

**BOOK OF ABSTRACTS**



"Henri Coandă"  
Air Force Academy  
Braşov, Romania

# **AFASTUD 2024**

The 25<sup>th</sup> Students' International Conference

*Communicating across Cultures*

**29 March, 2024  
Braşov, Romania**

# Conference Agenda

## THURSDAY, March 28, 2024

|                          |  |
|--------------------------|--|
| 15.00 hrs –<br>22.00 hrs | Arrival of delegations/ “Henri Coanda” Air Force Academy |
| 19.00 hrs-<br>20.00 hrs  | Dinner (Students’ Dining Facility)                       |

## FRIDAY, March 29, 2024

|                          |   |  |                                     |   |  |  |
|--------------------------|---|--|-------------------------------------|---|--|--|
| 08.30 hrs –<br>09.30 hrs | Breakfast (Students’ Dining Facility)   |  |                                     |   |  |  |
| 10.00 hrs –<br>10.45 hrs | <b>Official Opening of the International Conference<br/>“Communicating across Cultures” AFASTUD’24</b> ( <i>Academy Auditorium</i> )                                |  |                                     |   |  |  |
| 10.45 hrs –<br>11.00 hrs | <b>Photo Session</b> ( <i>In front of Bdg A1</i> )  |  |                                     |   |  |  |
| 11.00 hrs –<br>13.00 hrs | <b>Panels (I)</b>   | <b>Weapons &amp;<br/>Defense<br/>Technology</b><br><i>E - 10</i> | <b>Engineering</b><br><i>E – 44</i> | <b>Humanities &amp;<br/>Social<br/>Sciences</b><br><i>E – 72</i><br><i>E - 73</i> | <b>Military<br/>sciences &amp;<br/>Management</b><br><i>F.E – 2.11</i> | <b>Aeronautical<br/>History</b><br><br>K - 6 |
| 13.00 hrs –<br>14.00 hrs | Lunch (Students’ Dining Facility)   |  |                                     |   |  |  |
| 14.00 hrs –<br>16.30 hrs | <b>Panels (II)</b>  | <b>Weapons &amp;<br/>Defense<br/>Technology</b><br><i>E - 10</i> | <b>Engineering</b><br><i>E – 44</i> | <b>Humanities &amp;<br/>Social<br/>Sciences</b><br><i>E – 72</i><br><i>E - 73</i> | <b>Military<br/>sciences &amp;<br/>Management</b><br><i>F.E – 2.11</i> | <b>Aeronautical<br/>History</b><br><br>K - 6 |
| 17.00 hrs –<br>17.30 hrs | <b>Closing of the International Conference “Communicating<br/>across Cultures” AFASTUD’24/ “Henri Coanda” Air Force<br/>Academy’s</b> ( <i>Academy Auditorium</i> ) |  |                                     |   |  |  |
| 19.00 hrs –<br>22.00 hrs | Students’ Official Dinner (Students’ Dining Facility)   |  |                                     |   |  |  |

**SATURDAY, March 30, 2024**

|                          |                                       |
|--------------------------|---------------------------------------|
| 09.00 hrs –<br>10.00 hrs | Breakfast (Students' Dining Facility) |
| 10.00 hrs –<br>14.00 hrs | Brasov sightseeing tour               |
| 14.00 hrs -<br>15.00 hrs | Lunch (Students' Dining Facility)     |
| 15.00 hrs                | Departure of delegations              |

## Organizing Committee

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Student Vladimir **POPESCU**  
Student Bogdan **TODICĂ**  
Student Rareș **FÂȘIE**  
Eng Daniela **OBREJA**  
Inf Adina **DOBRIȚOIU**  
Inf Adrian **ROTARU**



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## 1. MILITARY SCIENCES. MANAGEMENT & LEADERSHIP

Col. Assoc. Prof. Bogdan **CHIOSEAU**, PhD

Cpt.cdor. Cristian **DRAGOMIR**, PhD

Student Luca-Eduard **BÂRSAN**

Student Francesca **SOROHAN**

## 2. HUMANITIES. SOCIAL SCIENCES

Lect Ramona **HĂRȘAN**, PhD

Lect Daniela **NAGY**, PhD

TA Kinga **KOLUMBÁN**

Student Bogdan-Ionuț **BLEANDĂ**

Student Darius-Alexandru **MOLDOVAN**

Student Ștefania **ȘOPU**

Student Marius-Costel **ȚIFIR**

## 3. ENGINEERING

LTC Assist. Prof. Liviu **GĂINĂ**, PhD

LTC Assist. Prof. Eng. Cornel **ARAMĂ**, PhD

Student Cătălina-Maria **CODREANU**

Student Ana-Maria **LUNGU**

## 4. WEAPONS & DEFENSE TECHNOLOGY

LTC Cristian **ENE**

LTC Alin-Mihai **MECLEA**

Student Leonard **CIUPCĂ**

Student Cosmin **HINTEA**

## 5. AERONAUTICAL HISTORY

Cdor. (r.) Lect Jănel **TĂNASE**, PhD

Student Georgiana-Simina **ARDELEANU**

Student Simina-Ioana **ILIE**

Student Miruna **MOCANU**

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- Assoc. Prof. Daniela **BELU**, PhD  
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Prof eng. Michael **TODOROV**, PhD  
*Technical University, Sofia, Bulgaria*

Assoc. Prof. Ilona **URYCH**, PhD  
*Faculty of National Security, War Studies University, Poland*



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## Conference Panels

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# 1. Military Sciences. Management & Leadership

Conference ROOM F.E 2.11

## Moderators:

Col. Assoc. Prof. Bogdan **CHIOSEAU**, PhD

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Student Luca-Eduard **BÂRSAN**

*“Henri Coandă” Air Force Academy, Brasov, Romania*

Student Francesca **SOROHAN**

*“Henri Coandă” Air Force Academy, Brasov, Romania*

## Novel Tactical Communications Gadget Employed by Air Force Personnel in High-Noise Combat Environments

**Georgiana BĂCANU**

*Institute of Military Medicine, Bucharest, Romania*

*Over the years, as aviation technology and regulations have advanced, pilot communication has also undergone substantial evolution. Because military activities are diverse and can involve high stakes, military pilot communications are extremely important. Molar Mic (MM) is a special communication tool made especially for law enforcement and military personnel. Bone conduction technology is used by the MM to transfer sound. It is represented by a small gadget that attaches to the user's back teeth and transforms audio impulses into vibrations that go around the eardrum and into the inner ear via the skull bones. This provides clear communication while preserving situational awareness by enabling the user to hear sound without obstructing their ear canal. The device allows hands-free use in a variety of settings, including loud or dangerous ones. It is wireless and usually interfaces with other communication devices like radios or cell phones. With no need for visible microphones or additional headphones, this permits users to converse discreetly. Therefore, MM is a novel device that paratroopers could employ when free-falling or pilots could use in noisy locations like military aircraft cockpits.*

# **The Nexus of Logistics in Developing Physical Resilience Among Military Students: An Innovative Perspective**

**Alex-Giulian COROI**

*“Carol I” National Defense University, Bucharest, Romania*

*This article sheds light on the paramount significance of physical resilience among military personnel, addressing both the logistical implications in its development and innovative perspectives. Physical resilience has transcended the realm of mere aspiration, evolving into an imperative, as it is accountable for an individual's resistance, recovery, and enhancement in the face of physical stressors. Consequently, physical resilience maximizes the operational capacity of military personnel, thereby dictating success rates in combat scenarios. In the pursuit of fostering physical resilience, logistics plays a pivotal role, particularly in the context of Sustenance Provision Service. The nutrition provided by military higher education institutions underpins two strategies aimed at maximizing this capacity. However, this work introduces an adjacent instrument alongside nutrition. Through a conducted experiment, I demonstrate that supplementation with Creatine Monohydrate, during physical activities, elevates physical resilience by up to 24%, establishing it as an exceptionally effective dietary supplement.*

# **The Enhancement of Coordination Between Civil and Military in Airfield: Programs and Procedures**

**Maria Magdalena COȘA**

*“Henri Coandă” Air Force Academy, Brașov, Romania*

*In the current structure of airspace, characterized by a significant fragmentation and fixed air routes, efficient communication becomes crucial, especially between civilian and military authorities. In order to improve this aspect and take steps towards an ideal airspace architecture, institutions such as EUROCONTROL have developed specific procedures and tools. These have been designed to facilitate quick and efficient coordination between organizations and to optimize airspace through the formation of functional blocks. By the year 2023, the results obtained have been encouraging. The implemented procedures and tools have led to the streamlining of flight routes, reduction in fuel consumption, and minimizing the impact on the environment. Efficient coordination between civilian and military organizations has significantly improved, contributing to the creation of an airspace infrastructure that supports the needs of both civil and military aviation. The formation of functional blocks has facilitated a more optimal distribution of air traffic, reducing distances traveled and, consequently, fuel consumption. These initiatives have generated not only operational and economic benefits but also positive environmental impacts by reducing carbon emissions and the ecological footprint of the aviation industry. Therefore, collaborative efforts and developments in airspace architecture have contributed to a significant and sustainable transformation in how we manage air traffic globally. The conclusions of the study considered that these developments emphasize the importance of ongoing collaboration and innovation in addressing the challenges of airspace. Achieving a more integrated and*

*efficient airspace not only improves operational aspects but also significantly contributes to environmental sustainability, representing a positive step in the evolution of air traffic management.*

## **Risks and Threats to National Security in the Context of the Russo-Ukrainian Conflict**

**Vlad-Eugen DEAC**

*"Henri Coandă" Air Force Academy, Braşov, Romania*

*The Russo-Ukrainian conflict has reshaped the national security landscape, highlighting complex risks and threats that go beyond traditional boundaries. The rise in hybrid and cyber activities, combined with migration pressures and the vulnerability of critical infrastructures, emphasizes the need for an integrated and adaptive approach. Geopolitical tensions in the Black Sea region underline its strategic importance, prompting NATO and EU member states, including Romania, to strengthen defensive capabilities and promote regional and transatlantic cooperation. This complex dynamic requires a profound reassessment of security and defense policies to ensure national stability and security in the face of emerging threats.*

## **The Vital Role of Helicopters in Search and Rescue Missions**

**Raul DOROIMAN**

*"Henri Coandă" Air Force Academy, Braşov, România*

*This paper explores the indispensable role of helicopters in facilitating Search and Rescue (SAR) operations, a critical aspect of emergency response activities worldwide. With their unique ability to access remote and challenging terrains, helicopters have become a necessity in the execution of SAR missions, offering unparalleled flexibility and efficiency. This study dives into the historical evolution of helicopter use in SAR efforts, highlighting technological advancements and the integration of specialized equipment that have significantly enhanced operational capabilities. The paper illustrates the effectiveness and challenges associated with helicopter-based SAR missions, underscoring the importance of strategic planning, coordination, and the adaptation regarding technologies. Additionally, the research identifies existing limitations within current SAR helicopter operations, proposing potential areas for future innovation and development.*

## **Management and Leadership - Navigating Organizational Challenges: A Synergistic Approach to Risk Management Integration in Contemporary Leadership Paradigms**

**Mario - Andrei DUMITRACHE, Petruţ - Cristian CERNEANU**

*"Carol I" National Defense University, Bucharest, Romania*

*This article delves into the intricate relationship between contemporary leadership paradigms and the effective management of risks in today's dynamic business environment. Through a comprehensive exploration of leadership styles, with a particular focus on their interaction with employee engagement, the narrative unveils the*

*multifaceted challenges arising from paradigm shifts. Emphasizing the necessity for proactive innovation, the article proposes strategies for reducing risks inherent in such shifts. Furthermore, the discussion underscores the pivotal role of a strong organizational culture and ethical framework in mitigating risks. The article concludes by envisioning a future business landscape characterized by a synergistic approach to leadership, intelligence, and sustainability. This approach aims to foster resilience in the face of uncertainties, positioning organizations to thrive amidst ongoing changes.*

