

# MESAS 2021 Scientific Conference Program

V.6

MESAS'21 - 13-14 OCT 2021

## DAY 13 OCT

Initial Plenary of conference

Moderator: COL Jan MAZAL

Start time	Duration	Activity/Topics	Presenter/Author(s)
9:30	0:05	Welcoming speech	Deputy Director NATO M&S COE LTC Bradley KOERNER
9:35	0:05	Welcoming speech	Chief of Department of Military Robotics CZE UoD COL MAZAL
9:40	0:05	MESAS21 Chairman's message	Adriano Fagiolini
9:45	0:05	MESAS21 Chairman's message	Agostino Bruzzone
9:50	0:05	MESAS21 Chairman's message	Stefan Pickl
9:55	0:05	MESAS21 Chairman's message	Vlastimil Neumann
Chair: Jan Mazal			
Start time	Duration	Activity/Topics	Presenter/Author(s)
10:10	0:20	Traversability Transfer Learning Between Robots with Different Cost Assessment Policies	Josef Zelinka, Miloš Prágr, Rudolf Szadkowski, Jan Bayer, Jan Faigl
10:30	0:20	UAV based Vehicle Detection on Real and Synthetic Image Pairs:	Michael Krump, Peter Stütz
10:50	0:20	Current state and design recommendations of exoskeletons of lower limbs in military applications	Lydie Leová, Slávka Cubalová, Patrik Kutilek, Petr Volf, Jan Hejda, Jan Hýbl, Petr Šťastný, Michal Wágner, Václav Křivánek
11:10	0:20	Human Detection in LiDAR data using YOLO Neural Network	Adam Ligocki, Ludek Zalud
11:30	0:20	Measuring Multi-UAV Mission Efficiency: Concept Validation and Enhanced Metrics	Julian Seethaler, Michael Strohal, Peter Stütz
Lunch Break			
Chair: Jan Nohel			
13:20	0:20	ROLE1 Medical Treatment Modelling	Dalibor Procházka, Jan Hodicky, Milan Krejčík
13:40	0:20	Robust Decision Making via Cooperative Estimation: Creating Data Saturated, Autonomously Generated, Simulation Environments in Near Real-Time.	Israel Lopez-Toledo, Dylan Pasley, Raul Ortiz, Ahmet Soylemezoglu
14:00	0:20	Utilizing the Maneuver Control System CZ in the Course of Wargaming Modelling and Simulation	Jan Nohel, Ludovít Hradský, Zdeněk Flasar, Pavel Zahradniček, Dana Křišťálová
14:20	0:20	Operationalizing a Medical Intelligence Platform for Humanitarian Security in Protracted Crises	Walter David, Michelle King-Okoye, Gianluca Sensidoni, Alessandro Capone, Irene Mugambwa, Stanislava Kraynova, Beatriz Garmendia-Doval
14:40	0:20	Algorithm Development of the Decision-Making Process of an Engineer Specialization Officer	Ota Rolnec, Karel Šilinger, Martin Sedláček
Break			
Chair: Jiri Novotny			
15:20	0:20	Building Trust in Autonomous Systems: The Opportunities for Modelling and Simulation	Thomas Mansfield, Pilar Caamano, Sasha Blue Godfrey, Arnau Carrera Vinas, Alberto Tremori, Girish Nandakumar, Kevin Moberly, Jeremiah Cronin, Serge Da Deppo
15:40	0:20	Modelling and Simulation of Microrelief Impact on Ground Path Extension	Dana KRISTALOVA, Tomas Turo, Jan Nohel, Vlastimil Neumann, Jan Zezula
16:00	0:20	Enhancing Requirements Completeness of Automated Driving System in Concept Phase	Ahmad Abbadi, Vaclav Prenosil
16:20	0:20	Autonomous Wayfinding in Complex, Uncertain Environments	Eric Haney
16:40	0:05	The first conference day closure	Jan MAZAL

