kexin	Beihang University
Yu, Xiang	Beihang University
Guo, Lei	Beihang University

10:00-10:20 FrA4.4

Soft-Landing of Multi-Rotor Drones Using a Robust Nonlinear Control and Wind Modeling, pp. 1070-1079.

Nekoo, Saeed Rafee	Universidad De Sevilla
Acosta, Jose Angel	Universidad De Sevilla
Heredia, Guillermo	Universidad De Sevilla
Ollero, Anibal	Universidad De Sevilla

10:20-10:40 FrA4.5

Rogue Agent Identification and Collision Avoidance in Formation Flights Using Potential Fields, pp. 1080-1088.

Jyoti, Ravinder Kumar	Indian Institute of Science
Malhotra, Mohit Kumar	Indian Institute of Science
Ghose, Debasish	Indian Institute of Science

FrB1 Macedonia Hall

Autonomy II (Regular Session)

Chair: Monteriù, Andrea	Università Politecnica Delle Marche
Co-Chair: Wu, Xiangyu	University of California, Berkeley

11:00-11:20 FrB1.1

Exploitation of Thermals in Powered and Unpowered Flight of Autonomous Gliders, pp. 1089-1095.

El Tin, Fares	McGill University
Patience, Christian	McGill University
Borowczyk, Alexandre	Notos Technologies
Nahon, Meyer	McGill University
Sharf, Inna	McGill University

11:20-11:40 FrB1.2

Geometrically Based Collision Avoidance for Quadrotors under Short Sensing Distance Conditions, pp. 1096-1105.

Maalouly, Anthony	McGill University
Sharf, Inna	McGill University
Mantegh, Iraj	National Research Council Canada

11:40-12:00 FrB1.3

Vision-Based Guidance for Tracking Dynamic Objects, pp. 1106-1115.

Karmokar, Pritam	University of Texas at Arlington
Dhal, Kashish	University of Texas at Arlington
Beksi, William	University of Texas at Arlington

Chakravarthy, Animesh	University of Texas at Arlington
12:00-12:20	FrB1.4
<i>ATAK Integration through ROS for Autonomous Air-Ground Team</i> , pp. 1116-1122.	
Larkin, Dominic	United States Military Academy
Novitzky, Michael	United States Military Academy
Kim, Jinho	United States Military Academy
Korpela, Christopher	United States Military Academy
12:20-12:40	FrB1.5
<i>Development of an Autonomous Soaring Algorithm for Small Unmanned Aircraft Systems</i> , pp. 1123-1130.	
Rosales, Jesus	New Mexico State University
Guijarro Reyes, Gabriel Alexis	New Mexico State University
Sun, Liang	New Mexico State University
Garcia Carrillo, Luis Rodolfo	New Mexico State University
Gross, Andreas	New Mexico State University
12:40-13:00	FrB1.6
<i>Autonomous Flight through Cluttered Outdoor Environments Using a Memoryless Planner</i> , pp. 1131-1138.	
Lee, Junseok	University of California, Berkeley
Wu, Xiangyu	University of California, Berkeley
Lee, Seung Jae	Seoul National University
Mueller, Mark Wilfried	University of California, Berkeley
FrB2	Kozani
Control Design V (Regular Session)	
Chair: Bogdan, Stjepan	University of Zagreb
Co-Chair: Milijas, Robert	University of Zagreb
11:00-11:20	FrB2.1
<i>Autonomous Collaborative Transport of a Beam-Type Payload by a Pair of Multi-Rotor Helicopters</i> , pp. 1139-1147.	
Horyna, Jiri	Czech Technical University in Prague
Baca, Tomas	Czech Technical University in Prague
Saska, Martin	Czech Technical University in Prague
11:20-11:40	FrB2.2
<i>A Comparison of LiDAR-Based SLAM Systems for Control of Unmanned Aerial Vehicles</i> , pp. 1148-1154.	
Milijas, Robert	University of Zagreb
Markovic, Lovro	University of Zagreb
Ivanovic, Antun	University of Zagreb
Petric, Frano	University of Zagreb
Bogdan, Stjepan	University of Zagreb
11:40-12:00	FrB2.3
<i>Low Level Controller for Quadrotors</i> , pp. 1155-1161.	
Rodriguez-Cortes, Hugo	CINVESTAV-IPN
Tlatempa-Osorio, Yara E.	CINVESTAV-IPN
Ramirez-Rodriguez, Jose Miguel	CINVESTAV-IPN
12:00-12:20	FrB2.4
<i>Controlling a Formation of a MARV in Backward Movements with an UAV for Inspection Tasks</i> , pp. 1162-1170.	
Bertolani, Diego Nunes	Federal Institute of Espírito Santo
Bacheti, Vinicius	Federal University of Espírito Santo
Sarcinelli-Filho, Mário	Federal University of Espírito Santo
12:20-12:40	FrB2.5
<i>High-Fidelity Modeling and Control Design for a Cooperative High Altitude Long Endurance Aircraft Landing System</i> , pp. 1171-1178.	
Rodrigues Della Noce, Eduardo	German Aerospace Center (DLR)

