

**R O M A N I A**  
**MINISTRY OF NATIONAL DEFENCE**



**TECHNICAL  
UNIVERSITY OF  
CLUJ-NAPOCA**



**ACADEMY  
OF ROMANIAN  
SCIENTISTS  
MILITARY  
SECTION**



**“NICOLAE  
BĂLCESCU”  
LAND FORCES  
ACADEMY  
OF SIBIU**



**“TITU  
MAIORESCU”  
UNIVERSITY  
BUCHAREST**



**NATIONAL  
INSTITUTE FOR  
AEROSPACE  
RESEARCH  
“ELIE  
CARAFOLI”**

**THE 4<sup>th</sup> INTERNATIONAL SCIENTIFIC CONFERENCE**  
**EMERGING AND DISRUPTIVE TECHNOLOGIES’  
IMPACT ON GLOBAL SECURITY**

**P R O G R A M M E**

**March 13-15, 2025  
SIBIU, ROMANIA**

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Cluj-Napoca, Romania  
Paul TUDORACHE, Sibiu, Romania  
Mircea UDRESCU, Bucharest, Romania  
Liviu Călin VAIDA, Cluj-Napoca,  
Romania  
Ioan VIRCA, Sibiu, Romania

## EDT 2025 Programme

Friday, March 14	
<b>08.30-09.20</b>	<p><b>Registration of Participants</b> <i>Building D, Lobby of the “Nicolae Bălcescu” Auditorium</i></p>
<b>09.30-10.00</b>	<p><b>Opening Ceremony</b> <i>The Parade Ground of the Institution</i></p>
<b>10.00-12.00</b>	<p style="text-align: center;"><b>Opening Remarks</b> <i>Building D, “Nicolae Bălcescu” Auditorium</i></p> <ul style="list-style-type: none"> <li>• Message of <b>BG Prof.Eng. Ghiță BÂRSAN, PhD</b>, Rector of “Nicolae Bălcescu” Land Forces Academy (<i>5 min</i>)</li> <li>• Message of <b>General (ret.) Prof. Teodor FRUNZETI, PhD</b>, President of the Military Sciences Section of the Academy of Romanian Scientists (<i>5 min</i>)</li> <li>• Message of <b>Prof.Eng. Doina BANCIU, PhD</b>, President of the Academy of Romanian Scientists (<i>5 min</i>)</li> <li>• Message of <b>Presidential Advisor Cristian DIACONESCU</b> (<i>5 min</i>)</li> </ul> <p style="text-align: center;"><b>Invited Papers in Plenary</b></p> <ul style="list-style-type: none"> <li>• <i>Advanced Technologies for Medical Robotics</i> – <b>Prof.Eng. Doina PÎSLĂ, PhD</b>, Technical University of Cluj-Napoca, Romania (<i>25 min</i>)</li> <li>• <i>Technological Superiority in the Age of Disruption: Navigating Emerging Technologies, Vulnerabilities and Societal Impact</i> – <b>COL Eng. Tiberius TOMOIAGĂ, PhD</b>, Deputy Manager for Scientific Research, Military Equipment and Technologies Research Agency (METRA), Bucharest, Romania (<i>25 min</i>)</li> <li>• <i>Shaping the Future – The Role of Emerging Technologies in Cognitive Warfare</i> – <b>Assoc.Prof. Maria CONSTANTINESCU, PhD</b>, Regional Department of Defense Resources Management Studies, Braşov, Romania (<i>25 min</i>)</li> <li>• <i>Emerging Technologies in Critical Infrastructure Protection and Resilience – by Design: The Case of Cyber Ranges</i> – <b>1<sup>st</sup> Grade Researcher Ella Magdalena CIUPERCĂ, PhD</b>, National Institute for Research and Development in Informatics, Bucharest, Romania (<i>25 min</i>)</li> </ul>

