

R O M A N I A
MINISTRY OF NATIONAL DEFENCE



THE 5th INTERNATIONAL SCIENTIFIC CONFERENCE
EMERGING AND DISRUPTIVE TECHNOLOGIES'
IMPACT ON GLOBAL SECURITY

P R O G R A M M E



March 26-27, 2026
SIBIU, ROMANIA

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EDT 2026 Programme

| Friday, March 27 | |
|--------------------|--|
| 09.00-10.00 | Registration of Participants <i>Building V6, Lobby of “Ștefan cel Mare” Auditorium</i> |
| 10.00 | Opening Ceremony* – Singing of the Romanian National Anthem <i>Building V6, “Ștefan cel Mare” Auditorium</i> |
| 10.00-11.00 | <p style="text-align: center;">Opening Remarks <i>Building V6, “Ștefan cel Mare” Auditorium</i></p> <ul style="list-style-type: none"> • Address by COL Dumitru TODOSIUC, Rector of the “Nicolae Bălcescu” Land Forces Academy of Sibiu (<i>5 min</i>) • Address by GEN (Ret.) Prof. Teodor FRUNZETI, PhD, President of the Military Science Section of the Academy of Romanian Scientists (<i>5 min</i>) • Address by Prof. Eng. Doina BANCIU, PhD, President of the Academy of Romanian Scientists (<i>5 min</i>) • Address by Marius-Gabriel LAZURCA, Presidential Advisor for National Security, Department of National Security (<i>5 min</i>) • Address by BG (Ret.) Prof. Eng. Ghiță BÂRSAN, PhD, Co-Founder of the EDT Conference, “Nicolae Bălcescu” Land Forces Academy of Sibiu, Full Member of the Academy of Romanian Scientists (<i>5 min</i>) • Address by COL Eng. Tiberius TOMOIAGĂ, PhD, Representative of the Technical Directorate and Procurement Programs/Armament General Directorate (<i>5 min</i>) • Address by Prof. Eng. Doina Liana PÎSLĂ, PhD, Director of the Council for Doctoral Studies at the Technical University of Cluj-Napoca (<i>5 min</i>) • Address by Physicist Mircea Petru TANȚĂU, General Manager of S. CARFIL S.A. (<i>5 min</i>) • Address by Prof. Eng. Remus BRAD, PhD, President of Sibiu IT Cluster (<i>5 min</i>) • Award of the title of <i>Honorary Senator</i> of the “Nicolae Bălcescu” Land Forces Academy to: Prof. Eng. Lucian-Ionel CIOCA, PhD, “Lucian Blaga” University of Sibiu, and COL (Ret.) Eng. Mihai-Liviu COȘEREANU, PhD, National Institute for Aerospace Research “Elie Carafoli”, Bucharest |

* Conference moderator: **Vice-Rector for Programmes and International Relations, Assoc.Prof. Isabela-Anda DRAGOMIR, PhD**