Kalra, Arti	German Aerospace Center (DLR)
Coelho, Andre	German Aerospace Center (DLR)
Muskardin, Tin	German Aerospace Center (DLR)
Kondak, Konstantin	German Aerospace Center (DLR)

12:40-13:00 FrB2.6

Pilot-Assist Landing System for Hover-Capable Fixed-Wing Unmanned Aerial Vehicles in All Flight Regimes, pp. 1179-1186.

Hernandez Ramirez, Juan Carlos	McGill University
Nahon, Meyer	McGill University

FrB3 Edessa
Neural Networks (Regular Session)

Chair: Lerro, Angelo	Politecnico Di Torino
Co-Chair: Orsag, Matko	University of Zagreb

11:00-11:20 FrB3.1

Neural Network Techniques to Solve a Model-Free Scheme for Flow Angle Estimation, pp. 1187-1193.

Lerro, Angelo	Politecnico Di Torino
Brandl, Alberto	Politecnico Di Torino
Gili, Piero	Politecnico Di Torino

11:20-11:40 FrB3.2

Thrust--To--Weight Ratio Optimization for Multi--Rotor Drones Using Neural Network with Six Input Parameters, pp. 1194-1199.

Mogorosi, Tony Oliver	Botswana International University of Science and Technology
Jamisola, Rodrigo S. Jr.	Botswana International University of Science and Technology
Subaschandar, N.	Botswana International University of Science and Technology
Mohutsiwa, Lucky Odirile	Botswana International University of Science and Technology

11:40-12:00 FrB3.3

A Neural Autopilot Training Platform Based on a Matlab and X-Plane Co-Simulation, pp. 1200-1209.

Pinguet, Jérémy	Safran Electronics & Defense
Feyel, Philippe	Safran Electronics and Defense
Sandou, Guillaume	École Supérieure D'électricité

12:00-12:20 FrB3.4

Neural Network Based Algorithm for Multi-UAV Coverage Path Planning, pp. 1210-1217.

Sanna, Giovanni	Politecnico Di Torino
Godio, Simone	Politecnico Di Torino
Guglieri, Giorgio	Politecnico Di Torino

12:20-12:40 FrB3.5

Adaptive Tracking Control for a UAV with Neural Adaptive Compensation Using SMC, pp. 1218-1224.

Rossomando, Francisco	CONICET - Universidad Nacional De San Juan
Rosales, Claudio	CONICET - Universidad Nacional De San Juan
Soria, Carlos	CONICET - Universidad Nacional De San Juan
Gandolfo, Daniel Ceferino	CONICET - Universidad Nacional De San Juan
Carelli, Ricardo	CONICET - Universidad Nacional De San Juan

12:40-13:00 FrB3.6

Nonlinear Adaptive Control of Unmanned Aerial Vehicle Using Echo State Neural Networks, pp. 1225-1232.