<p><b>12.00-12.25</b></p>	<p align="center"><b>Question and Answer Session</b> <i>Building D, “Nicolae Bălcescu” Auditorium</i></p>
<p><b>12.25-12.50</b></p>	<p align="center"><b>Equipment Exhibitions</b> <i>Backside Alley of the “Nicolae Bălcescu” Auditorium</i></p> <ul style="list-style-type: none"> <li>• <i>Aerial Vector Support Trucks</i> – <b>Mr. Cristian-Tudor GHEORMA, Mr. Mihai-Victor PRICOP</b>, INCAS, Bucharest, Romania</li> <li>• <i>Presentation of the JLTV (Joint Light Tactical Vehicle)</i> – <b>MSG Claudiu NEAMȚU, MSG Olimpiu NICOARĂ, SSG Marius MITOI, SGT Marian MACOVEI</b>, 51 Special Forces Battalion, Târgu Mureș, Romania</li> </ul> <hr/> <p align="center"><b>Services, Product and Demonstrative Presentations</b> <i>Building D, “Nicolae Bălcescu” Auditorium</i></p> <ul style="list-style-type: none"> <li>• <i>Advanced System for Detecting and Locating a Radio Transmitter</i> – <b>CPT Mirela ȘORECĂU, Students Dănuț CURBAT and Costinel GIURCANU</b>, “Nicolae Bălcescu” Land Forces Academy, Sibiu, Romania</li> <li>• <i>Tactical Eyes in the Sky</i> – <b>COL Laviniu BOJOR, PhD</b>, “Nicolae Bălcescu” Land Forces Academy, Sibiu, Romania</li> <li>• <i>Exploring Virtual and Augmented Realities, Transforming Education through Technology (VBS4-Virtual Battlespace Software, HoloLens 2 Devices)</i> – <b>LTC Claudiu VESA</b>, “Nicolae Bălcescu” Land Forces Academy, Sibiu, Romania</li> <li>• <i>Drones and Dual-Use Products from the Exo2 Range</i> – <b>Mr. Gelu GROSU</b>, Carfil SA, Brașov, Romania</li> <li>• <i>Ammunition and Weapons</i> – <b>Mr. Dan VIȚELAR</b>, Carfil SA, Brașov, Romania</li> <li>• <i>Exoskeleton System for Human Augmentation</i> – <b>COL (ret.) Ioan VIRCA*, Mr. Vasile BULBUCAN**</b>, * “Nicolae Bălcescu” Land Forces Academy, Sibiu, Romania, ** Technical University of Cluj-Napoca, Romania</li> <li>• <i>Intelligent Radio Emission Monitoring System</i> – <b>Mr. Emanuel-Dumitru PUȘCHIȚĂ, PhD</b>, Technical University of Cluj-Napoca, Romania</li> <li>• <i>Drones with Security Applications</i> – <b>Mr. Cătălin PASCALE, Mr. Andrei AVRAMEȘCU, Mr. Raul DRĂGAN</b>, INCAS, Bucharest, Romania</li> </ul>

	<ul style="list-style-type: none"> <li>• <i>If We Want, Together We Can Go to Space</i> – Mr. Rares BIŞAG, Romanian Space Initiative (ROSPIN), Bucharest, Romania</li> <li>• <i>Weapons and Equipment of Romanian Special Forces</i> – 1<sup>st</sup> LT Nicolae NEAG-RĂŞINAR, SFC Ioan MÂNDRUŢ, SFC Ioan LUCUŢA, SSG Răzvan CHEŢAN, SSG Alexandru OPRIŞ, 51 Special Forces Battalion, Târgu Mureş, Romania</li> <li>• <i>CESTER Medical Robotics</i> – Mr. Radu Mircea MORARIU-GLIGOR, Mr. Călin VAIDA, Technical University of Cluj-Napoca, Romania</li> </ul>
<b>12.50-13.00</b>	<p><b>Group Photo</b> <i>The Parade Ground of the Institution</i></p>
<b>13.00-14.00</b>	<p><b>Lunch</b> <i>Building J1, Ground Floor – Dining Hall</i></p>
<b>14.00-15.30</b>	<p><b>Paper Presentations/Poster Display</b> <i>Building B, 3<sup>rd</sup> Floor, Room 80 – “Marshal Prezan” Auditorium</i></p>