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## DAY 14 OCT

Chair: Anna Derevianko

Start time	Duration	Activity/Topics	Presenter/Author(s)
10:00	0:20	A Design of a Global Path Planner for Nonholonomic Vehicle based on Dynamic Simulations	Roman Adámek, Matej Rajchl, Václav Křivánek, Robert Grepl
10:20	0:20	Obstacle detection in Real and Synthetic Harbour Scenarios	Nicolò Faggioni, Nicola Leonardi, Filippo Ponzini, Luca Sebastiani, Michele Martelli
10:40	0:20	Simulation environment for neural network dataset generation	Aleš Vysocký, Stefan Grushko, Robert Pastor, Petr Novak
11:00	0:20	Search for similarity transformation between image point clouds using Geometric Algebra for Conics	Anna Derevianko, Pavel Loučka
11:20	0:20	Modelling & Simulation for behavioral codes of Robotics and Autonomous Systems, SWORD RAS project	Salvatore De Mattia
11:40	0:20	Fault Detection and Identification on Pneumatic Production Machine.	Barnabás Dobossy, Martin Formánek, Petr Štastný
12:00	0:20	Robotic Snap-fit assembly with success identification based on force feedback	Filip Radil, Roman Adámek, Petr Krejčí, Barnabás Dobossy

Lunch Break

Chair: Dana Kristalova

13:45	0:20	Using SUMO to construct Dynamic Urban Modeling Scenarios for Military Transport	Mark Cowan
14:05	0:20	Emerging Technologies and Space	Antonio Carlo, Lucille ROUX
14:25	0:20	Autonomous Systems and Cyberspace: Opportunities for the Armed Forces	Jakub Fucik, Libor Frank, Richard Stojar
14:45	0:20	Intersection focused Situation Coverage-based Verification and Validation Framework for Autonomous Vehicles Implemented in CARLA	Zaid Tahir, Rob Alexander
15:05	0:20	High Frequency Vibration Reduction of Unmanned Ground Vehicles on Unstructured Terrain	Taha Shafa, Amartya Purushottam, Hamza El-Kebir, Ahmet Soylemezoglu, Melkior Ornik
15:25	0:20	The Use of Academic and Industrial Partnerships to Meet the Challenges in the Research, Development and Deployment of Hybrid Autonomous Systems	Emma Barden, Michael Crosscombe, Kevin Galvin, Chris Harding, Angus Johnson, Thomas Kent, Ben Pritchard, Arthur Richards

Plenary - End of the Conference

Moderator: Jan Mazal

Start time	Duration	Activity/Topics	Presenter/Author(s)
15:45	0:15	Discussion	All participants
16:00	0:05	MESAS22 way ahead considerations	Chief of Department of Military Robotics CZE UoD COL MAZAL
16:05	0:05	Closing remarks	Deputy Director NATO M&S COE

### Poster Session

Reconnaissance in Complex Environment with No-fly Zones using a Swarm of Unmanned Aerial Vehicles	Petr Stodola, Jan Nohel
Implementation of the Tube Elbow Detection Based GAC Algorithm	Roman Byrtus
Utility as a key component of a decision-making on structure of the Ground Based Air Defence	Vlastimil Hujer, Jan Farlik, Vlastimil Slouf
Ground visibility analyses, algorithms and performance	Jiri Kralicek, Pavla Zakova, Stepan Konecky, Jan Zezula, Libor Kutěj, Pavel Foltin, Radomír Ščurek
Analyzing Amphibious Operations by Co-simulation of Real-time Vehicle and Watercraft Modeling and Simulation Tools	John Monroe, Keith Martin, Mark Ewing, Morgan Johnston, Mary Claire Allison, Zachary Aspin, Collin Davenport, Gary Lynch, David McInnis, Tom McKenna
New ways for ground-based air defence personnel training using simulation technologies	Jan Farlik, Lukas Gacho, Vlastimil Hujer