Duggan, Christopher	California State Polytechnic University, Pomona
Bhandari, Subodh	California State Polytechnic University, Pomona

FrB4		Naoussa
Safety, Security and Reliability (Regular Session)		
Chair: Valasek, John		Texas A&M University
Co-Chair: la Cour-Harbo, Anders		Aalborg University
11:00-11:20		FrB4.1
<i>Emergency Landing Decision Method for Unmanned Aircraft</i> , pp. 1233-1239.		
Ramirez Gomez, Aitor		Aalborg University
la Cour-Harbo, Anders		Aalborg University
11:20-11:40		FrB4.2
<i>Collision Severity Evaluation of Generalized Unmanned Aerial Vehicles (UAVs) Impacting on Aircraft Engines</i> , pp. 1240-1247.		
Sivakumar, Anush Kumar		Nanyang Technological University
Che Man, Mohd Hasrizam		Nanyang Technological University
Liu, Hu		Nanyang Technological University
Low, Kin Huat		Nanyang Technological University
11:40-12:00		FrB4.3
<i>Impact Probability Maps Computation and Risk Analysis for 3D Ground Infrastructures Due to UAV Operations</i> , pp. 1248-1257.		
Levasseur, Baptiste		ONERA
Bertrand, Sylvain		ONERA
12:00-12:20		FrB4.4
<i>Safety Challenges for Integrating U-Space in Urban Environments</i> , pp. 1258-1267.		
Gutierrez, Daniel		Technological Institute of Galicia Foundation
Ventas García, Enrique		Technological Institute of Galicia Foundation
12:20-12:40		FrB4.5
<i>Investigating Malware-In-The-Loop Autopilot Attack Using Falsification of Sensor Data</i> , pp. 1268-1276.		
Jares, Garrett		Texas A&M University
Valasek, John		Texas A&M University
12:40-13:00		FrB4.6
<i>Cyber-Security through Dynamic Watermarking for 2-Rotor Aerial Vehicle Flight Control Systems</i> , pp. 1277-1283.		
Kim, Jaewon		Texas A&M University
Ko, Woo-Hyun		Texas A&M University
Kumar, P. R.		Texas A&M University
FrC1		Macedonia Hall
Estimation and Bio-Inspired (Regular Session)		
Chair: Arrue, B.C.		Universidad De Sevilla
Co-Chair: Perez Sanchez, Vicente		Universidad De Sevilla
14:00-14:20		FrC1.1
<i>Analysis of Forces Involved in the Perching Maneuver of Flapping-Wing Aerial Systems and Development of an Ultra-Lightweight Perching System</i> , pp. 1284-1290.		
Perez Sanchez, Vicente		Universidad De Sevilla
Gómez Tamm, Alejandro Ernesto		Universidad De Sevilla
Garcia Rubiales, Francisco Javier		Universidad De Sevilla
Arrue Ulles, Begonia Chiquinquirá		Universidad De Sevilla
Ollero, Anibal		Universidad De Sevilla
14:20-14:40		FrC1.2
<i>Estimation of the Distance from a Surface Based on Local Optic Flow Divergence</i> , pp. 1291-1298.		
Bergantin, Lucia		Aix-Marseille Université
Raharijaona, Thibaut		Université De Lorraine
Ruffier, Franck		Aix-Marseille Université

14:40-15:00 FrC1.3

Feedforward Formation Control Based on Self-Organized Body-Schema, pp. 1299-1307.

Franco-Robles, Jesus	XLIM Research Institute, University of Limoges
Escareno Castro, Juan Antonio	XLIM Research Institute, University of Limoges
Soto-Guerrero, Daniel	XLIM Research Institute, University of Limoges
Labrani-Igbida, Ouidad	XLIM Research Institute, University of Limoges

15:00-15:20 FrC1.4

Multi-UAV Method for Continuous Source Rate Estimation of Fugitive Gas Emissions from a Point Source, pp. 1308-1313.

Hollenbeck, Derek	University of California, Merced
Chen, YangQuan	University of California, Merced

15:20-15:40 FrC1.5

A Flow Disturbance Estimation and Rejection Strategy for Multirotors with Round-Trip Trajectories, pp. 1314-1320.