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| <p>11.00-11.40</p> | <p style="text-align: center;">Invited Papers in Plenary (first session) <i>Building V6, “Ștefan cel Mare” Auditorium</i></p> <ul style="list-style-type: none"> • <i>The Impact of Emerging Technologies on Cybersecurity</i> – COL Prof. Eng. Ion BICA, PhD, “Ferdinand I” Military Technical Academy, Bucharest, Romania • <i>Good Governance Between Organization and Emergence. Rethinking Governance in the Age of Complexity</i> – Eng. Florin MUNTEANU, PhD, Technical Sciences Academy of Romania & Academy of Romanian Scientists, Brașov Branch, Romania |
| <p>11.40-12.00</p> | <p style="text-align: center;">Coffee Break <i>Building V6, Lobby of “Ștefan cel Mare” Auditorium</i></p> |
| <p>12.00-13.20</p> | <p style="text-align: center;">Invited Papers in Plenary (second session) <i>Building V6, “Ștefan cel Mare” Auditorium</i></p> <ul style="list-style-type: none"> • <i>Emerging Biosensing Technologies for Military Personnel Monitoring, and Environmental Surveillance</i> – Scientific Researcher I Victor DICULESCU, PhD, National Institute of Materials Physics, Laboratory of Functional Nanostructures, Bucharest, Romania • <i>The Intricate Process of Using the SAFE Instrument. Romania’s Pathway to Redeveloping a National Defense Industry</i> – Assoc. Prof. Vlad DUMITRACHE, PhD, Regional Department of Defense Resources Management Studies – DRESMARA, Brașov, Romania • <i>Cybersecurity Implications of AI Use in Mission-Critical Systems</i> – Scientific Researcher Alexandru GEORGESCU, PhD, National Institute for Research & Development in Informatics – ICI Bucharest, Romania • <i>Emerging and Disruptive Technologies – Enablers for the Modern Warfare</i> – COL Dan-Lucian PETRESCU, PhD, “Carol I” National Defense University, Bucharest, Romania |
| <p>13.20-14.45</p> | <p style="text-align: center;">Services, Product Presentations and Demonstrations and Poster Displays <i>Building D, “Nicolae Bălcescu” Auditorium</i></p> <ul style="list-style-type: none"> • <i>Integrated Telecommunications Services</i> – Gheorghe ȘTEFĂNESCU, Cătălin IVANA, Cristian MANOLACHI, MarcTel S.I.T., Bucharest, Romania |

- *C1 Strigoi – Autonomous Fighter Jet* – **Cosmin CIOBAN, Cristian RIZZOLO**, Kalkan Defense Systems, Romania
- *Ammunition and Weapons* – **Mircea Petru TANȚĂU, Ilie MINCIU, Dan-Ion ASOLTANEL, Bogdan-Nicolai PUCHEANU**, S. CARFIL S.A., Braşov, Romania
- *Robotic Systems Innovation Hub* – **Lucian GRIGORE, Bogdan Ionel TUDOR, Rareş NIȚĂ, Daniel Tudor TRANDAFIR**, “Ferdinand I” Military Technical Academy, Bucharest, Romania
- *Exoskeleton System for Human Augmentation* – **Ioan VIRCA, Tiberiu GIURGIU, Cristian ŞENILĂ**, “Nicolae Bălcescu” Land Forces Academy, Sibiu, Romania
- *The First Educational Earth Observation Satellite of Romania* – **Rareş BIŞAG, Andrei STOICA, Simonel DAVID**, Romanian Space Initiative – ROSPIN, Bucharest, Romania
- *Vertical Takeoff and Landing Drone Powered by a Turbojet Engine* – **Adrian TOADER**, National Institute for Aerospace Research “Elie Carafoli”, Bucharest, Romania

Equipment Exhibitions

The Parade Ground of the Institution

- *Drones and Dual-Use Products from the Exo2 Range* – **Mircea Petru TANȚĂU, Vlad MESAROŞ, Liviu ȚINTEA, Gelu GROSU**, S. CARFIL S.A., Braşov, Romania, and **Siman LASZLO, Constantin VÎLCU, Raus VOLODYMYR, Marian SBURLEA, Radu-Cristian ALBU**, Advance Steel Concept SRL, Bucharest, Romania
- *MiniDrone ISR & Strike Hub* – **Lavinu BOJOR, Iulian MIHALACHE, Andrea BRIAN, Ştefan DULEA, Ştefan BOTEZAN**, “Nicolae Bălcescu” Land Forces Academy, Sibiu, Romania
- *8x8 Logistics UGV* – **Dan POPA, Andrei SMARANDA, Nicuşor AVRAM, Florin STANA**, U.M. 01616, Bucharest, Romania
- *Committed to Safeguarding the Eastern Flank* – Representatives of HQ MNC-SE, Sibiu, Romania & FRA FLF BG
- *Weapons and Equipment of the Romanian Special Operations Forces (FOS)* – **Petre ZAHARIE, Claudiu NEAMȚU, Ştefan GHERMAN, Silvia VOINESCU**, U.M. 01010, Târgu Mureş, Romania