# CONFERENCE PAPERS

## THE IMPACT OF EMERGING AND DISRUPTIVE TECHNOLOGIES ON SOCIETY

**Chairpersons:** Tiberiu GIURGIU

Diana Elena RANF

**Venue:** “Marshal Prezan” Auditorium  
Building B; 3<sup>rd</sup> Floor; Room 80

1. *Cyberattacks on Port Infrastructures: A Decade of Trends, Incidents, and Mitigation Strategies (2011–2024)* – **Minodora BADEA\***, **Olga BUCOVETȚHI\*\***, **Adrian V. GHEORGHE\*\*\***, **Gabriel RAICU\*\*\*\***, \*University POLITEHNICA of Bucharest, Romania, \*\*University POLITEHNICA of Bucharest, Romania & National Institute for Research and Development in Informatics – ICI, Bucharest, Romania, \*\*\*Old Dominion University, Norfolk, Virginia, USA & University POLITEHNICA of Bucharest, Romania, \*\*\*\*Constanța Maritime University, Romania
2. *Blockchain and Cryptocurrencies as Emerging Security Threats: A Bibliometric Analysis of Global Concerns* – **Cristina-Maria BĂTUȘARU**, **Nicolae MORO**, “Nicolae Bălcescu” Land Forces Academy, Sibiu, Romania
3. *Literature Review on Recent Technological Methodologies in Detection and Identifying CBRN Agents* – **Miruna POPA**, “Nicolae Bălcescu” Land Forces Academy, Sibiu, Romania
4. *Emergency Situations Awareness and Resilience Use of Emerging Technologies* – **Lucian TREFAȘ**, “Lucian Blaga” University of Sibiu, Romania

# THE ROLE OF EMERGING AND DISRUPTIVE TECHNOLOGIES ON MILITARY AFFAIRS

**Chairpersons: Laviniu BOJOR**  
**Paul TUDORACHE**

**Venue:** “Marshal Prezan” Auditorium  
Building B; 3<sup>rd</sup> Floor; Room 80

1. *Romania’s Defence Policy and National Security Interests in the European Defence Fund amidst European Defence Integration – Niculae IANCU*, Constanța Maritime University, Romania
2. *Navigating the Future: Scenario-Based Analysis of AI Integration in Military Applications and its Implications for Global Security – Emanuelle-Ioana PERTA*, “Nicolae Bălcescu” Land Forces Academy, Sibiu, Romania
3. *Automated Detection of Military Equipment and Personnel Using Yolo-Based Object Recognition for Enhanced Situational Awareness – Andrada PETRESCU, Andrei-Gheorghe CORCHEȘ*, “Nicolae Bălcescu” Land Forces Academy, Sibiu, Romania
4. *Emerging and Disruptive Technology as Multiplier for Military Training: Exploring the Development of a Hybrid Synthetic Training Environment – Cosmin PIELE\*, Marin-Marian COMAN\*\*, Valentin MANIU\**, \* “Nicolae Bălcescu” Land Forces Academy, Sibiu, Romania & University of Petroșani, Romania, \*\* “Nicolae Bălcescu” Land Forces Academy, Sibiu, Romania & “Lucian Blaga” University of Sibiu, Romania
5. *Facial Recognition and Biometric Systems: Benefits and Challenges for Law Enforcement – George-Marius ȚICAL*, “Andrei Șaguna” University, Constanța, Romania



# ARTIFICIAL INTELLIGENCE IN ACHIEVING TECHNOLOGICAL EDGE

**Chairpersons:** **Ilie GLIGOREA**

**Alina BABOȘ**

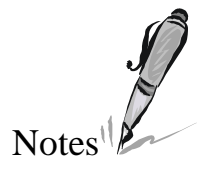
**Venue:** “Marshal Prezan” Auditorium  
Building B; 3<sup>rd</sup> Floor; Room 80