Byun, Jaeseung	University of California, Berkeley
Makiharju, Simo	University of California, Berkeley
Mueller, Mark Wilfried	University of California, Berkeley

FrC2 Kozani

See-And-Avoid Systems (Regular Session)

Chair: McKinnis, Aaron	University of Kansas
Co-Chair: Riordan, James	University of the West of Scotland

14:00-14:20 FrC2.1

Monocular Vision-Based Obstacle Avoidance Scheme for Micro Aerial Vehicle Navigation, pp. 1321-1327.

Karlsson, Samuel	Luleå University of Technology
Kanellakis, Christoforos	Luleå University of Technology
Sharif Mansouri, Sina	Luleå University of Technology
Nikolakopoulos, George	Luleå University of Technology, Sweden

14:20-14:40 FrC2.2

Flight Test Validation of Adaptive Collision Avoidance Algorithms Using Multiple Unmanned Aircraft, pp. 1328-1336.

McKinnis, Aaron	University of Kansas
Hauptman, Dustin Hauptman	University of Kansas
Keshmiri, Shawn	University of Kansas
Ewing, Mark	University of Kansas

14:40-15:00 FrC2.3

Multi-Camera Multi-Target Drone Tracking Systems with Trajectory-Based Target Matching and Re-Identification, pp. 1337-1344.

Sie, Jun Liang Niven	National University of Singapore
Srigarom, Sutthiphong	National University of Singapore

15:00-15:20 FrC2.4

Vision-Based Sense and Avoid with Monocular Vision and Real-Time Object Detection for UAVs, pp. 1345-1354.

Leong, Wai Lun	National University of Singapore
Huang, Sunan	National University of Singapore
Wang, Pengfei	National University of Singapore
Ma, Zhengtian	National University of Singapore
Yang, Hong	National University of Singapore
Sun, Jingxuan	National University of Singapore
Zhou, Yu	National University of Singapore
Abdul Hamid, Mohamed Redhwan	National University of Singapore
Srigarom, Sutthiphong	National University of Singapore
Teo, Rodney	National University of Singapore

15:20-15:40 FrC2.5

[LiDAR Simulation for Performance Evaluation of UAS Detect and Avoid](#), pp. 1355-1363.

Riordan, James	University of the West of Scotland
Manduhu, Manduhu	University of the West of Scotland
Black, Julie	University of the West of Scotland
Dow, Alexander	University of the West of Scotland
Dooly, Gerard	University of Limerick
Matalonga, Santiago	University of the West of Scotland

FrC3 Edessa

Swarms I (Regular Session)

Chair: Morgado Belo, Eduardo	Universidade De São Paulo
Co-Chair: Felicetti, Riccardo	Università Politecnica Delle Marche

14:00-14:20 FrC3.1

[Distributed Event-Based Sliding-Mode Consensus Control in Dynamic Formation for VTOL-UAVs](#), pp. 1364-1373.

Alvarez Muñoz, Jonatan Uziel	EXTIA
Chevalier, Jérémy	EXTIA
Castillo Zamora, Jose de Jesus	IPSA & CentraleSupélec
Escareno Castro, Juan Antonio	XLIM Research Institute, University of Limoges

14:20-14:40 FrC3.2

[Self-Organized UAV Flocking Based on Proximal Control](#), pp. 1374-1382.

Amorim, Thulio G. S.	Universidade Federal Da Paraiba
Nascimento, Tiago	Universidade Federal Da Paraiba
Petracek, Pavel	Czech Technical University in Prague
De Masi, Giulia	Technology Innovation Institute
Ferrante, Eliseo	Technology Innovation Institute
Saska, Martin	Czech Technical University in Prague

14:40-15:00 FrC3.3

[Virtual Structure Formation Flight Control Based on Nonlinear MPC](#), pp. 1383-1390.

Rosa, Victor Stafy Megda	Universidade De São Paulo
Morgado Belo, Eduardo	Universidade De São Paulo

15:00-15:20 FrC3.4

[Safe Tightly-Constrained UAV Swarming inGNSS-Denied Environments](#), pp. 1391-1399.