## **Integrating JCATS Into Military Education: A Framework for Implementation In Romanian Military Institutions**

**Steliana – Sorana DUMITRESCU**

*“Henri Coandă” Air Force Academy, Braşov, Romania*

*Joint Conflict and Tactical Simulation (JCATS) is a sophisticated computer-based simulation system utilized by military organizations worldwide to enhance training effectiveness and readiness. This research explores the potential implementation of JCATS within a military institution in Romania. The study assesses the capabilities and requirements of the Romanian military, examines the features and benefits of the JCATS system, and outlines the process of integrating JCATS into the training curriculum. Through case studies and analysis, the research aims to demonstrate the value of JCATS in improving tactical decision-making, enhancing mission planning, and fostering interoperability among military units. The findings highlight the significance of adopting advanced simulation technologies like JCATS to meet the evolving challenges of modern warfare. Ultimately, this research provides insights into the feasibility and advantages of incorporating JCATS into Romanian military training programs, contributing to the enhancement of national defense capabilities.*

## **Russia: Military Capabilities, Practices and Warfare Philosophy in the 20<sup>th</sup> and 21<sup>st</sup> Centuries**

**R. A. D., C. P.**

*“Mihai Viteazul” National Intelligence Academy, Bucharest, Romania*

*Each country has its own needs that are framed and adapted to a specific period of time, the way military operations are carried out depending on the military philosophy and military capabilities of each state. Russia has always been and still is a powerful state actor from a military point of view, the entire planet following the development of the military capabilities of this country. We consider it important to observe war practices in the case of a state actor of this magnitude, thus being motivated to choose this theme. Large-scale military operations represent moments in which a state displays a large part of its military capabilities, but also of its philosophy of war, Russia being no exception. In our article we will focus on two key moments in the history of Russia and USSR: World War II and the conflict with Ukraine started in 2020 to highlight the military possibilities and practices of this state in the above-mentioned periods.*

## **From Proliferation to Partnership: Ukraine's Path Within the Missile Technology Control Regime**

**Bianca-Andreea ENE**

*"Henri Coandă" Air Force Academy, Braşov, România*

*This paper examines the effectiveness of the Missile Technology Control Regime (MTCR) in preventing the proliferation of missile technology and ensuring global security and the strategic challenges and diplomatic efforts surrounding missile proliferation and nonproliferation, with a focus on Ukraine's post-Soviet situation and its interactions with the United States regarding the MTCR. Analyzing the U.S. incentive strategy aimed at curbing missile proliferation, the study presents two options for Ukraine: remaining outside the MTCR to preserve its missile production capabilities, risking international isolation and regional instability; or joining the MTCR, facing domestic opposition but gaining technological access, international cooperation, and security enhancements.*

## **Considerations Regarding the Role and Importance of Using Helicopters in Providing Support and Aeromobility to Land Forces**

**Dan FLOCA**

*"Henri Coandă" Air Force Academy, Braşov, Romania*

*The utilization of helicopters in ensuring the support and aeromobility of land forces is of paramount importance across an extensive array of military and security operations. In this context, helicopters provide land forces with pronounced mobility and flexibility, facilitating their swift movement and adaptation to the evolving conditions on the ground. Concurrently, helicopters are capable of swiftly and efficiently conveying troops, equipment, and provisions to areas that are challenging to access or situated behind enemy lines. This capability of aerial conveyance allows land forces to circumvent ground obstacles and execute rapid and unforeseen deployments.*

*Helicopters are essential for supporting special operations, enabling special forces to conduct rapid and discreet infiltrations and extractions. These capabilities are crucial in missions of reconnaissance, hostage rescue, or the destruction of targets of high strategic importance.*

*Helicopters provide direct aerial support, including bombardments and the transport of assault or support forces. Additionally, they can perform rapid and efficient medical evacuations, transporting the injured to more advanced medical units as quickly as possible.*

*The helicopters are equipped with advanced surveillance and reconnaissance systems, such as video cameras and radar, allowing the land forces to obtain real-time information about the battlefield and enemy movements.*

*Thus, the use of helicopters in providing support and aeromobility to land forces plays a vital role in the efficiency and success of military and security operations, offering land forces the ability to respond quickly and flexibly to challenges and threats on the ground.*



# **The Impact of Precipitation on Aeronautical Activities at Otopeni Airport**

**Narcisa-Alexandra HUMINIUC**

*“Henri Coandă” Air Force Academy, Braşov, Romania*

The case-study on the impact of precipitation at Otopeni Airport contains an in-depth analysis of the archive of METAR codes issued since 2012 up to the last day of 2023, which represents the primary source of the text. The article follows the significance of weather conditions for aeronautical activities and how the presence of precipitation affects them. It concentrates on the climate characteristics of the general area in Bucharest and focuses on the the phenomena registered at Otopeni Airport. The database is reviewed and classified on multiple criteria, such as: the type of precipitation (rain showers, snow showers, sleet showers), its intensity (weak, moderate, heavy), and its frequency over the years. The analysis presents the seasonal and annual distribution of the studied phenomena, trends and variations in the intensity or frequency of precipitations over the years. Furthermore, it also contains an assessment of the impact on flight schedules and operability and risk management measures to minimize those disruptions. In order to add value, the current study is compared against the latest IPCC report.

## **Possibilities of Air Force Cooperation in Visegrad Countries**

**Viktória KESZTYŰS**

*Faculty of Military Science and Officer Training, National University of Public Service, Budapest, Hungary*

*Air force cooperation in Visegrad Countries is an important and hardly studied field of interest. During my research I studied previous and actual V4 cooperation, mostly emphasized defense cooperation. With the help of interviews of professionals from different fields of expertise I tried to highlight the possibilities for an air force cooperation in V4. Based on open-source information I created summary tables which main goal is to present current equipment and capabilities in the Czech Republic, Hungary, Poland and Slovakia. I also made an attempt to sum up previous joint military cooperation between Visegrad Group countries in order to be able making predictions for the future.*

## **The Art of Deception**

**Gabriel Marian LEIZERIUC**

*“Mircea cel Bătrân” Naval Academy, Constanţa, România*

*Contrary to the cinematic allure of using enemies, this paper transcends the realm of fiction to delve into the timeless and pervasive elements of deception and manipulation. Steeped in history, the concepts of deception and manipulation have persisted for millennia, shaping the fabric of societies, military strategies, and marketing methodologies. This study contends that these enduring principles serve as the bedrock of contemporary society, influencing dynamics across diverse fields.*

*Drawing from historical texts such as Sun Tzu's 'The Art of War,' authored over 2600 years ago, this paper elucidates the enduring relevance of deception in shaping modern military strategies. Simultaneously, the exploration extends to the writings of Baltasar and Machiavelli, highlighting the universality of the art of deception across epochs and contexts. Deception, as unveiled in this study, emerges as a dual force capable of not only controlling adversaries but also transforming them into allies.*

*This paper serves as a guide to deception, offering insights derived from an in-depth examination of well-known events that have subtly woven manipulation into the fabric of collective consciousness. By shedding light on these historical instances, the study aims to enhance awareness of the pervasive nature of manipulation, prompting readers to critically evaluate and discern instances where they may unwittingly become subjects of deceptive practices.*

## **The Implications and Historical Context of Article 5 within NATO**

**Rareş-Iulian ROTARU, Andreea-Georgiana CEAUŞ**

*“Carol I” National Defence University, Bucharest, Romania*

*Article 5 of the NATO ( The North Atlantic Treaty Organization, or NATO, is an intergovernmental military alliance based on the North Atlantic Treaty signed on April 4, 1949. NATO was established in the context of the Cold War with the primary purpose of providing collective security against the aggression of the Soviet Union and its allies), pillar of the collective defence doctrine, was invoked only once, after the attacks of September 11, 2001. Brought to life in 1949, in the midst of the Cold War, to ensure the security of the 12 members, today 32, this article enshrined the principle that „any attack against one or more of them, in Europe or North America, will be considered as an attack against all”. The aim of this article is to emphasize the relevant issues relating to the basic principle of the North Atlantic Treaty Organization, the collective defence clause, starting from the only event that led to the invocation of the article and continuing with the current context and references about cyber attacks.*

## **The Ethics of Power and the Power of Ethical Leadership and Strategic Use of AI in Modern Warfare**

**Adrian-Daniel PALCO**

*“Alexandru Ioan Cuza” Police Academy Bucharest, Romania*

*The world as we know it has had many conflicts unfolding over the centuries. Only in the last two centuries, our modern world has been shaped by the two world wars, countless civil wars, insurrections, terrorism, and instability. These conflicts have allowed humanitarian laws and norms to be established, to bring about a „law of war” which includes ethical issues, principles of proportionality, and the respect for the human being and its right, especially the right to live. Moving forward to the year 2024, the world grapples with many conflicts, uncertainty, and terror. As Russia attacked Ukraine in February 2022, and the Middle East conflict started in October 2023, the superpowers of the world have started a Cold War-similar arms race in order to ensure a climate of*

supremacy and power. The difference is that, during this arms race, apart from military advances and nuclear capabilities, global superpowers have rapidly integrated artificial intelligence (AI) into military arsenals for strategic advantages, operational enhancement, risk-free missions with no human deployment or integration, and intelligence-gathering advantages like never seen before.

As a result, to think of AI as not only a powerful instrument, but also as a potentially conscious, strategic actor on its own, leading military operations and troops, or autonomous weapons into the field is not a very distant thought. This research article intends to investigate the ethical aspects of how AI could evaluate certain war-related situations, the ethical aspect of the leadership of military operations by AI, or even an entire command given to AI as a military leader.

## **Leadership Goes to the Cinema**

**Ramona PETREA, Andreea-Gabriela NEAGU**

*“Mircea cel Bătrân” Naval Academy, Constanța, România*

*This paper is a scholarly examination of leadership as depicted by way of films. It outlines a study that scrutinizes the portrayal of leaders across genres, from historical epics to contemporary dramas, analyzing how these representations influence viewers’ understanding of leadership.*

*The research will dissect the narrative arcs, character traits, and directorial choices that contribute to the depiction of leadership on screen. It will also assess the extent to which these portrayals reflect current leadership theories and practices, and how they might challenge or reinforce societal norms. Additionally, this paper will explore the potential of these cinematic portrayals in leadership training and education. By examining the cultural and temporal contexts of these films, the study aims to provide insights into the evolving nature of leadership and its depiction in popular culture.*

## **The Crucial Role of Mental Health in Military Operational Effectiveness**

**Sebastian-Ilie PETRESCU**

*“Carol I” National Defence University, Bucharest, Romania*

*This scientific inquiry delves into the critical significance of mental health in enhancing military operational effectiveness, shedding light on the multifaceted impact of mental health issues within military contexts. The paper examines various dimensions of this complex topic, including their influence on operational effectiveness, unit cohesion, academic success, training outcomes, and the prevention of self-destructive behaviors and suicide among military personnel. Through an analysis of relevant literature and research findings, the study underscores the paramount importance of prioritizing mental health within military environments. It elucidates the intricate interplay between mental well-being and mission success, stressing the imperative of implementing comprehensive support systems and interventions to address mental health challenges effectively. By acknowledging and addressing the intricate dynamics of mental health issues in military settings, this research aims to contribute significantly to ongoing struggle aimed at optimizing operational readiness and effectiveness in military forces.*

## **National Air Command and Control System (SCCAN)**

**Alexandra-Georgiana PRIBOI**

*“Henri Coandă” Air Force Academy, Braşov, Romania*

*The National Air Command and Control System (SCCAN) is pivotal in orchestrating and managing aerial activities within a nation's airspace. It synchronizes domestic and allied air forces, bolstering defensive capabilities and averting potential threats. SCCAN integrates functions like surveillance, mission planning, and real-time control, leveraging advanced technological infrastructure. Its integration with NATO systems, such as NATINADS, underscores its role in collective defense efforts. Furthermore, SCCAN ensures interoperability with diverse military and civilian systems, facilitating seamless coordination in peacetime and crises alike. Its strategic importance lies in maintaining air superiority, safeguarding national territories, and fostering regional stability. Thus, SCCAN serves as a cornerstone of national security infrastructure, embodying principles of centralized command and decentralized execution to safeguard airspace sovereignty and counter emerging challenges.*