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| | <ul style="list-style-type: none"> • <i>“Learning by Doing” in the Field of Armoured Vehicles</i> – Adrian MOLDOVAN, U.M. 01515, Turda, Romania • <i>COBRA II Tactical Wheeled Armoured Vehicle</i> – Vlad ISAC, Ionuț HAIȘAN, U.M. 01090, Predeal, Romania |
| 14.45-14.50 | Group Photo <i>The Parade Ground of the Institution</i> |
| 15.00-16.30 | Lunch <i>Building V6, Ground Floor – Dining Hall</i> |
| 16.30-17.00 | Final discussions, possible cooperation opportunities <i>Building D, “Nicolae Bălcescu” Auditorium</i> |
| 17.00 | Departure of Participants |

CONFERENCE PAPERS

PANEL I

EMERGING AND DISRUPTIVE SOLUTIONS: TECHNICAL AND SYSTEMIC PERSPECTIVES

1. *Object-Oriented Design Applied to the Field of Planar Mechanisms in Java* – **Tiberiu Alexandru ANTAL, Bogdan GHERMAN**, Technical University of Cluj-Napoca, Romania
2. *Using Machine Learning Applications to Improve Mathematical Optimization* – **Alina BABOȘ, Cristina-Maria BĂTUȘARU**, “Nicolae Bălcescu” Land Forces Academy of Sibiu, Romania
3. *Contributions of Modeling and Simulation to the Study of the Criticality of Communication in the Urban Environment* – **Dorel BADEA***, Olga Maria Cristina BUCOVETȚHI***, Theodor-Gabriel DAMIAN***, Diana Elena RANF***, **“Nicolae Bălcescu” Land Forces Academy of Sibiu, Romania, **Military Science Section of the Academy of Romanian Scientists, Bucharest, Romania, ***University POLITEHNICA of Bucharest, Romania
4. *Low-Cost and Rapid Prototyping in Autonomous Navigation by Using Matlab Mobile and Smartphone Sensors for a Driving Robot* – **Cristin BIGAN, Valentin PANDURU**, University POLITEHNICA of Bucharest, Romania
5. *Bibliometric Analysis of Research Trends in Polymer Matrix Composite Used for Safety Helmets* – **Cristian-Ștefan BUNDUC*, Lucian-Ionel CIOCA*****, Diana-Petronela BURDUHOS-NERGIȘ*, Costică BEJINARIU*******, *Gheorghe Asachi Technical University of Iași, Romania, **Lucian Blaga University of Sibiu, Romania, ***Academy of Romanian Scientists, Bucharest, Romania
6. *Theoretical Research on Geometric and Kinematic Analysis Developed on an Innovative Technological Product, The 8x8 Land Vehicle* – **Cristian CUCUTEANU*, Lucian-Ștefăniță GRIGORE*, Amado ȘTEFAN*, Octavian ALEXA*, Dan POPA**, Andrei SMARANDA**, Eliza MARIN****, **“Ferdinand I” Military Technical Academy, Bucharest, Romania, **R&D Department at U.M. 01616, Bucharest, Romania