Dmytruk, Andriy	Czech Technical University in Prague
Nascimento, Tiago	Universidade Federal Da Paraiba
Ahmad, Afzal	Czech Technical University in Prague
Baca, Tomas	Czech Technical University in Prague
Saska, Martin	Czech Technical University in Prague

15:20-15:40 FrC3.5

[Expanding Domains for Multi-Vehicle Unmanned Systems](#), pp. 1400-1409.

Giles, Kathleen	Naval Postgraduate School
Davis, Duane	Naval Postgraduate School
Jones, Kevin	Naval Postgraduate School
Jones, Marianna	Naval Postgraduate School

FrC4 Naoussa

Technology Challenges (Regular Session)

Chair: Tzes, Anthony	New York University Abu Dhabi
Co-Chair: Taylor, Max	The Ohio State University

14:00-14:20 FrC4.1

[Computationally Efficient RGB-T UAV Detection and Tracking System](#), pp. 1410-1415.

Xing, Daitao	New York University
Tsoukalas, Athanasios	New York University Abu Dhabi
Giakoumidis, Nikolaos	New York University Abu Dhabi
Tzes, Anthony	New York University Abu Dhabi

14:20-14:40 FrC4.2

Air-Ground Cooperative Exploration of 3D Complex Environment with Maximized Visibility and Obstacles Avoidance, pp. 1416-1421.

Wu, YuXuan	Beijing University of Chemical Technology
Wang, Jing	North China University of Technology
Zhou, Meng	North China University of Technology
Dong, Zhe	North China University of Technology
Chen, YangQuan	University of California, Merced

14:40-15:00 FrC4.3

Asymmetric Quadrotor Modeling and State-Space System Identification, pp. 1422-1431.

Leshikar, Christopher	Texas A&M University
Ninan, Nidhin	Texas A&M University
Eves, Kameron	Texas A&M University
Valasek, John	Texas A&M University

15:00-15:20 FrC4.4

Low Electromagnetic Interference Design and Simulation of Lithium Battery Powered UAV, pp. 1432-1438.

Ge, Jiahao	Beijing Institute of Technology
Liu, Li	Beijing Institute of Technology
He, Yuntao	Beijing Institute of Technology
Cao, Xiao	Beijing Institute of Technology

15:20-15:40 FrC4.5

A Study on Software Bugs in Unmanned Aerial Systems, pp. 1439-1448.

Taylor, Max	The Ohio State University
Boubin, Jayson	The Ohio State University
Chen, Haicheng	The Ohio State University
Stewart, Christopher	The Ohio State University
Qin, Feng	The Ohio State University

FrD1 Macedonia Hall

Manned/Unmanned Aviation and UAS Testbeds (Regular Session)

Chair: Papanikolopoulos, Nikos	University of Minnesota
Co-Chair: Canelon, Dario	University of Minnesota

16:00-16:20 FrD1.1

OpenUAS Version 1.0, pp. 1449-1458.

Johannsen, Chris	Iowa State University
Anderson, Marcella	Iowa State University
Burken, William	Iowa State University
Diersen, Ellie	Iowa State University
Edgren, John	Iowa State University
Glick, Colton	Iowa State University
Jou, Stephanie	Iowa State University
Kumar, Adkyaksh	Iowa State University
Levandowski, John	Iowa State University
Moyer, Evelyn	Iowa State University
Roquet, Taylor	Iowa State University
Vande Loo, Alexander	Iowa State University
Rozier, Kristin Yvonne	Iowa State University

16:20-16:40 FrD1.2

Design Optimization of Wingtip Devices to Reduce Induced Drag on Fixed-Wings, pp. 1459-1465.

Makgantai, Boitumelo	Botswana International University of Science and Technology
Subaschandar, N.	Botswana International University of Science and Technology
Jamisola, Rodrigo S Jr.	Botswana International University of Science and Technology

16:40-17:00 FrD1.3

Design and Characterization of a Multi-Domain Unmanned Vehicle Operating in Aerial, Terrestrial, and Underwater Environments, pp. 1466-1471.

Canelon, Dario	University of Minnesota
Westlake, Samuel	University of Minnesota
Wang, Youbing	University of Minnesota
Papanikolopoulos, Nikos	University of Minnesota

17:00-17:20 FrD1.4

A 3D Printing Hexacopter: Design and Demonstration, pp. 1472-1477.