## **Prioritizing Live Training in Forces: A Vital Reform Initiative**

**Valentina-Mălina SFETCU**

*“Henri Coandă” Air Force Academy, Braşov, Romania*

*Live training stands as a cornerstone in fortifying the readiness and effectiveness of military forces. Despite its paramount importance, the allocation and prioritization of resources for live training often fall short due to various constraints. This article underscores the urgent need to reform the prioritization of live training within military establishments. Through a comprehensive exploration of theoretical foundations, analysis of the current landscape, and proposed frameworks for reform, this discourse seeks to enhance the resilience and efficacy of armed forces. By recalibrating the prioritization paradigm, military forces can better confront emerging threats, foster interoperability, and mitigate operational risks in an increasingly complex security environment.*

## **Cybersecurity**

**Georgiana-Raluca SOARE**

*“Mircea cel Bătrân” Naval Academy, Constanţa, România*

*Cybersecurity is crucial in safeguarding digital assets against a myriad of threats like hacking and data breaches. This abstract highlights its importance, challenges, and strategies. Challenges include evolving threats, skill shortages, and regulatory compliance. Strategies involve proactive measures like encryption and user education, alongside emerging technologies. Collaboration among stakeholders is essential for effective defense. Cybersecurity remains pivotal in securing digital frontiers and fostering trust in the digital realm.*

## 2. HUMANITIES & SOCIAL SCIENCES

### Conference ROOM E72

#### Moderators:

Lect Daniela **NAGY**, PhD

*“Henri Coandă” Air Force Academy, Brasov, Romania*

Student Ștefania **ȘOPU**

*“Henri Coandă” Air Force Academy, Brasov, Romania*

Student Bogdan-Ionuț **BLEANDĂ**

*“Henri Coandă” Air Force Academy, Brasov, Romania*

#### The Green Berets – The Best Soldiers of America

**Dennis-Nicolae ANTONIE, Florian-Gheorghe POPA**

*“Nicolae Bălcescu” Land Forces Academy, Sibiu, Romania*

*The Green Berets are an elite armed force and unit of the U.S. Army, that are also known as Special Forces, and are specially designed for combat actions against insurgencies. They were officially established in 1952, during the Cold War, when they accomplished their mission, more specifically to support the resistance movements in Europe and Burma against the Soviet Invasion. They are famous for their distinctive headgear, the green berets, and for their well-trained soldiers and their well-developed combat skills. Their actions involve a lot of missions of different types like counterinsurgency, special reconnaissance, counterterrorism, and foreign international defense. Becoming a Green Beret is one of the hardest things. The soldiers must pass through a lot of tough and challenging tests that monitor their physical and mental resistance and assess their suitability for Special Forces. They also have a phase in which they must pass some tests that cover a lot of skills such as their language and cultural training, marksmanship, leadership development, unconventional warfare, and medical training. Due to these tough tests, the Green Berets are the best prepared soldiers in the world and can keep the peace everywhere they perform. This paper aims to present a brief history of the Green Berets, their main role and mission in keeping global stability and national security, and the skills that are necessary for an individual to become one of the best and well-trained Special Forces soldiers.*

## **Vikings in the New World: Separating Myths from Facts in the USA and England**

**Gabriel BACTER, Dumitru-Eduard MIHALACHE**

*“Nicolae Bălcescu” Land Forces Academy, Sibiu, Romania*

*The Vikings are famous for their sea expeditions and achievements. One of the greatest personalities the Vikings had was Leif Eriksson, who is said to have discovered America almost half a millennium before Columbus. His most famous expedition was the one in which he discovered a new territory on the coast of North America. More than that, the Vikings had numerous expeditions to England, thus managing to influence the north and east of England, especially culturally. The most important component of the English culture that was influenced by the Vikings was the English language where there are many words borrowed from the Old Norse. Also, with the passage of time many myths and legends about the Vikings have emerged, myths that have changed the world's perception of the Vikings. Thus, the Vikings left a significant mark on history through their courage in the face of the unknown and their desire to discover that exceeded all limits at the time. This paper aims to bust some of the main myths about Viking history and to show their cultural impact on modern days.*

## **Waste Management in Romanian Seaports**

**Alexandru BĂLAN, Ionel-Valentin PETCU**

*“Mircea cel Bătrân” Naval Academy, Constanța, România*

*Waste management in ports plays a crucial role in preserving marine ecosystems and ensuring sustainable maritime operations. This abstract examines the current state of waste management practices in Romanian ports, highlighting the challenges faced and proposing effective solutions. With a focus on regulatory frameworks, infrastructure, and operational procedures, it explores the complexities of handling various types of waste generated by ships, port facilities, and surrounding communities. Furthermore, it discusses the importance of collaboration among stakeholders, including port authorities, shipping companies, waste management companies, and governmental agencies, to implement comprehensive waste management strategies. By addressing issues such as waste segregation, collection, treatment, and disposal, Romanian ports can mitigate environmental risks, enhance operational efficiency, and contribute to the global effort towards a cleaner and more sustainable maritime.*

## **Ghost Ships & Their Stories**

**Narcisa-Maria BERINDE**

*“Mircea cel Bătrân” Naval Academy, Constanța, România*

*Ghost ships, vessels abandoned or lost at sea with no crew in sight, weave a tapestry of maritime intrigue and mystery throughout history. Among the most notorious, the Mary Celeste, discovered adrift near the Azores in 1872, stands as an enduring enigma. Despite its cargo and provisions remaining intact, the crew's inexplicable disappearance fuels speculation ranging from foul play to supernatural forces.*

*The legend of the Flying Dutchman, a spectral ship doomed to sail eternally, adds a supernatural layer to maritime lore. Encounters with this ghostly vessel are often accompanied by ominous omens, foretelling misfortune and disaster for those who bear witness. As one of the most enduring ghost ship tales, the Flying Dutchman continues to haunt the imaginations of sailors and storytellers alike.*

*In the modern era, the MV Lyubov Orlova, a derelict cruise ship, adds a contemporary twist to ghost ship narratives. Discovered abandoned in the North Atlantic in 2013, the vessel raised questions about the fate of its crew and the circumstances leading to its abandonment. These modern-day mysteries, like their historical counterparts, contribute to the timeless allure of ghost ships, blurring the lines between reality and the supernatural on the high seas. The stories of Mary Celeste and the Flying Dutchman, intertwined with the broader legacy of ghost ships, underscore the enduring fascination and ambiguity surrounding these spectral maritime phenomena.*

## **Ensuring Security in the Black Sea Region, Between Objective and Security Challenge**

**Andreea Ana Maria BUCURICĂ**

*“Carol I” National Defence University, Bucharest, Romania*

*This article focuses on security in the Black Sea region and Romania's implications in this context. At the same time, I wanted to emphasize NATO's role in the region, without which Romania would not benefit from protection. Although the security situation in the Black Sea basin is tense, the riparian states Romania, Bulgaria and Turkey have found a solution to keep their maritime borders safe through cooperation in the demining mission. Moreover, the balance of forces in the Black Sea will later dictate both the influence and the degree of economic and energy prosperity of the shores. The war in Ukraine will continue and Russia will strengthen its position in the Pontic basin, and for this reason the strategy of the Allies must be refined to ensure their security.*

## **Winston Churchill – The Unconquerable Leader of the 20<sup>TH</sup> Century**

**Denis-Ionuț-Cătălin CHIRIȚĂ, Valentin-Daniel SMEIANU**

*“Nicolae Bălcescu” Land Forces Academy, Sibiu, Romania*

*Contemporary history has been significantly influenced by Winston Churchill, a former officer, later war reporter and eventually Prime Minister of the United Kingdom. After his distinguished career in the Royal Army, he decided to return home to begin his political career where he served as Minister of Home Affairs and later as First Lord of the Admiralty where he was forced to resign after a failed military campaign. After his failure in political life, he decided to rejoin the army and fought in the First World War as a battalion commander in the trenches of France. After the war, he entered politics again, holding important positions, and after a short time he left politics again and devoted himself to writing. After the start of World War II, Churchill became Prime Minister and led Britain through the difficult war years, boosting morale with his inspirational speeches and refusal to capitulate even though all seemed lost. The fact that Winston Churchill dedicated his life to the British people shows his patriotism and his desire for Europe to*

*become a better place for future generations. This paper aims to present some details about Churchill's life and political ascension, his leadership skills, and post-war global legacy.*

## **Current Trends in Digital Marketing: Artificial Intelligence, Augmented Reality, and the Future of Online Interaction**

**Nicolas BUTNARU, Robert CÎȚU**

*"Mircea cel Bătrân" Naval Academy, Constanța, România*

*In the dynamic universe of digital marketing, key trends include artificial intelligence (AI), augmented reality (AR) and the evolution of online interaction. AI optimizes marketing campaigns by analyzing data and personalizing customer experiences, while AR delivers immersive and interactive experiences, and online interaction continues to evolve through social commerce and virtual events. These technologies promise to redefine the way brands engage and interact with their audiences, opening up new opportunities for digital marketing.*

## **The Importance of Motor Skills in the Training of Military Personnel**

**Robert-Gabriel DINCUȚOIU**

*"Henri Coandă" Air Force Academy, Brașov, Romania*

*Motor skills represent an essential aspect of military performance, exerting a significant impact on the efficiency and effectiveness of military operations. This abstract explores the importance of developing and maintaining motor skills in military personnel, highlighting the connections between these abilities and tactical, strategic, and survival skills.*

*The most important motor skills in the training of military personnel are agility, coordination, strength, Endurance, Flexibility, speed, balance, precision, and reaction. Developing these motor skills conduct to a harmonious development of physical capacities, education for mental stability, formation of skills and abilities necessary in combat actions and Development and continuous improvement of motor skills.*

## **America's Landmarks - An Exploration of Cultural and Historical Symbolism**

**Robert DOBRE**

*"Nicolae Bălcescu" Land Forces Academy, Sibiu, Romania*

*Beyond their undeniable visual appeal, America's landmarks hold a deeper significance that extends far beyond mere bucket-list items or fleeting social media moments. This paper aims to uncover the multiple layers of meaning embedded within these iconic structures. I will explore the diverse narratives they weave, shedding light on how they capture the essence of American culture and the crucial role they have played in shaping it. Additionally, the economic impact of these landmarks will be examined, highlighting*



*their contribution to the nation's prosperity. Ultimately, this article concludes with stating that these remarkable testaments to history transcend geographical boundaries, serving as powerful symbols that resonate not only with American citizens but also with the entire world, whose imagination is incessantly captivated.*

## **The Role and Functions of Physical Education and Sports in Life**

**Marius-Ionuț DOBRIȚOIU**

*"Henri Coandă" Air Force Academy, Brașov, Romania*

Sport represents a physical activity that often involves competition. Physical education leverages physical exercises to enhance an individual's biological potential and aims to promote both mental and physical health. Its fundamental characteristics encompass physiological, pedagogical, biological, and social aspects. As an integral part of physical education, sports bring multiple benefits, contributing to the maintenance of balance and health. Through regular practice, sports improve physical fitness, foster discipline, and enhance the quality of life by releasing endorphins and stabilizing serotonin and dopamine levels.