1. *Perspectives of Higher Military Education through Emerging Technologies: Integrating Radiolocation and Artificial Intelligence for Aerial Surveillance* – **Liviu GĂINĂ**, “Henri Coandă” Air Force Academy, Brașov, Romania
2. *Integrating Artificial Intelligence into C-UAS Systems to Match the Modern Warfare Advancements* – **Constantin GRIGORAȘ**, **Octavian-Ștefan MUȘAT**, “Nicolae Bălcescu” Land Forces Academy, Sibiu, Romania
3. *Oldie but Goldie – Using “Tropes” Software to Extract Phishing Semantic Features* – **Radu MOINESCU**, **Ciprian RĂCUCIU**, **Carmen-Silvia OPRINA**, “Ferdinand I” Military Technical Academy, Bucharest, Romania
4. *Prompt Engineering in Cybersecurity – Achieving Technological Edge* – **Iustin PRIESCU\***, **Geanina Silvana BANU\***, **Tatiana Corina DOSESCU\***, **Marius Irinel BANU\*\***, \* “Titu Maiorescu” University, Bucharest, Romania, \*\* “Ferdinand I” Military Technical Academy, Bucharest, Romania
5. *Convolutional Neural Network for Deepfake Content Detection* – **Annamaria SÂRBU**, **Andrea ROTONDO**, “Nicolae Bălcescu” Land Forces Academy, Sibiu, Romania

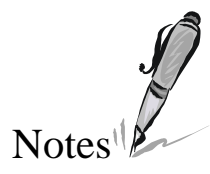
# EMERGING AND DISRUPTIVE TECHNOLOGIES AND TECHNOLOGICAL SUPERIORITY

**Chairpersons:** **Annamaria SÂRBU**  
**Cristina-Maria BĂTUȘARU**  
**Venue:** “Marshal Prezan” Auditorium  
Building B; 3<sup>rd</sup> Floor; Room 80

1. *Development of a Real-Time Monitoring System for Space Objects –* **Mugurel Liviu BĂLAN\***, **Mihnea ION\***, **Dan ȘELARU\*\***, **Alin NEDELCU\*\*\***, **Daniel-Eugeniu CRUNȚEANU\*\*\*\***, **Violeta Domnica POENARU\*\*\*\***, \*Romanian InSpace Engineering, Măgurele, Romania, \*\*Institute of Space Science, Măgurele, Romania, \*\*\*Astronomical Institute of the Romanian Academy, Bucharest, Romania, \*\*\*\*Romanian Space Agency, Bucharest, Romania
2. *Enhancing Security through Earth Observation: The Role of Copernicus in Monitoring Emerging Threats –* **Rareș-Cristian BIȘAG**, **Dragoș ILINCA**, University POLITEHNICA of Bucharest, Romania
3. *Romanian Satellite Demonstrator for Monitoring Ground RF Emissions –* **Claudiu-Ionuț CHERCIU\***, **Dan ȘELARU\*\***, **Răzvan-George BĂRTUȘICĂ\*\*\***, **Mihai-Virgil NICHITA\*\*\***, \*Romanian InSpace Engineering, Măgurele, Romania, \*\*Institute of Space Science, Măgurele, Romania, \*\*\*The Special Telecommunications Service, Bucharest, Romania
4. *Military Logistics Drones: The Innovative Solution for Transportation Challenges on the Battlefield –* **Gheorghe MINCULETE**, “Nicolae Bălcescu” Land Forces Academy, Sibiu, Romania
5. *Risks and Vulnerabilities Associated with the Use of Mobile Phones by Active Personnel in Military Structures –* **Sorin TOPOR**, National Institute for Research and Development in Informatics – ICI, Bucharest, Romania









Keyboarding Assistance:  
*Iulia BOBOI*  
*Cristina ȚUNDRECI*