Nettekoven, Alexander	The University of Texas at Austin
Topcu, Ufuk	The University of Texas at Austin

17:20-17:40 FrD1.5

The Polish Perspective of Using Unmanned Aerial Vehicle Systems in International Firefighting and Crisis Management Missions - Legal and Technological Analysis, pp. 1478-1487.

Balcerzak, Tomasz	Lazarski University
Jasiuk, Ewa	Lazarski University
Fellner, Andrzej	Silesian University of Technology
Feltynowski, Mariusz	The Main School of Fire Service

FrD2 Kozani

UAS Communications (Regular Session)

Chair: Brandao, Alexandre Santos	Universidade Federal De Viçosa
Co-Chair: Purucker, Patrick	University of Applied Sciences Amberg-Weiden

16:00-16:20 FrD2.1

Teleoperated Aerial Manipulator and Its Avatar. Communication, System's Interconnection, and Virtual World, pp. 1488-1493.

Verdin, Rodolfo Isaac	Center for Research in Optics, A.C
Ramírez, Germán	Center for Research in Optics, A.C
Rivera Quezada, Carlos Arturo	Center for Research in Optics, A.C
Flores, Gerardo	Center for Research in Optics, A.C

16:20-16:40 FrD2.2

RF Detection and Classification of Unmanned Aerial Vehicles in Environments with Wireless Interference, pp. 1494-1498.

Swinney, Carolyn J.	University of Essex
Woods, John C.	University of Essex

16:40-17:00 FrD2.3

System Requirements Specification for Unmanned Aerial Vehicle (UAV) to Server Communication, pp. 1499-1508.

Purucker, Patrick	University of Applied Sciences Amberg-Weiden
Schmid, Josef	University of Applied Sciences Amberg-Weiden
Hoess, Alfred	University of Applied Sciences Amberg-Weiden
Schuller, Björn	University of Augsburg

17:00-17:20 FrD2.4

Towards SORA-Compliant BVLOS Communication, pp. 1509-1519.

Andersen, Frederik Mazur	University of Southern Denmark
Terkildsen, Kristian Husum	University of Southern Denmark
Schultz, Ulrik Pagh	University of Southern Denmark

Jensen, Kjeld	University of Southern Denmark
17:20-17:40	FrD2.5
<i>On the Evaluation of Access-Point Handovers for UAVs in Long-Distance Missions</i> , pp. 1520-1529.	
Alves Fagundes Junior, Leonardo	Universidade Federal De Viçosa
Souza, Vitor Barbosa	Universidade Federal De Viçosa
Brandao, Alexandre Santos	Universidade Federal De Viçosa
FrD3	Edessa
Swarms II (Regular Session)	
Chair: Causa, Flavia	Università Di Napoli Federico II
Co-Chair: Vazquez Trejo, Juan Antonio	University of Lorraine
16:00-16:20	FrD3.1
<i>Formation-Containment for a MAV Fleet Under Perturbations Via Adaptive Sliding Mode Approach</i> , pp. 1530-1537.	
Katt, Carlos	Tecnologico De Monterrey
Castaneda, Herman	Tecnologico De Monterrey
Castillo, Pedro	Unviersité De Technologie De Compiègne
16:20-16:40	FrD3.2
<i>Cooperative Navigation and Visual Tracking with Passive Ranging for UAV Flight in GNSS-Challenging Environments</i> , pp. 1538-1547.	
Causa, Flavia	Università Di Napoli Federico II
Opromolla, Roberto	Università Di Napoli Federico II
Fasano, Giancarmine	Università Di Napoli Federico II
16:40-17:00	FrD3.3
<i>A Review of Consensus-Based Multi-Agent UAV Applications</i> , pp. 1548-1557.	
Lizzio, Fausto Francesco	Politecnico Di Torino
Capello, Elisa	Politecnico Di Torino
Guglieri, Giorgio	Politecnico Di Torino
17:00-17:20	FrD3.4
<i>Unified Control Solution for Mobile Robot Formations</i> , pp. 1558-1564.	
Rosales, Claudio	CONICET - Universidad Nacional De San Juan
Rossomando, Francisco	CONICET - Universidad Nacional De San Juan
Salinas, Lucio Rafael	CONICET - Universidad Nacional De San Juan
Gimenez, Javier	CONICET - Universidad Nacional De San Juan
Carelli, Ricardo	CONICET - Universidad Nacional De San Juan
17:20-17:40	FrD3.5
<i>Robust Observer-Based Leader-Following Control for a Class of Nonlinear Multi-Agent Systems: Application to Fleet of UAVs</i> , pp. 1565-1572.	
Vazquez Trejo, Juan Antonio	University of Lorraine
Rotondo, Damiano	University of Stavanger
Adam-Medina, Manuel	National Center for Research and Technological Development
Theilliol, Didier	University of Lorraine
FrD4	Naoussa
Airspace Control and Management (Regular Session)	
Chair: Milutinovic, Dejan	University of California, Santa Cruz
Co-Chair: Quan, Quan	Beihang University
16:00-16:20	FrD4.1
<i>Modeling, Design and Manufacturing of Delta-Wing UAV</i> , pp. 1573-1579.	
Srouf, Ali	Paris Saclay
Noura, Hassan	Islamic University of Lebanon