## **Rosa Parks on the Bus Ride to Equality**

**Marian-Ovidiu DUȚESCU, Iustin-Mihai ACATRINEI**

*"Nicolae Balcescu" Land Forces Academy, Sibiu, Romania*

*Between the late 19<sup>th</sup> and the mid-20<sup>th</sup> centuries, USA adopted the Segregation law which stipulated that nonwhite Americans shall study, commute, and live in specially created homes from them. People quickly referred to the newly adopted law, the "Jim Crow" laws, a pejorative term for an African American. An iconic chapter in the Civil Rights Movement sparked when a black ethnic minorities woman named Rosa Parks put to question the Segregation law by not yielding her bus seat to a white person, even though she was asked several times to do so, later to be arrested by the police officers and charged under the circumstance of disobeying the law. This little, but meaningful, action inspired all the nonwhite Americans to stand their ground against the injustice. On 5 December 1955, all the black people that were commuting with the bus in Montgomery, Alabama, decided to not ride again the public transport for that day. We need to keep in mind that 70% of the daily commuters were black, so when the boycott started, the company was massively under the budget allocate. This paper aims to illustrate the changes that were implemented after the incident and how the social interaction relationships between the white and nonwhite Americans changed and evolved.*

## **The Impact of Meteorological Phenomena on Population and Traditions of Brasov**

**Miruna GĂINUȘĂ**

*"Henri Coandă" Air Force Academy, Brașov, Romania*

*This paper explores the traditional knowledge of weather forecasting intertwined with religious and folklore holidays, which form an integral part of Romanian cultural heritage*

*spanning decades or even centuries. Four holidays renowned for their weather predictability are examined. The study draws from various sources, including scientific references, online media, and interviews with elderly individuals knowledgeable on the subject. The classification of these holidays considers the four seasons of temperate climate, along with the primary climatic variable involved, spatial coverage, and the holiday's origin (Orthodox, Catholic, or pre-Christian). While weather lore associated with Catholic holidays shares similarities with practices observed in many regions globally, that connected to Orthodox and pre-Christian holidays exhibits specificity to various regions of Romania, particularly Brasov. Considering the seasons, the holidays are dispersed throughout the year, covering all seasons. Regarding climatic variables, the majority of relationships are tied to temperature, followed by those associated with precipitation and atmospheric instability (such as thunderstorms).*

## **Cultural Crossroads Analyzing the War in Afghanistan and the American Influence on Key Factors**

**Adrian-Ștefan GĂITĂNARU, David-Cătălin GHIȚĂ**

*“Nicolae Bălcescu” Land Forces Academy, Sibiu, Romania*

*The trigger for the US invasion of Afghanistan is the result of the September 11, 2001, attacks and is known as the US War in Afghanistan. However, it was not as simple as expected by the Great Powers of the World, caused by the involvement of neighboring countries such as Pakistan and Iran. Territorial fragmentation, caused by mountainous terrain and desert areas, favored a wide range of ethno-linguistic and cultural differences, affecting US theaters of operations in different areas. The historical context assignable to the former Soviet-Afghan wars has led to a preconception based on past events that the Americans will repeat the same atrocities. It is notorious that the changes brought about on the democratic system and the concepts and inclinations imposed on women's rights and education have been the result of the harsh and unjust policies of foreign countries with great influence, such as the USA, along with those in the West such as Russia, Iraq, Pakistan, which have over time supported fundamentalist groups. Some reports expound that, financially speaking, the hundreds of billions of dollars invested in military assets in the first ten years of the war would have led to better capital growth if that money had been allocated to investing in public economic infrastructure, such as roads and water distribution systems. This paper provides extensive information from political, social, and economic perspectives on the various effects of the war in Afghanistan.*

## **Analysis of the External Environment of Educational Marketing**

**Liviu GÎRLEA, Cătălin UDREA**

*“Mircea cel Bătrân” Naval Academy, Constanța, România*

*In today's educational environment, institutions face continuous changes and challenges. To stay relevant and competitive, they need to take a proactive approach to marketing, adapting their strategies and offerings. Educational marketing involves identifying and satisfying consumer needs, communicating and adapting to environmental changes. Factors such as the economic, technological and demographic context influence the*

*marketing environment of institutions, requiring adaptability and constant evaluation. Competition is intense and higher education institutions struggle to attract and retain talented students. It is essential to monitor the external environment and adjust strategies accordingly. Marketing orientation in education involves market research and adaptation of the offer. In this competitive environment, institutions must focus on meeting the needs and expectations of their customers to achieve long-term success.*

## **Common Language Terms Specific in Meteorology**

**Armando GRANCEA**

*“Henri Coandă” Air Force Academy, Braşov, Romania*

*The linguistic similarities between meteorological terms in English and Romanian can be attributed to several historical, cultural, and scientific exchanges that have influenced the vocabularies of both languages. This essay explores these connections by examining the etymological roots of meteorological terms, the impact of scientific developments, and the role of language contact in the diffusion of specialized vocabulary.*

## **Cross-Generational Communication: Challenges and Strategies**

**Robert HERGHILIGIU, George Bogdan ȚUȚUI**

*“Mircea cel Bătrân” Naval Academy, Constanța, România*

*Cross-generational communication or multigenerational communication refers to communication, oral, written, pictorial, video, audio, etc., which can occur among people who are from different age groups. For instance, your grandparents might not understand why you love texting so much, while you might not see why they prefer talking on the phone? That's a simple example of cross-generation communication gap. This paper describes the characteristics of each generation in terms of their preferred communication styles and proceeds to explore the challenges raised by such differences in various multigenerational professional, academic or personal communication contexts. Finally, the paper makes some suggestions as to how such a communication gap might be mitigated in order to ensure better and more efficient interpersonal communicative interactions.*

## Conference ROOM E73

### Moderators:

Lect Ramona **HĂRȘAN**, PhD

*“Henri Coandă” Air Force Academy, Brasov, Romania*

Student Marius-Costel **ȚIFIR**

*“Henri Coandă” Air Force Academy, Brasov, Romania*

Student Darius-Alexandru **MOLDOVAN**

*“Henri Coandă” Air Force Academy, Brasov, Romania*

## The Role of Leaders in Promoting Gender Equity in Military Structures: A Managerial Perspective

**Mădălina Mihaela HILOTE**

*“Henri Coandă” Air Force Academy, Brașov, Romania*

*The role of leaders in promoting gender equity within military structures is pivotal, viewed through a managerial lens. This perspective emphasizes how leaders manage human resources, make decisions, and promote organizational values. Leaders play a vital role in fostering an inclusive environment where all members, irrespective of gender, feel respected and valued. Open dialogue and encouragement of diverse opinions are essential components. Promotion of diversity, particularly gender diversity, is advocated to harness a broad range of skills and perspectives.*

*Managers should provide regular training on gender equity and combat stereotypes, serving as role models and encouraging equitable practices. The merit-based approach in decisions related to promotion and career advancement is crucial to eliminate gender discrimination. Policies facilitating the recruitment, promotion, and retention of female personnel should be implemented. Effective management of gender-based harassment and discrimination is imperative, with leaders enforcing stringent procedures for reporting and resolution.*

*Clear communication of organizational commitment to gender equity and defining a vision that incorporates diversity as a key element for operational efficiency are paramount. Monitoring and evaluation systems should be in place to assess progress, with leaders taking responsibility for achieving gender equity objectives. By adopting a managerial approach focused on gender equity, military leaders contribute significantly to establishing a fair and inclusive working environment, fostering team morale, cohesion, and ultimately enhancing mission performance.*

## **The pilot, an old concept...**

**Rareș Gabriel IORGA**

*“Henri Coandă” Air Force Academy, Brașov, Romania*

*The present article aims to change the human’s mind which sometimes has some straight opinions, and to show them the aspects of life. The life is not only white and black, this is most of the time represented by shades. All the new technologies, it is true, make the life of humans easier day by day and the mass of people thinks, humans can be easily replaced in every domain by technology. This is totally false and in this paper we will see the real face of humanity, which is important, functional and irreplaceable. In every domain there is a slice of humanity, and this paper will analyze the pilot’s importance in aviation, their performance, system thinking and then some real situations, because nothing compares with real life issues.*

## **An Interconnected Evolution: Exploring the Depth of the Relationship between Civil and Military Fields**

**M.R.L., D. A.**

*“Mihai Viteazul” National Intelligence Academy, Bucharest, Romania*

*This paper exceeds to illustrate the bases of the relationship between the Romanian population and the military institutions of the country, to the extent where a level of mutual influence was born. Therefore, we will approach both the society and the military authority as two interconnected statal actors who aim to accomplish the same goal: the security of their nation. In this case, the opinion civilians have about the military, represents the base of a well-established relationship in the 21st century and not only. Unfortunately, the dynamics between the army and population has not always facilitated the construction of a positive perspective, being rather influenced by the differences of opinion. Press, known as the Fourth Estate, has always had a huge impact, interfering with this sensible relationship between the two parts. Due to their capacity of advocacy, press and media included, brought new ideas and perspectives which have gathered a lot of reactions as powerful as the level of emotion involved and then, these reactions led to concrete actions and decisions. Whether these decisions were beneficial or not for Romania, this remains a controversial aspect.*

## **Words lie. Your face doesn’t**

**Gabriel Marian LEIZERIUC**

*“Mircea cel Bătrân” Naval Academy, Constanța, România*

*In a world characterized by linguistic diversity, communication across various languages and cultures remains a challenge. Dr. Paul Ekman, an anthropologist, posits a compelling solution to this challenge - the universal language of facial expressions and gestures. With over 6,500 languages spoken globally, diverse cultures also exhibit unique non-verbal communication cues, such as peace signals. Ekman’s extensive cross-cultural research on*

*emotions reveals the existence of seven universally recognized facial microexpressions: Joy, Sadness, Anger, Contempt, Fear, and Surprise. These fleeting expressions, observable for mere moments, provide authentic glimpses into individuals' true feelings. The interconnectedness between our emotions and facial expressions is so profound that individuals can intentionally induce emotions by replicating specific expressions. This paper explores the concept of facial expressions as a universal system of communication, transcending linguistic and cultural barriers. By delving into the nuances of microexpressions, we unveil a shared human language that reflects moment-to-moment fluctuations in emotional states. Understanding and recognizing these universal signals not only enhances intercultural communication but also underscores the intricate link between our emotions and the subtle muscle movements that shape our facial expressions. In essence, facial expressions emerge as a global means of conveying emotions, providing a common ground for interpersonal understanding across diverse linguistic and cultural landscapes.*

## **The Effects of G-Force on the Human Body**

**Ionel-Ștefan MARCIUC**

*"Henri Coandă" Air Force Academy, Brașov, Romania*

*This study explores the multifaceted impacts of G-force on the human body, highlighting the physiological responses, potential health risks, and mitigation strategies. G-forces can be classified into positive (+Gz), pushing blood toward the feet in a seated position, and negative (-Gz), drawing blood towards the head. The body's tolerance to G-force varies; however, excessive exposure can lead to G-induced Loss Of Consciousness (G-LOC), vision impairment (grey-out, black-out, red-out), and long-term health issues such as damage to the spine or internal organs.*

*Acute exposure to high G-forces can strain the cardiovascular system, attempting to maintain brain perfusion by countering the blood flow away from the brain, leading to potential G-LOC. The skeletal system also bears significant stress under high G-forces, particularly on the spine and lower extremities, predisposing aviators and astronauts to musculoskeletal injuries.*

*Adaptive measures, including physical conditioning, specialized G-suits, and anti-G straining maneuvers (AGSM), have been developed to enhance human tolerance to G-forces. These interventions work by compressing the body or limbs to support blood flow and by increasing intrathoracic pressure to maintain cerebral perfusion.*

## **Sign Language in the Interaction between Members of the "Henri Coandă" Air Force Academy**

**Teodora NECHITA**

*"Henri Coandă" Air Force Academy, Brașov, România*

*Sign language is an important nonverbal communication instrument used in the Air Force Academy. This article explores the value of sign language and its application in interpersonal interactions, emphasizing the ways in which gestures facilitate effective coordination, communication and military training. The aim of the article is to highlight*

*the critical role that sign language plays in the development of leadership skills and to demonstrate that the better sign language is used and understood, the more fluid and effective communication can be ensured within the academy.*

## **Using Critical Thinking Skills to Detect and Deter AI Misinformation**

**Mircea-Gabriel LUNGU, Tudor PECHEANU-DROȘU**

*“Mircea cel Bătrân” Naval Academy, Constanța, România*

*In the year 2023, there was a noticeable increase in discussions revolving around the widespread use of generative AI tools, such as OpenAI's ChatGPT and Google Bard. These tools gained significant attention and were applied across various sectors, including social media, television production, and literature. Leveraging extensive datasets sourced from diverse online repositories, generative AI tools adeptly interpreted queries and prompts to produce text, images, music, and other multimedia formats. This transformative technology democratized creative processes, enabling tasks once considered exclusive to human ingenuity, such as photography and music composition, to be effortlessly executed through AI-driven algorithms.*

*However, alongside the enthusiasm for innovation, concerns emerged regarding the potential risks associated with these AI systems. The widespread use of generative AI blurred the distinction between authentic and artificial content, raising apprehensions about the proliferation of misinformation and disinformation. Deliberate manipulation of AI-generated content with the intent to deceive exacerbated these concerns, giving rise to falsehoods designed to mislead or cause harm, distinct from unintentional misinformation. The purpose of this paper is to discuss AI disinformation and misinformation and suggest possible critical thinking strategies people can use in order to detect and deflect its negative effects.*

## **The British Armed Forces in the First World War**

**Vlad-Adrian POP**

*“Nicolae Bălcescu” Land Forces Academy, Sibiu, Romania*

*Since they appeared in their different forms, the Armed Forces have been playing a very important role in maintaining the international order and they are still one of the most respected institutions towards the citizens. One of the oldest defense institutions in Europe, well-known for its long history and implication in worldwide conflicts over time is the British Armed Forces. In their long history unfolded along over 350 years, they passed through many changes and reorganizations that constantly improved their qualities. They mostly knew how to manage their resources, but there were also turning points in their evolution that determined serious changes at all levels. At the beginning of the 20<sup>th</sup> century, two of the most significant events that influenced the methods of warfare were the two World Wars. The first one in this cycle, The First World War, also called “The Great War” was the starting point of a long process of developing new technologies, strategies and, of course, mentalities. Before that, no one could have imagined that a*

conflict could reach such a scale. Due to the Kingdom's economic strength, the British Armed Forces were an important pawn in imposing the allies' will.