7. *Experimental Study on the Ratio between DC Input Current and PWM Phase Current for 6X6 All-Wheel Robotic Platforms* – **Raoul-Florentin DUMITRU***, **Lucian-Ștefăniță GRIGORE***, **Petru ROȘCA****, **Vlad-Andrei DUMITRU****, **Octavian ALEXA***, **Daniel CONSTANTIN***, **“Ferdinand I” Military Technical Academy, Bucharest, Romania*, ***Military Equipment and Technologies Research Agency, Clinceni, Ilfov, Romania*
8. *Engineering-Oriented Cyber Risk Assessment Framework for Critical Energy Infrastructure: Application to Offshore and Pipeline Systems in the Black Sea Region* – **Alexandru GEORGESCU***, **Carmen-Elena CÎRNU***, **Andreea DINU***, **Tina ANDOLJŠEK****, **The National Institute for Research and Development in Informatics – ICI Bucharest, Romania*, ***University POLITEHNICA of Bucharest, Romania*
9. *Design of a Novel Robotic Hand Rehabilitation Device* – **Bogdan GHERMAN**, **Ștefan VEGH**, **Călin VAIDA**, **Mihai CIUPE**, **Laszlo RACZ**, **Iuliu NADĂȘ**, **Dragoș SEBENI**, **Ionuț ZIMA**, **Doina PÎSLA**, *Technical University of Cluj-Napoca, Romania*
10. *5G SA Network for Drone Swarm Applications: Preliminary Deployment and Testing* – **Teodor GIURGICĂ***, **Annamaria SÂRBU***, **Kevin TEBBE****, **Gerd SCHOLL****, **“Nicolae Bălcescu” Land Forces Academy, Sibiu, Romania*, ***Helmut Schmidt University – University of the Federal Armed Forces Hamburg, Germany*
11. *Mechanical Performance and Hertzian Contact Analysis of Mecanum-Wheeled Unmanned Ground Vehicles: A Finite Element Approach* – **Tiberiu GIURGIU**, **Ciprian CUSUTURĂ**, **Gabriel Flavius NOJA**, **“Nicolae Bălcescu” Land Forces Academy of Sibiu, Romania*
12. *The Impact of AI on OT Cybersecurity* – **Péter HUNORFI***, **Alexandru BABOȘ****, **Óbuda University, Budapest, Hungary*, ***“Nicolae Bălcescu” Land Forces Academy of Sibiu, Romania*
13. *Defect Detection System Development Specific to Electronic Component Placement* – **Andrei-Cătălin IOANA**, **Adela-Eliza DUMITRAȘCU**, *Transilvania University of Brașov, Romania*

14. *Investigation of Nuclear Ramjet Engine* – **Yordan KATSAROV**, “Georgi Benkovski” Bulgarian Air Force Academy, Dolna Mitropolia, Bulgaria
15. *Potential for Remote and Dual-Use Application for Non-Invasive Motor Rehabilitation with BCI* – **David Mihai LUPU, Dănuț Ilie POPA, Adrian PÎSLĂ**, Technical University of Cluj-Napoca, Romania
16. *Research and Techniques for Enhancing Intra and Extra Vehicle Communication* – **Vasile Cătălin MIHACEA, Remus BRAD**, “Lucian Blaga” University of Sibiu, Romania
17. *Emerging Technologies in Personalized Treatment for Robotic Assisted Upper Limb Rehabilitation* – **Radu MORARIU-GLIGOR, Dragoș SEBENI, Călin VAIDA, Alina CIUPE, Ionuț ULINICI, Daniela JUCAN, Iuliu NADĂȘ, Doina PÎSLĂ**, Technical University of Cluj-Napoca, Romania
18. *Responsible AI in Business: Ethical and Sustainable Decision-Making in the European Context* – **Liviana Andreea NIMINETȚ, Andreea FERARU-PREPELIȚĂ**, “Vasile Alecsandri” University of Bacău, Romania
19. *Simulation-Based Prediction of MANET Performance in Dynamic Networks* – **Robert PAPA***, Claudia ENACHE**, Annamaria SÂRBU***, * “Nicolae Bălcescu” Land Forces Academy of Sibiu, Romania, **Technical University of Cluj-Napoca, Romania
20. *Dynamic Bayesian Decision Modeling for Autonomous UAV Engagement under Conditions of Uncertainty* – **Emanuelle PERȚA***, Alina TOTOI****, *University of Economic Studies, Bucharest, Romania, ** “Nicolae Bălcescu” Land Forces Academy of Sibiu, Romania