16:20-16:40	FrD4.2
<i>Ring Formation Maneuvering with Double Integrator Dynamics</i> , pp. 1580-1586.	
Tran, Dzung	Air Force Research Laboratory
Casbeer, David	Air Force Research Laboratory
Garcia, Eloy	Air Force Research Laboratory
Weintraub, Isaac E.	Air Force Research Laboratory
Milutinovic, Dejan	University of California, Santa Cruz
16:40-17:00	FrD4.3
<i>RflySim: A Rapid Multicopter Development Platform for Education and Research Based on Pixhawk and MATLAB</i> , pp. 1587-1594.	
Wang, Shuai	Beihang University
Dai, Xunhua	Central South University
Ke, Chenxu	Beihang University
Quan, Quan	Beihang University
17:00-17:20	FrD4.4
<i>Enhancing SkyVision: Integrating UAS Flight Information with ATC Data</i> , pp. 1595-1604.	
Lamping, Anthony	University of Cincinnati
Ouwerkerk, Justin	University of Cincinnati
Barnes, Evan	University of Cincinnati
DeGroot, Nicholas	University of Cincinnati
Wessels, Austin	University of Cincinnati
Brown, Bryan	University of Cincinnati
Cohen, Kelly	University of Cincinnati
17:20-17:40	FrD4.5
<i>A Lifting Wing Fixed on Multirotor UAVs for Long Flight Ranges</i> , pp. 1605-1610.	
Xiao, Kun	Beihang University
Meng, Yao	Beihang University
Dai, Xunhua	Central South University
Zhang, Haotian	Beihang University
Quan, Quan	Beihang University
17:40-18:00	FrD4.6
<i>Lane Geometry, Compliance Levels, and Adaptive Geo-Fencing in CORRIDRONE Architecture for Urban Mobility</i> , pp. 1611-1617.	
Tony, Lima Agnel	Indian Institute of Science
Ratnoo, Ashwini	Indian Institute of Science
Ghose, Debasish	Indian Institute of Science
FrPS	Foyer, Mezzanine Level
Poster Papers Session (Poster Session)	
Chair: Silano, Giuseppe	Czech Technical University in Prague
Co-Chair: Khanam, Zeba	University of Essex
09:00-09:15	FrPS.1
<i>A Dual Frequency Blade Antenna Enabling UAV-Based Operations in ADS-B and 5G Environments</i> , pp. 1618-1623.	
Arpaio, Maximilian James	Alma Mater Studiorum, Università Di Bologna
Fuschini, Franco	Alma Mater Studiorum, Università Di Bologna
Masotti, Diego	Alma Mater Studiorum, Università Di Bologna
09:15-09:30	FrPS.2
<i>A Multi-Layer Software Architecture for Aerial Cognitive Multi-Robot Systems in Power Line Inspection Tasks</i> , pp. 1624-1629.	
Silano, Giuseppe	Czech Technical University in Prague
Bednar, Jan	Czech Technical University in Prague