## **Beyond the Screen: Unveiling Leadership Skills in “A Few Good Men”**

**Ștefania-Monica POPA**

*“Mircea cel Bătrân” Naval Academy, Constanța, România*

*The research paper argues that the movie shows how leadership skills are displayed in the movie “A Few Good Men” which is directed by Rob Reiner. The paper delves deeply into the situations of characters, scenes and themes and dissects the intricacies of highly demanding court-martial command portrayed in the intriguing and thought-provoking tale. The present research article views characters like Lieutenant Daniel Kaffee, Colonel Nathan Jessup, and Lieutenant Commander Joanne Galloway through a lens of scholarly literature on leadership theory and real-world examples which assess their communication skills, decision-making processes, forms of conflict resolution, adaptability, empathy, strategic thinking, and confidence. The combined effect of both fiction and reality is the task of this study. It is meant to give key ideas and principles for individuals that are after improving the leadership that they possess in different areas of life that are work-related or personal. This comparison, introduced in the latter part of the article, sheds light on the long-lasting impact of cinema records as dynamic means for contextualizing, scrutinizing and thinking over the core issues of leadership of the contemporary world.*

## **Ethical Dilemmas Surrounding the Use of Unmanned Aircraft in Modern Warfare**

**Vlad Nicolae PRESECAN**

*“Henri Coandă” Air Force Academy, Brașov, România*

*In this project, I highlight the ethical issues of using unmanned aircraft in modern warfare by analyzing the core principles of law of armed conflict. I have identified violations of each of the four principles, and I will describe each situation and how the operations should have been done in order to adhere to the core concepts of law of war. Furthermore, I also give strong reasons why armed forces should refer to moral rules, by not only presenting the advantages a moral behavior can bring in an armed conflict, but also reminding the true purpose of war. All of the exemplified actions from the essay have taken place very recently, suggesting the present need to take action in this regard.*

## **Top Gun: Beyond the Blockbuster – Unveiling its Influence as a Military Recruitment Tool**

**Bogdan-George SANDU**

*“Mircea cel Bătrân” Naval Academy, Constanța, România*

*The focus of this paper is the interconnection between military strategy and entertainment, with a specific case study of the Top Gun series. The paper begins by*



*tracing the origins of entertainment in Ancient Greece and its weaponization during World War II, leading to the establishment of the Military Entertainment Complex (MEC) and Armed Forces Entertainment (AFE) in the 20th century. It analyzes the role of Hollywood as a propaganda tool for the United States military, highlighting the Bureau of Motion Pictures during World War II. The paper then shifts to the release of Top Gun in 1986 and its impact on military recruitment, as the film led to a significant surge in Navy applications. Additionally, the paper delves into the ongoing cultural impact of Top Gun, including its continued popularity and related paraphernalia, and anticipates the release of 2022 Top Gun: Maverick as a continuation of the franchise's cultural influence. Overall, the paper provides insight into the intricate relationship between entertainment media, military propaganda, and public perception.*

## **The Impact of Communication Errors on Aviation Safety: A Study of Pilot-ATC Interactions**

**Ștefania ȘOPU**

*"Henri Coandă" Air Force Academy, Brașov, România*

*Communication errors between pilots and air traffic controllers (ATC) can have serious consequences for aviation safety. The paper investigates the causes, types, and effects of communication errors in pilot-ATC interactions, and proposes effective strategies to prevent and mitigate them. This resource shows that communication errors are mainly caused by factors such as language barriers, workload, stress, fatigue, noise, and equipment failures. The most common types of communication errors are mishearings, misunderstandings, and omissions. The effects of communication errors range from minor delays and deviations to major incidents and accidents. This study suggests that communication errors can be avoided and reduced by improving the language proficiency and communication skills of pilots and ATC personnel, enhancing the quality and reliability of communication equipment, implementing standardised phraseology and procedures, and promoting a positive safety culture.*

## **Psychological and Physiological Factors Affecting Pilots in Search and Rescue Missions**

**Iulian-Ștefan STOICA**

*"Henri Coandă" Air Force Academy, Brașov, România*

*In the demanding realm of Search and Rescue (SAR) missions, pilots face unique psychological and physiological challenges critical for mission success and their own well-being. This paper explores these challenges, emphasizing the intense stress and cognitive pressures of making rapid, life-saving decisions under pressure. It highlights the psychological strain from navigating unpredictable conditions and the importance of strong team dynamics and effective communication. Physiologically, pilots must maintain exceptional physical fitness and adapt to extreme environments, from severe weather to challenging terrains. These factors not only impact the efficiency and safety of SAR operations but also the health and performance of the pilots. By exploring strategies for managing stress, enhancing decision-making, and supporting physical preparation, this*

study aims to offer insights into the necessity for comprehensive training and support systems that address both the mental and physical demands of SAR missions, advocating for an overall approach to pilot preparation and resilience.

## **Crossing Cultures: Mastering the Art of Intercultural Communication**

**Dhurim-Roland VAȘCU**

*“Mircea cel Bătrân” Naval Academy, Constanța, România*

*In this paper, we navigate the intricate landscape of intercultural communication, unraveling the dynamics that unfold when individuals from diverse cultural backgrounds engage in the exchange of information, ideas, and messages. With our world becoming more interconnected, the significance of intercultural communication extends across crucial domains such as business, education, and interpersonal relationships. This exploration will spotlight key challenges within intercultural communication, encompassing nonverbal communication, language barriers, linguistic hurdles, and cultural obstacles. Alongside these challenges, we will present pragmatic solutions aimed at fostering effective communication across cultural boundaries. To bring a personal dimension, the paper will feature a real-life example, providing insights into the motivation behind choosing to delve into these specific topics. As we navigate the complexities of intercultural communication, this paper serves as a guide, offering valuable perspectives and strategies to enhance understanding and collaboration in our diverse and interconnected global community.*

## **Linguistic Barriers and the Contribution of Interpreters to the Success of International Missions**

**Ionică-Mihai VLĂDULESCU, Antonio-Florin STAN**

*“Nicolae Bălcescu” Land Forces Academy, Sibiu, Romania*

*Effective communication is crucial for the success of multinational missions, with interpreters serving as linchpins in facilitating understanding. This paper discusses three primary aspects regarding the significance of interpreters. The first main idea underscores the pivotal role of the interpreters and the obstacles encountered in achieving effective communication amidst linguistic and cultural diversity. Secondly, the paper examines the ramifications of technological advancements on the interpreting profession, presenting both opportunities and challenges. Lastly, by illustrating a case study, we will highlight the substantial contribution of interpreters to the success of multinational missions, adeptly managing crises and fostering productive dialogue. In conclusion, we will claim that interpreters are indispensable in overcoming linguistic and cultural challenges, promoting communication and understanding, and ensuring mission success through effective and accurate interpretation.*

# 3. Engineering

## Conference ROOM E44

### Moderators:

Lt.Col. Assist. Prof. Liviu **GĂINĂ**, PhD

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Lt.Col. Assist. Prof. Eng. Cornel **ARAMĂ**, PhD

*“Henri Coandă” Air Force Academy, Brasov, Romania*

Student Cătălina-Maria **CODREANU**

*“Henri Coandă” Air Force Academy, Brasov, Romania*

Student Ana-Maria **LUNGU**

*“Henri Coandă” Air Force Academy, Brasov, Romania*

## Simulation over the Impact of a Torpedo against a Submerged Medium-Sized Submarine

**Nicolae CARACOSTEA**

*“Mircea cel Bătrân” Naval Academy, Constanța, România*

*One of the promising acquisitions within the Naval Forces' Acquisition Program consists of two non-nuclear diesel-electric Scorpène submarines produced by Naval Group. These acquisitions would significantly enhance the Romanian Naval Forces' presence in the Black Sea. However, before entering in our Fleet's service, it is imperative to thoroughly research their defensive capabilities.*

*Hence, the idea of simulating the impact of a torpedo on the mentioned submarine emerged, with the aim of assessing the efficiency of both the current torpedoes in service and the resistance of these modern submarines to impacts. The geometries were created using Ansys Discovery, followed by describing the materials used, as well as their resistance and proper characteristics, meshing and the final setup.*

*External factors were also taken into account during the simulation. Factors such as hydrostatic pressure, depth, temperature, and salinity of the water significantly influenced the impact of the torpedo on the submarine's body.*

## **Changing the YAK-52 High-Lift Device Systems**

**Cristian-Flaviu CIOCMĂREAN**

*"Henri Coandă" Air Force Academy, Braşov, Romania*

*The following document is trying to highlight the historical progression and importance of high-lift devices in aviation, also emphasizing on their crucial role in enhancing aircraft performance during takeoff and landing. The study proposes replacing the Yak-52's outdated pneumatic flap system with an electric one, powered by the aircraft's generator and controlled by servomotors. This modification aims to improve performance, efficiency, and the pilot training experience by offering more precise flap control, reducing aircraft weight, and simplifying maintenance processes. The transition is presented as a significant advancement, aligning with the trend of modernizing aircraft systems for better efficiency, safety, and learning outcomes in pilot training. The document underscores the ongoing evolution in aviation technology and the potential benefits of such upgrades in terms of operational costs, reliability, and educational value for future pilots.*

## **Optimization Solutions for Naval Electro-Energetic Systems**

**Paula DRAGHICI, Carmen-Laura BONDEA**

*"Mircea cel Bătrân" Naval Academy, Constanţa, România*

*The evolution of naval electro-energetic systems aims for optimization through a complex process, including power requirements analysis, efficient design, integration of renewable sources, and ensuring redundancy in the maritime environment. Mathematical modeling and numerical techniques are essential for dynamic analysis, addressing transient and dynamic regimes of the systems. Naval electrical networks follow the trend of "smart grids," emphasizing flexibility and renewable source integration. Optimization involves developing monitoring systems, dynamic control, and real-time assessment of network security. The concept of "perfect electro-energetic systems" aims at ensuring universal energy availability, promoting device integration at the user level, and global sustainability. In conclusion, evolution focuses on efficiency, reliability, and sustainability through the adoption of advanced and innovative technologies.*

## **Microcontrollers Capacity in the Management of a Potential Flying System**

**Teodor-Mihail GIURGIĂ**

*"Nicolae Bălcescu" Land Forces Academy, Sibiu, Romania*

*The project focuses on developing a possible drone flight controller powered by ESP32 technology. It explores the benefits of ESP32 in creating an advanced drone flight controller, emphasizing improved performance, security, and functionality in real-time image transmission and payload deployment. The integration of ESP32 microcontroller, along with sensors and communication modules, forms the core of our system. Various protocols such as I2C, PWM, and PPM are utilized for efficient communication and control. It also discusses the implementation of a 4S battery configuration for enhanced*