21. *TERRAFLYER – Hybrid Vehicle Serving Humanity* – **Silviu-Mihai PETRIȘOR***, Emmyly PAVEL*, Ionuț-Cristian ȚOPA*****, **“Nicolae Bălcescu” Land Forces Academy of Sibiu, Romania, **University of Oradea, Romania
22. *Shadows of Hybridity: A Systematic Meta-Analysis of Threat Modeling Terminology and Practices in Critical Infrastructure Protection* – **Cosmin PIELE**, “Nicolae Bălcescu” Land Forces Academy of Sibiu, Romania & University of Petroșani, Romania
23. *AMOS – Active Management Operations System* – **Silvia Daniela POHRIB, Nicolae-Bogdan ZVONARU, Vlad-Sebastian ANGHELUȚĂ, Adrian PÎSLĂ**, Technical University of Cluj-Napoca, Romania
24. *Human-Centered Cyber Emergency Management in Public Safety Systems: A Mixed-Methods Decision-Support Framework for Industry 5.0* – **Marius-Viorel POȘA**, Transilvania University of Brașov, Romania
25. *Hybrid UAV-UGV Coordination for Point-of-Interest Localization in GPS-Denied Environments Using Stereo Vision, LiDAR and Gesture-Based Signaling* – **Patricia PREDA*, Lucian GRIGORE**, Eliza MARIN*****, *University POLITEHNICA of Bucharest, Romania, **“Ferdinand I” Military Technical Academy, Bucharest, Romania, ***R&D Department at U.M. 01616, Bucharest, Romania
26. *Considerations on the Dynamics of a Tracked UGV Negotiating a Longitudinal Ramp* – **Ștefan-Tigran RADU*, Lucian-Ștefăniță GRIGORE*, Octavian ALEXA*, Daniel CONSTANTIN*, Dan POPA**, Andrei SMARANDA****, **“Ferdinand I” Military Technical Academy, Bucharest, Romania, **R&D Department at U.M. 01616, Bucharest, Romania
27. *Critical Analysis of Innovation Decisions Based on Advanced Technologies in Business Organizations* – **Diana Elena RANF*, Dorel BADEA***, Isabela Anda DRAGOMIR***, **“Nicolae Bălcescu” Land Forces Academy of Sibiu, Romania, **Military Science Section of the Academy of Romanian Scientists, Bucharest, Romania

28. *Efficient Signal Smoothing and Impulse Computation in High-Resolution Pressure Measurements* – **Andrada RUNCEANU**, **Mircea BOȘCOIANU**, Transilvania University of Brașov, Romania
29. *Calibrated Activity Detection in Sentinel-1 SAR Time Series* – **Andrei-Toma STOICA***, **Simonel-Olimpiu DAVID****, **Rareș-Cristian BIȘAG***, *University POLITEHNICA of Bucharest, Romania, **Babeș-Bolyai University, Cluj-Napoca, Romania
30. *ISR Drones as Dual-Use Technology. Economics of Cost-Benefit under the Influence of Industry 4.0* – **Rareș-George TICUȘAN***, **Liviu GĂINĂ****, **George IACOBAN***, **Adrian PÎSLĂ***, *Technical University of Cluj-Napoca, Romania, **“Henri Coandă” Air Force Academy, Brașov, Romania
31. *Assessing Transparency of Electromagnetic Field Exposure Data in the Context of Information Security and Digital Governance* – **Valentina TIRSU***, **Mircea POPESCU****, **Lilia SAVA***, **Vladimir MIROVSKI***, *Technical University of Moldova, Chișinău, Republic of Moldova, **National Institute for Research and Development in Electrical Engineering ICPE-CA, Bucharest, Romania
32. *Experimental Analysis of Video Link Resilience for Digital FPV Systems under Controlled Electromagnetic Interference Based on SDR* – **Alexandru-Marius VASILE**, “Nicolae Bălcescu” Land Forces Academy of Sibiu, Romania & Technical University of Cluj-Napoca, Romania

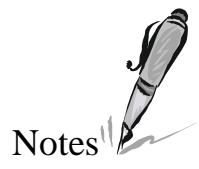
PANEL II
EMERGING AND DISRUPTIVE
TECHNOLOGIES:
OPERATIONAL PERSPECTIVES IN
DEFENSE AND SECURITY