Nascimento, Tiago	Universidade Federal Da Paraiba
Capitan, Jesus	Universidad De Sevilla
Saska, Martin	Czech Technical University in Prague
Ollero, Anibal	Universidad De Sevilla
09:30-09:45	FrPS.3
<i>A Vision-Based Algorithm for a Path Following Problem</i> , pp. 1630-1635.	
Terlizzi, Mario	Università Del Sannio
Silano, Giuseppe	Czech Technical University in Prague
Russo, Luigi	Università Del Sannio
Aatif, Muhammad	Università Del Sannio
Basiri, Amin	Università Del Sannio
Mariani, Valerio	Università Del Sannio
Iannelli, Luigi	Università Del Sannio
Glielmo, Luigi	Università Del Sannio
09:45-10:00	FrPS.4
<i>Appraisal of Autonomous Swarms through Analysis of Observed Behavior</i> , pp. 1636-1641.	
Helble, Sarah	Johns Hopkins Applied Physics Laboratory
Guinn, Andrew	Johns Hopkins Applied Physics Laboratory
Blake, Joshua	Johns Hopkins University Applied Physics Laboratory
10:00-10:15	FrPS.5
<i>Assisted Canopy Sampling Using Unmanned Aerial Vehicles (UAVs)</i> , pp. 1642-1647.	
La Vigne, Hughes	Université De Sherbrooke
Charron, Guillaume	Université De Sherbrooke
Hovington, Samuel	Université De Sherbrooke
Desbiens, Alexis Lussier	Université De Sherbrooke
10:15-10:30	FrPS.6
<i>Flight Plan Management System for Unmanned Aircraft Vehicles Using Blockchain</i> , pp. 1648-1652.	
Yaguchi, Yuichi	University of Aizu
Wakazono, Takuya	University of Aizu
10:30-10:45	FrPS.7
<i>Impedance-Based Control for Soft UAV Landing on a Ground Robot in Heterogeneous Robotic System</i> , pp. 1653-1658.	
Kalinov, Ivan	Skolkovo Institute of Science and Technology
Petrovsky, Alexander	Skolkovo Institute of Science and Technology
Agishev, Ruslan	Skolkovo Institute of Science and Technology
Karpyshev, Pavel	Skolkovo Institute of Science and Technology
Tsetserukou, Dzmitry	Skolkovo Institute of Science and Technology
10:45-11:00	FrPS.8
<i>Near-Optimal Coverage Path Planning of Distributed Regions for Aerial Robots with Energy Constraint</i> , pp. 1659-1664.	
Khanam, Zeba	University of Essex
McDonald-Maier, Klaus	University of Essex
Ehsan, Shoaib	University of Essex
11:00-11:15	FrPS.9
<i>Neural Networks Algorithms for Ornithopter Trajectory Optimization</i> , pp. 1665-1670.	
Pérez-Cutiño, Miguel Angel	Universidad De Sevilla
Rodríguez, Fabio	Universidad De Sevilla
Pascual Callejo, Luis David	Universidad De Sevilla
Díaz-Báñez, José-Miguel	Universidad De Sevilla
11:15-11:30	FrPS.10
<i>Performance of Sliding Mode and Consensus-Based Control Approaches for Quadrotor Leader-Follower Formation Flight</i> , pp. 1671-1676.	
Wu, Falin	Beihang University

He, Jiaqi	Beihang University
Zhou, Guopeng	Beihang University
Li, Haolun	Beihang University
Liu, Yushuang	Beijing System Design Institute of Electro-Mechanic Engineering

11:30-11:45 FrPS.11

Region Coverage Flight Path Planning Using Multiple UAVs to Monitor the Huge Areas, pp. 1677-1682.

Yaguchi, Yuichi	University of Aizu
Tomeba, Tomoki	University of Aizu

11:45-12:00 FrPS.12

Time Cooperation Method for Multiple UCAVs Based on Hybrid Non-Uniform Adjustment, pp. 1683-1688.

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