*power efficiency and autonomy. Additionally, the integration of an ESP32-CAM module enables low-range live image transmission, further enhancing the capabilities of our system. Furthermore, it aims to incorporate a remote payload deployment system to transport and launch small payloads. The project's code is inspired by existing online resources and adapted to suit our specific requirements. In conclusion, this project aims to develop a versatile and efficient drone flight controller system, contributing to advancements in payload transportation technology.*

## **Efficiency Improvement of Search and Rescue Missions for Helicopters in Challenging Environments**

**Vlad Mario Teodor GROSU**

*"Henri Coandă" Air Force Academy, Braşov, Romania*

*Search and rescue (SAR) missions carried out by helicopters in challenging environments require efficient strategies to enhance operational effectiveness and ensure successful outcomes. This article explores various methodologies and technologies aimed at improving SAR mission efficiency in difficult conditions. Key challenges such as adverse weather, rugged terrain, and reduced visibility are addressed through innovative approaches.*

*The study examines advances in helicopter design and technology, including enhanced navigation systems, sensor integration, and communication technologies, which play key roles in optimizing SAR operations. Additionally, operational tactics such as dynamic mission planning, coordinated teamwork, and the use of unmanned aerial vehicles (UAVs) are analyzed for their contribution to mission efficiency.*

*Furthermore, the article discusses the importance of comprehensive training programs for SAR crews to enhance their skills in navigating complex environments and executing rapid rescue operations. Human factors such as decision-making under pressure and effective communication strategies are also emphasized to mitigate risks and overall improve mission efficiency.*

*By integrating these methodologies and technologies, SAR missions can achieve higher success rates and reduced response times, ultimately leading to saving more lives in critical situations. This research contributes to ongoing efforts to improve SAR capabilities, ensuring quick and efficient responses to emergencies in challenging environments.*

## **Helicopter Flight Controls**

**Ilie-Alexandru MAFTEI**

*"Henri Coandă" Air Force Academy, Braşov, Romania*

*The in-depth study of the helicopter's control chain and familiarity with the precise layout of control elements, such as switches and buttons, are essential aspects in shaping a pilot's automation skills for ensuring safe flight. This paper focuses on analyzing helicopter flight controls, specifically examining aspects like pitch, collective, throttle control, and antitorque pedals. Understanding how these elements interact and influence the aircraft's behavior is crucial for pilot skill development and the proper management of*

*flight parameters, providing insights to enhance competency and optimize performance during flight operations.*

## **Modelling the Movement of Naval Drift Mines under the Action of Environmental Factors**

**Tiberiu NIȚĂ, Denis BĂRBIERU**

*“Mircea cel Bătrân” Naval Academy, Constanța, România*

*Naval drift mines pose a significant threat to maritime security, capable of causing considerable damage to naval vessels and infrastructure. Understanding the movement of these mines under the influence of environmental factors is crucial for effective countermeasures and strategic planning. This essay delves into the intricate world of naval drift mine dynamics, exploring the various environmental factors that influence their movement and the methodologies employed in modeling their behavior. Through an in-depth analysis of fluid dynamics, oceanography, and mine characteristics, this essay aims to provide insights into the complex interplay between environmental forces and naval drift mines.*

## **Program Software for Simulation and Optimization of Physical Processes in the Naval Electroenergetic System**

**Ionut-Valentin OPREA, Paula DRAGHICI**

*“Mircea cel Bătrân” Naval Academy, Constanța, România*

*The software simulation and optimization program for physical processes in the naval electro-energetic system is essential for the development and improvement of ship efficiency. Utilizing specialized programs such as Caspoc 2005 for simulation and Mathcad 15.0 for mathematical modeling, the program integrates data into an intuitive graphical interface. Its functionalities include simulation and detailed analysis of system behavior, energy consumption optimization, energy efficiency analysis, environmental impact simulation, and cost analysis. These contribute to enhancing the efficiency, reliability, and sustainability of naval electro-energetic systems. In the future, trends are moving towards automation, virtualization, and advanced data analytics for rapid adaptation and continuous optimization, contributing to reducing environmental impact.*

## **Composite Materials**

**Constantin Mihai PĂDUROIU**

*“Henri Coandă” Air Force Academy, Brașov, Romania*

*Composite materials have fundamentally transformed the aeronautical industry by significantly reducing aircraft weight, thereby enhancing fuel efficiency and reducing costs. Their superior strength-to-weight ratio allows for the creation of structures that are both lighter and stronger, enabling innovative aerodynamic designs for improved performance. The flexibility in molding and shaping composites has further revolutionized aircraft manufacturing, leading to more efficient and optimized airframes. This shift towards composite materials marks a pivotal change in aviation, promising a future of*

more sustainable and efficient aircraft capable of meeting the growing demands of global travel.

## **The Use of Software Simulation for the Analog Modulation of Signals**

**Virgil POP**

*"Henri Coandă" Air Force Academy, Braşov, Romania*

*Telecommunications is a cornerstone of modern society, facilitating the transmission of diverse signals across various media. This article explores the intricacies of signal modulation, a fundamental aspect of telecommunications, focusing on its simulation using the Octave program. Beginning with an overview of telecommunications and the need for signal multiplexing, we delve into the principles of frequency modulation (FM) and amplitude modulation (AM), elucidating their significance in signal transmission. Through detailed simulations, we demonstrate the modulation process, showcasing the manipulation of carrier signals to convey information efficiently. By providing insights into the practical implementation of signal modulation, this article serves as a valuable resource for telecommunications enthusiasts.*

## **Development of an Educational Beamforming System**

**Robert-Marian PAPA**

*"Nicolae Bălcescu" Land Forces Academy, Sibiu, Romania*

*The purpose of this paper is to develop a beamforming system. To achieve the goal of the study, it is necessary to design and print a 4-element patch antenna. The design and optimization of the patch antenna will be accomplished using the CST Studio Suite application. Using the printed antenna and a USRP N310 software-defined radio device, an educational system will be developed for studying the beamforming phenomenon, and for the development of a graphical interface, the GNU Radio application is used, which will allow us to change the phase and the amplitude individually on each of the 4 channels, in real-time. The experimental validation of the measurements is accomplished using a spectral analyzer for the power level and an oscilloscope for measuring the phase of the signals.*

## **Convolution of Digital Signals**

**Ana-Maria RONTEA**

*"Henri Coandă" Air Force Academy, Braşov, România*

*Convolution, as a mathematical process for amalgamating two signals to produce a resultant signal, stands as a cornerstone technique within the domain of digital signal processing (DSP). In addition to fundamental arithmetic operations such as addition, multiplication, and integration, convolution serves as a pivotal operation yielding a third signal in DSP applications. The inherent significance of convolution lies in its capacity to facilitate the meticulous analysis and modeling of intricate interactions and correlations between disparate signals or distributions, thereby fostering a deeper understanding of*

*signal behavior and dynamics. This paper embarks upon an exploration of digital signal convolution analysis, which constitutes a pivotal facet of digital signal processing methodology. It endeavors to delineate the intricate nuances of this technique by elucidating the constituent elements involved, including the underlying signals, the algorithmic framework governing input operations, and the convolutional apparatus. Subsequently, the paper endeavors to delineate the convolution process itself, shedding light on the intricate transformations wrought by this operation upon the signals under consideration. To this end, the renowned Octave application is harnessed as a tool for visualization and analysis, enabling the elucidation of the profound alterations engendered by the convolution operation. Through a systematic exposition of the convolution process within the purview of digital signal processing, this paper endeavors to provide valuable insights into the underlying principles and applications of this foundational technique.*

## **About Some Aspects of Halley's Method**

**Leonard-Andrei ȘOIMU, Vlad-Gabriel VRÂNCEANU**

*"Mircea cel Bătrân" Naval Academy, Constanța, România*

*There are many different methods to approximate and calculate the real roots of a nonlinear equation. One of the most interesting methods is Halley's method.*

*Our note presents some aspects about this method.*

## **Open-Source 3D Radar Systems**

**Bogdan TODICĂ**

*"Henri Coandă" Air Force Academy, Brașov, România*

*In the realm of modern warfare, the integration of advanced radar technology plays a pivotal role in enhancing situational awareness and strategic decision-making. Open-source 3D radar systems represent a paradigm shift, offering unprecedented flexibility, customization, and accessibility to military operators and developers. By harnessing open-source principles, these systems provide real-time, high-resolution imaging of aerial and terrestrial targets with unparalleled accuracy. This abstract explores their technical specifications, implications on military operations, and defense strategies. Rapid prototyping, collaborative development, and integration with existing infrastructure empower defense forces to adapt swiftly to evolving threats. The open nature of these systems fosters innovation and knowledge sharing, driving continuous improvement and optimization of radar capabilities. In conclusion, open-source 3D radar technology revolutionizes military surveillance and reconnaissance, ensuring superiority in the modern battlefield environment.*



## 4. Weapons & Defense Technology

### Conference ROOM E10

#### Moderators:

Lt.Col. Cristian **ENE**

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Lt.Col. Mihai-Alin **MECLEA**

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Student Leonard **CIUPCĂ**

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Student Cosmin **HINTEA**

*"Henri Coandă" Air Force Academy, Brasov, Romania*

#### Trends in Detection and Neutralization Technologies of Improvised Explosive Devices (IEDs)

**Bianca-Denisa AȘTEFĂNOAEI**

*"Henri Coandă" Air Force Academy, Brașov, Romania*

*The paper provides an overview of the evolving trends in the detection and neutralization of Improvised Explosive Devices (IEDs), which pose significant threats to global security. IEDs, manually fabricated explosive devices often used in terrorism and insurgency tactics, necessitate advanced technologies for detection and neutralization to safeguard military forces, security personnel, and civilians. Detection technologies have seen significant advancements, with a focus on Artificial Intelligence (AI), spectroscopy, magnetic resonance imaging, X-ray imaging, nanotechnology, and drones. These technologies enable the identification and mapping of explosive materials, enhancing detection capabilities in various environments. Neutralization efforts have evolved with the development and use of advanced Explosive Ordnance Disposal (EOD) robots and integration of communication and data technologies. These include two-way communication systems, data transmission technologies, remote monitoring and control systems, and data analysis technologies. Efficient coordination and exchange of information between personnel and equipment are essential for successful neutralization operations. Despite progress, challenges persist, necessitating ongoing research and development. Future directions include the development of more advanced robots and autonomous vehicles, innovation in sensors and detection technologies, and improvements in tactics and operational procedures. These advancements aim to ensure more effective and safer protection against IEDs, enhancing global security efforts.*

# **Analysis of the A2/AD Concept from the Perspective of NATO and the Russian Federation**

**Eduard-Andrei BARAITARU**

*"Henri Coandă" Air Force Academy, Braşov, România*

*The A2/AD (Access-Area Denial) concept, also known as anti-access/area denial, has become increasingly relevant in the current context of international security, particularly in the strained relationship between NATO and the Russian Federation. This concept involves strategies and military capabilities designed to prevent an adversary from gaining access to a specific area and exercising power therein. Therefore, it is crucial to conduct a careful analysis of how NATO and the Russian Federation approach this concept and how these approaches reflect the dynamics of their bilateral relations.*

## **Oerlikon GDF**

**Vasile Alexandru BIZAU, Iulian Stefan OPREA**

*"Henri Coandă" Air Force Academy, Braşov, Romania*

*The Oerlikon GDF, also known as the Oerlikon 35 mm twin cannon, is a towed anti-aircraft gun manufactured by Oerlikon Contraves. Initially designated as 2 ZLA/353 ML, it was later renamed GDF-001. Developed in the late 1950s, this system has gained widespread adoption and is utilized by approximately 30 countries worldwide. The twin cannon configuration enhances its anti-aircraft capabilities, making it a reliable defense mechanism against airborne threats.*