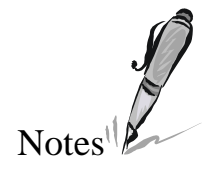
1. *War in the Air, Math on the Ground: Ecological Modeling of Drone–Fighter Jet Engagements* – **Bogdan-Gabriel ANDRIEȘ**, **Marius POȘA**, **Andrada RUNCEANU**, Transilvania University of Brașov, Romania
2. *Geopolitical Dynamics and Hybrid-Cyber Threats in the Black Sea Region: Safeguarding Romania’s Critical Maritime Infrastructures* – **Minodora BADEA***, **Adrian V. GHEORGHE*****, **Gabriel RAICU*****, **Radu D. STANCIU***, *University POLITEHNICA of Bucharest, Romania, **Old Dominion University, Norfolk, Virginia, USA, ***Constanta Maritime University, Constanța, Romania
3. *Sky Fortress Project – A Proposed Model of Multilayered C-UAS Defence System* – **Ghiță BÂRSAN*****, **Adrian-Constantin CIOLPONEA***, **Romana OANCEA***, **Paul TUDORACHE***, **Thomasz BAK*****, **“Nicolae Bălcescu” Land Forces Academy of Sibiu, Romania, **Member of the Academy of Romanian Scientists, Bucharest, Romania, ***University of Information Technology and Management, Rzeszow, Poland
4. *The Economic Dimension of Emerging Technologies Applied in the Defence Sector – A Bibliometric Framework* – **Cristina-Maria BĂTUȘARU***, **Aurel Mihail ȚÎȚU****, **Nicolae MORO***, **“Nicolae Bălcescu” Land Forces Academy of Sibiu, Romania, ***“Lucian Blaga” University of Sibiu, Romania
5. *Emerging and Disruptive Technologies: An Exploration of AI-Powered Wargaming and Predictive Modeling in Military Decision-Making* – **Marin-Marian COMAN*****, **Claudiu-Vasile KIFOR***, *Lucian Blaga” University of Sibiu, Romania, ***“Nicolae Bălcescu” Land Forces Academy of Sibiu, Romania

6. *Technological Coercion as Statecraft: How Control over Emerging Technologies Is Reconfiguring the Global Military Balance of Power* – **Maria CONSTANTINESCU***, **Paul TUDORACHE****, *National Defense University “Carol I”, Bucharest, Romania, **“Nicolae Bălcescu” Land Forces Academy of Sibiu, Romania
7. *Digital Transformation of Military Logistics in the Industry 4.0 Era: AI for Technical Skills Development and Maintenance Optimization* – **Ciprian CUSUTURĂ**, **Toma PLEȘANU**, **Tiberiu GIURGIU**, “Nicolae Bălcescu” Land Forces Academy of Sibiu, Romania
8. *Dynamic Analysis and Monitoring of AI Behavior in a Military Simulation Environment Using Machine Learning Techniques in the Arma 3 Simulator* – **Mihai DAN**, “Nicolae Bălcescu” Land Forces Academy of Sibiu, Romania
9. *Federated Learning for On-Orbit Earth Observation Analytics in Military Satellite Constellations* – **Simonel-Olimpiu DAVID***, **Andrei-Toma STOICA****, **Rareș-Cristian BIȘAG****, *Babeș-Bolyai University, Cluj-Napoca, Romania, **University POLITEHNICA of Bucharest, Romania
10. *Automatic Tracking System for Optimizing Paratrooper Training (ATSOPT)* – **Liviu GĂINĂ**, **Sebastian POP**, **Mihai DEAȘ**, “Henri Coandă” Air Force Academy, Brașov, Romania
11. *Cognitive Cybernetics and Industry 5.0: A Unified Theoretical Framework for Resilient Military Logistics and Autonomous Systems* – **Alexandru Silviu GOGA**, **Mircea BOȘCOIANU**, Transilvania University of Brașov, Romania
12. *Shifting Paradigms in Concept, Action, and Training: Addressing the Proliferation of Unmanned Aerial Systems in Modern Warfare* – **Constantin GRIGORAȘ**, **Ștefan-Cristian PETRE**, “Nicolae Bălcescu” Land Forces Academy of Sibiu, Romania
13. *Algorithmic Warfare and Semi-Autonomous C2 Systems: Challenges for Meaningful Human Control and Compliance with International Humanitarian Law* – **Gabriel MĂNESCU**, “Nicolae Bălcescu” Land Forces Academy of Sibiu, Romania

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