## **Self-Propelled Anti-Aircraft Complex "Gepard"**

**Gabriel-Emanuel BOB, Raul-Adrian MANOLE**

*"Henri Coandă" Air Force Academy, Braşov, Romania*

*The presentation focuses on the use and effectiveness of the Gepard anti-aircraft defense system, an advanced technology designed to counter airborne threats. Gepard is an integrated, efficient, and mobile system capable of providing protection in various combat scenarios. The presentation will explore the technical features of Gepard, including its advanced detection capabilities, precise target tracking, and interception capabilities. With a diverse range of sensors and advanced communication technologies, Gepard can operate efficiently in integrated networks, providing real-time information to the command and control system. The presentation will also highlight the mobility of Gepard, which grants versatility in tactical operations, allowing it to move rapidly across varied terrain. The Gepard system thus represents a comprehensive and efficient solution in the field of anti-aircraft defense, significantly contributing to the security and survival of military forces against modern airborne threats.*

## **FIM-92 Stinger, Man-Portable Air-Defense System**

**Ioan Constantin BULANCEA**

*“Henri Coandă” Air Force Academy, Braşov, Romania*

*The FIM-92 Stinger serves as a short-range American man-portable air-defense system (MANPADS) that functions as an infrared homing surface-to-air missile (SAM). It can be employed on a variety of ground vehicles and helicopters as the Air-to-Air Stinger (ATAS). Furthermore, it can be utilized for defense against all categories of helicopters, unmanned aerial vehicles (UAVs), cruise missiles, as well as low-level fixed and rotary-wing aircraft. The system boasts supersonic speed and agility and was introduced in 1978, following almost a decade of development and delays. It is presently utilized by multiple countries, including the United States, and 29 others. Raytheon Missiles & Defense is the primary manufacturer of the FIM-92, although it is also produced under license by Airbus Defence and Space in Germany and by Roketsan in Turkey. The FIM-92A was the initial stinger system, which replaced the redeye. The upgraded infrared homing guidance system of the FIM-92A was designed to detect countermeasures more effectively than the Redeye's system. There have been several upgrades to the FIM-92, including the FIM-92B in 1983, the FIM-92C in 1987, the FIM-92D, the FIM-92E in 1992, the FIM-92F in 2001, and the most recent version, the FIM-92G. Additionally, the stinger has been modified for ground-based air defense systems like the M1097 “Avenger” and airborne-based platforms like the AH-64 “Apache” helicopter.*

## **The Impact of the Patriot System in Romania's Anti-Aircraft Defense**

**Ionut CAZACU**

*“Henri Coandă” Air Force Academy, Braşov, Romania*

One of the most efficient air defense missile systems produced by the USA, Patriot is the new component that will help Romania fulfill its air defense missions . Developed according to the latest requirements, the system can be software upgraded over the years without the need for major hardware changes, which is a major benefit in its use over many years . At the moment, Patriot is the best performing anti-aircraft system in Romania and in the future it is intended to be the basic component, considering its effectiveness and technical-tactical characteristics .

## **S-2 The First Ballistic Missile**

**Leonard CIUPCA**

*“Henri Coandă” Air Force Academy, Braşov, Romania*

*The S-2 ballistic missile plays an important role in the aerospace industry, contributing to technological advances in ballistic missile and aircraft systems. The evaluation of its capabilities and performance and its integration into military doctrines is its relevance in the context of global security and international relations. Its adaptability and ability to modernise contribute to its continuing importance in technological developments in aerospace.*

*Equipped with advanced technologies and superior technical features, the S-2 is characterised by its precision, speed and long range. Compared to some older missiles, the S-2 uses “state-of-the-art” guidance and control systems, contributing to greater accuracy in delivering the package to their targets.*

*The S-2’s performance in evading missile defence systems is also remarkable, thanks to its advanced manoeuvrability and counter-measure technology. This missile quickly adapts to changes in the threat landscape and establishes itself as a powerful and effective presence in the modern national security environment.*

*The missile was introduced into military doctrines and military strategies around the world with some general aspects being considered. Some of those aspects are:*

- 1. Analysis of specific threats*
- 2. Adaptability to Defense strategies*
- 3. Consistency with National security policies*

*These being considered we can talk a lot more about the missile in the following points of this essay.*

## **Technologies and Techniques Employable for the Reduction in Severity and Frequency of Ejecting Pilots’ Trauma**

**Vlad CONTESI**

*Institute of Military Medicine, Bucharest, Romania*

*Since their inception as mechanical power augmenters exoskeletons have been implemented in different military applications with the aim of creating “the soldier of the future”. Their inability to adapt and complement the natural movements of the body, the low energy density of power storage devices which limits their activity in time, as well as their sheer cost has made these machines impossible to implement for largescale infantry operations. This paper aims to identify applications of exoskeletons as augments for parachuting military personnel in reducing the risks of injury to which such individuals are exposed as well as to change the paradigm around ejection seats as just a marginal element in the equipment of a fighter aircraft. Through our work we hope to make the design of future generations of planes, ejection seats and pilot costumes more proficient at preventing and reducing injury to the user in an emergency, changes that, in our opinion, are essential in a world of asymmetric warfare and of rising demands for technical skills that take time and money to master by the war fighter.*

## **PATRIOT - The Large-Scale Surface-to-Air Missile System**

**Damian-Gabriel DAVID, Iulia MUNTEANU**

*“Henri Coandă” Air Force Academy, Braşov, Romania*

*The PATRIOT surface-to-air missile system is one of the most advanced and efficient anti-aircraft defense systems in the world. Originally created by the United States, this system was designed to counter threats from enemy aviation, including fighter jets, tactical ballistic missiles, and even drones. The acronym of this system translates to: “Phased Array Tracking Radar Intercept on Target”. Moreover, it has been employed in a variety of*

conflicts and military operations worldwide, including in the Middle East, Europe, and Asia.

## SQL Injection

**Robert EVSEI , Andrei BĂTRÂNEANU , Alexandru BAICU**

*“Mircea cel Bătrân” Naval Academy, Constanța, România*

*SQL injection is a prevalent cyber attack vector where malicious SQL code is injected into input fields, exploiting vulnerabilities in a system's database layer. Successful SQL injection attacks can lead to unauthorized access, data manipulation, and compromise of entire systems. In the realm of cyber attacks, SQL injection is a significant threat, constantly evolving alongside technological advancements. Its insidious nature lies in its ability to bypass traditional security measures. Addressing SQL injection within the broader context of cybersecurity is crucial. Organizations must adopt a multi-faceted approach, including regular software updates, secure coding practices, web application firewalls, and thorough penetration testing. User education is equally vital, emphasizing cautious data input and recognition of potential phishing attempts.*

*In conclusion, SQL injection epitomizes the challenges posed by cyber threats. Defending against such risks necessitates a comprehensive strategy integrating technological solutions, secure coding practices, and user awareness. As part of the broader cybersecurity landscape, organizations must prioritize these measures to protect sensitive information and ensure the resilience of their systems in the face of persistent and evolving cyber threats.*

## Man-in-the-Middle

**Hakan FUCIGI-MEMEDALI, Alexandru-Marian BARBU,**

**Bogdan-Cristian HANU**

*“Mircea cel Bătrân” Naval Academy, Constanța, România*

*Cybersecurity is an essential aspect of protecting information systems and networks against cyber threats, including malware. Malware, in its various forms such as spyware, ransomware or viruses, is a major threat to cybersecurity, potentially compromising data and systems. In order to counter these threats, it is essential to implement appropriate security practices and technologies, such as network security and cloud security. Among the most dangerous types of cyberattacks are those of the "Man-in-the-Middle" type (MITM), which can lead to the theft of sensitive information and other serious consequences. To prevent and manage these attacks, a comprehensive approach is needed, including the use of secure connections, two-factor authentication, and educating users on security practices. The deployment of advanced security technologies, such as data encryption, is essential to increase resilience against these threats. Cybersecurity is therefore an evolving field and effective cyber threat management requires a proactive and adaptable approach to changes in the contemporary digital landscape.*

## **A-436 2×30 mm Calibre Anti-Aircraft Gun**

**Anastasios KILES, Cristofor Marian HANGANU**

*“Henri Coandă” Air Force Academy, Braşov, Romania*

The purpose of this paper is to gather information about the 2x30 mm Anti-aircraft gun. Specifically, we aim to learn about its use, characteristics, and capabilities. We hope to become familiar with this military technology through our research. We are specifically targeting the model A436 manufactured in 1980.

## **Multispectral, Hyperspectral Imaging and Their Military Applications**

**Victor-Luca ILIE**

*“Henri Coanda” Air Force Academy, Brasov, Romania*

*Airborne intelligence, surveillance, and reconnaissance (ISR) has become the priority of most of the countries in the 21st century. ISR information is essential and mandatory for preventing and addressing possible threats. This paper introduces the concept and principles of multispectral and hyperspectral imaging (MSI and HSI). Furthermore, it briefly outlines the promising defensive and offensive military applications of those technologies developed by The North Atlantic Treaty Organization (NATO), the Europe Defense Agency (EDA) and the US. Department of Defense (DoD). It describes how MSI and HSI can be utilized for target acquisition using different methods depending on the user’s needs referring to the tactical and operational requirements. Spectral imaging is a key method for enhancing our own ISR information. This article explores the possibility of a low-cost multispectral imaging system compared to what’s available on the consumer market.*

## **Spyder™ Family**

**Iustin ILISEI, Denisa MANOLE**

*“Henri Coanda” Air Force Academy, Brasov, Romania*

*The main focus of this article is to provide an overview of the Spyder Missile System, specifically a short-range air defense system developed by the Israeli company Rafael Advanced Defense Systems. Its intended function is to protect strategic installations, military bases, critical infrastructure, and military forces from aerial threats such as aircraft, helicopters, drones, and missiles.*

## **Embedded Tactical Training System of M-346 PI Aircraft**

**Kacper GACIA, Izabela KUSZEWSKA**

*Polish Air Force University, Dęblin, Poland*

*The aim of the article “Embedded Tactical Training System of M-346 PL aircraft” is to characterize the Polish M-346 pilot tactical training system. ETTS system enables flight crew to practice the use of combat assets, sensors, procedures and cooperation between the crews of individual aircraft while maintaining the best cost-effectiveness ratio. Due to*

*ETTS capabilities it is possible to train pilots and improve their skills in the following areas: situational awareness, use of integrated sensors and systems, tactical behavior (taking appropriate actions at the right time as a reaction to the environment) tactical cooperation with allied forces operating within the same scenario, weapon deployment and handling range weapons.*

## **Management of the Leadership Actions of the Anti-Aircraft Defense Subunit within the Land Forces for the Anti-Aircraft Defense of an Airport**

**Antonia MINUȚ**

*"Henri Coandă" Air Force Academy, Braşov, Romania*

*The best anti-aircraft defense structure within the Land Forces is the management of the leadership actions of the subunit, being essential for ensuring effective and efficient protection of airfields. Airports are critical infrastructures that need to be protected from potential threats, including enemy air attacks. Air defense units are responsible for detecting, intercepting, and destroying enemy airborne targets: planes, helicopters, drones. This article begins by covering the fundamental principles, parameters, and methodologies involved in understanding the analyses of anti-aircraft defense systems. Additionally, the MATLAB R2023a application is used to generate a graph where, using specific data about the target and the defense system used, airports can be defended, considering two possible real-world scenarios. Following the comparative analysis of scenario situations, conclusions are drawn regarding the most effective and secure method of targeting for airport defense.*

## **Study of the Autonomous Unmanned Aerial Vehicles Regarding the Romanian Naval Forces**

**Andreea-Gabriela NEAGU, Ramona PETREA**

*"Mircea cel Bătrân" Naval Academy, Constanța, România*

*In the modern day, Unmanned Aerial Vehicles (UAVs) are widely integrated into several aviation sectors, particularly in military applications. In the military domain, in particular, autonomous UAVs transform warfare by enhancing combat, target acquisition, and surveillance capabilities. The strategic objective of the Romanian Armed Forces to improve maritime security in the Black Sea and other regions is reflected in their desire to add to their fleet of unmanned aerial vehicles (UAVs), particularly with the purchase of the Watchkeeper X. With its cutting-edge sensors and precision-guided weapons, the Watchkeeper X can operate in a variety of circumstances since it has autonomous mission control and complies with NATO requirements.*

*A comparative analysis of prominent UAVs, including the Watchkeeper X, Elbit Hermes 450, Thales Watchkeeper WK450, and XV Long-Range VTOL Hybrid Drone, highlights the superior performance and versatility of the Watchkeeper X. Its attributes, including endurance, payload capacity, total weight, maximum range, maximum speed, length, and wingspan, position it as an optimal choice for maritime surveillance, reconnaissance, and operational missions. Thus, the acquisition of Watchkeeper X aligns with the strategic*

*objectives and operational needs of the Romanian Naval Forces, fostering enhanced situational awareness and mission success in maritime domains.*

## **The Evaluation of Artillery System Mobility in Various Environments and Terrain Conditions**

**Iuliana NEAȚU**

*“Henri Coandă” Air Force Academy, Brașov, Romania*

*This paper examines the mobility of an artillery system using case analysis and mathematical methods. Specifically, the Oerlikon anti-aircraft artillery system, which is deployed in different environments but follows the same itinerary to evaluate and maximize the most suitable option. The study focuses on evaluating the mobility of this system in various environments (deployed on land, on water, and in combined environments) and terrain conditions across three scenarios. Utilizing case analysis and mathematical methods, the paper provides a detailed perspective on the effectiveness and adaptability of these artillery systems in diverse operational scenarios.*

## **The Proliferation of MANPAD Systems in the Syrian Conflict**

**George PĂDUREȚ**

*“Henri Coandă” Air Force Academy, Brașov, Romania*

*The conflict in Syria has raised questions about the Man-Portable Air Defense systems, along with their use and proliferation. This article aims to evaluate the procurement and use of Man-Portable Air Defense systems by the non-state parties involved in the conflict.*

## **Air Defense in Ukraine: Strengthening Skies in the Face of Adversity**

**Maria-Francesca SOROHAN-ROTARIU**

*“Henri Coandă” Air Force Academy, Brasov, Romania*

*Since the outbreak of the conflict in Ukraine, a robust air defense system has proven critical in mitigating Russian aerial dominance. This article examines Ukraine's pre-war air defense capabilities and the challenges it faced. It analyzes how the country has adapted and improved its defenses through a combination of resourceful use of existing Soviet-era systems, tactical innovation, and the importance of military aid from Western allies. The article explores the impact of this strengthened air defense on the course of the war, including hindering Russian airstrikes, protecting civilian infrastructure, and boosting Ukrainian morale. It concludes by discussing the ongoing challenges of maintaining and further enhancing Ukraine's air defenses, along with the potential long-term implications for the conflict and regional security.*



## **The Cruise Missile Threat**

**Liviu-Florin STERE**

*“Henri Coandă” Air Force Academy, Braşov, Romania*

In the contemporary landscape of international security, cruise missiles have emerged as a multifaceted and formidable threat. This project delves into the complexities surrounding cruise missiles, spanning their historical evolution, diverse types, technological intricacies, and the imminent risks they pose to global stability. The study aims to provide a comprehensive analysis of the cruise missile threat, emphasizing the imperative for robust defense strategies and systems.

## **Simulating Helmholtz Coils: Discovering Magnetic Fields**

**Ana-Larisa STROIE**

*“Henri Coandă” Air Force Academy, Braşov, Romania*

*The importance of Helmholtz coils in coilgun research and magnetic field simulations is examined in this work, with a focus on their capacity to offset outside magnetic effects while preserving a steady field. The research explores several coil designs using Ansys Maxwell 14.0, highlighting their special qualities and benefits. The results highlight the critical role that Helmholtz coils play in both scientific research and technological development by offering a regulated environment that facilitates accurate magnetic tests and efficient coilgun acceleration.*

## **The Development of Romania's Anti-Aircraft Defense System in Response to Political Regime Changes**

**Cătălin-Ioan VARZĂ**

*“Henri Coandă” Air Force Academy, Braşov, România*

*This paper provides an overview of Romania's transition from the communist era to the post-communist era and examines the evolution of its air defense system. The study focuses on the acquisition and deployment of missiles and anti-aircraft artillery during the communist period, including systems such as S-75 Dvina, S-75 M3 Volhov, and S-125 Neva, as well as the introduction of Man-portable air-defence systems (MANPADS) like Strela-2 and Strela-3. It also discusses Romania's accession to NATO in 2004 and the subsequent modernization of its air defence capabilities, including the acquisition of the Ground-Based Air Defense System MIM-23 HAWK and the PATRIOT system. The paper concludes with a detailed comparison between the S-75 M3 Volhov and HAWK missile systems, covering their origins, performance, and configuration. Overall, the study highlights the importance of Romania's air defence system in ensuring national security and regional stability throughout the examined period.*

# Evaluation Model of the Maneuverability of Self-Propelled Air Defense Systems

**Robert Gabriel VÎLCU**

*“Henri Coandă” Air Force Academy, Brasov, Romania*

*Self-propelled anti-aircraft artillery systems are essential in modern military operations, defending ground forces and strategic assets against airborne threats with advanced technologies. They offer comprehensive protection and adaptability, enhancing overall security. For example, the PzH 2000, 2S6 Tunguska 2K22 and Gepard systems demonstrate superior capabilities globally. Maneuverability is crucial for these systems, affected by factors like design, propulsion, suspension, control, operator skills, and environment. Overcoming challenges, such as difficult terrain, requires proper maintenance, operator proficiency, and advanced technologies like terrain mapping. These measures ensure successful outcomes in adverse conditions.*

# 5. AERONAUTICAL HISTORY

## Conference ROOM K6

### Moderators:

Lect Jănel **TĂNASE**, PhD

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Student Georgiana-Simina **ARDELEANU**

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Student Miruna **MOCANU**

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## **Ștefan Sănătescu, Military Observer and Frontline Pilot in Air Operations on the Border of Southern Moldova and Eastern Transylvania**

**Mioara-Elena-Mădălina ANTON**

*"Henri Coandă" Air Force Academy, Brașov, Romania*

*This paper brings to the readers' attention information about the life and remarkable achievements of Major Aviator Ștefan Sănătescu, a hero of Romanian aviation during the First World War. From a young age, he pursued a military career and graduated from the Cavalry Officers School in 1912. Despite the fact that he was initially unable to enroll in the Aviation School due to vision problems, Sănătescu followed his destiny and became an aerial observer, actively participating in the F2 Squadron, part of the 1st Aeronautical Group Bacău. During his time in this squadron, he played a crucial role in reconnaissance and bombing missions, in air operations in southeastern Moldova, contributing to the fight for Romania's national independence. After being promoted to the rank of captain, he later attended the Pilot School in Odessa. He continued to serve his homeland, this time within the N.1 Squadron, having significant implications on the Bessarabian front in 1919, contributing to the recognition and bombing of enemy targets. This paper aims to provide a detailed and appreciative perspective on his life and contributions, focusing on his essential role in the history of Romanian aviation and military service.*

## Traian Udriski, Training Pilot of the Romanian Royal Wings

**Georgiana-Simina ARDELEANU**

*“Henri Coandă” Air Force Academy, Braşov, Romania*

*The present study is a research of a less known personality of Romanian aviation of the last years of Romania under the reign of King Mihai. Mainly, the research brings forward biographical aspects from the life of the pilot through whom the King discovers his passion for aviation.*

*In the years of the attempt to establish the communist regime in Romania, the royalty faced up to political and military countless attempts. In this way, in all this accumulation of difficulties an unparalleled passion is born, royalty's love for aviation. This field ranks in the life of the King for the first time as a calling, and later represents for him a source of livelihood born from the lacks related to his abdication.*

*Therefore, in this context, the research also presents the way of making connections and the relationship of pilot Traian Udriski with King Mihai. Traian Udriski, little known to the general public of the time, remains in the memory of the former monarch as “a wonderful flight instructor, a true master”. (Ciobanu, 2008 : 102)*

*The research records the study of the life of this training pilot and how his by chance presence in the King's life transforms through the power of his passion for flight into a relationship between the Romanian Royalty and aviation.*

## Winds of Change: The Evolution of Air Force Tactics, Strategies and Technology during the Vietnam War

**Petru-Radu BĂNULESCU**

*“Henri Coandă” Air Force Academy, Braşov, Romania*

*A paradigmatic transformation in tactics, techniques, and technology resulted from a seismic shift in air force dynamics that occurred in the crucible of the Vietnam War (1955–1975). With great care, “Winds of Change: The Evolution of Air Force Tactics, Strategies, and Technology during the Vietnam War” delves into this revolutionary period and reveals the tremendous effects of war on aerial combat.*

*This article traces the development of air force tactics across time, beginning with the early 1960s and the dominance of conventional dogfights. Operation Rolling Thunder (1965–1968) was a critical turning point in the tactical environment as persistent bombing campaigns forced a reevaluation of tactics. As a result, tactics became more subtle and asymmetric, reflecting the difficulties presented by the hostile terrain and elusive opponent, as demonstrated by operations such as Operation Bolo (1967), in which air forces were able to defeat North Vietnamese MiG aircraft by using deceitful tactics. During this time, technological advancements also flourished simultaneously. Design and avionics advances were demonstrated with the advent of aircraft such as the F-4 Phantom II and the A-7 Corsair II. Systems for electronic warfare, most famously the Wild Weasel missions (1965–1973), demonstrated how technology could be integrated to overcome enemy air defenses.*

*The use of precision-guided weapons as the war went on, most demonstrated by the accomplishments of Operation Linebacker (1972), highlighted the development of air*

*force capabilities. This article skillfully traverses the historical terrain to offer a comprehensive picture of how the Vietnam War turned into a testing ground for tactical and technological innovations, permanently altering air force doctrine in the process. "Winds of Change" allows readers to navigate through the histories of war, exposing the entwined tales of dates, incidents, and their lasting effects on the trajectory of modern air power.*

## **The Evolution of Aeronautical Technology and its Impact on Communication in the XX and XXI Century**

**Raluca-Daniela BRETAN**

*"Henry Coandă" Air Force Academy, Braşov, România*

*The evolution of aeronautical technology in the 20th and 21st centuries has revolutionized global communication. In the 20th century, advancements such as the development of airplanes enabled faster transportation, facilitating face-to-face communication and cultural exchange. Commercial air travel in the mid-20th century, fueled by jet engines and larger aircraft, established global airline networks and expanded international connectivity. The introduction of satellite technology further enhanced communication by enabling the transmission of data and signals across continents, laying the foundation for global telecommunications networks. The 21st century witnessed the rise of digital communication technologies, including the internet and mobile phones, transforming how people interact and access information. Aeronautical advancements continued with the introduction of more fuel-efficient aircraft and improvements in air traffic management systems, leading to increased connectivity and reduced travel times. Additionally, the emergence of unmanned aerial vehicles (UAVs) and drones expanded the applications of aeronautical technology, including surveillance, delivery services, and disaster response. Looking ahead, the future of aviation communication holds immense promise. Continued advancements in technology, including artificial intelligence, blockchain, and quantum computing, are poised to further transform aviation communication, making air travel safer, more efficient, and more sustainable than ever before. However, with these advancements come new challenges, such as cybersecurity threats and spectrum management issues, which will require ongoing innovation and collaboration to address. Overall, the evolution of aeronautical technology and its impact on communication have reshaped the aviation landscape, paving the way for a future where the sky is truly the limit.*

## **White Squadron. The Battle of Aviation Heroines**

**Denisa-Loredana CIOABĂ**

*"Henri Coandă" Air Force Academy, Braşov, Romania*

*This work brings to the attention of the reader the uniqueness of Romania in the Second World War. The White Squadron, originally called the Sanitary Squadron, was founded by Princess Marina Stirbei, a member of the Central Committee of the Red Cross in Romania. The starting point of the female aviation had the mission to evacuate the wounded from the front. We are going to find out who came up with the name of the white squadron*

*and for what reason, along the way, they come to be called the 108th Light Transport Squadron. We will also find out about the great female personalities in the field of aviation and their role in conducting military campaigns. With the advent of the communist regime in 1947, aviation heroines are fighting an even harder battle, their destiny being imprisonment and deportation, or in the happiest case, elimination from aviation, marginalization. Even though their names were famous during the Second World War, they went into anonymity in the first postwar decades. At the end of the regime, in 1989, aviators are brought back to public attention.*

## **53<sup>rd</sup> Fighter Squadron in its Glory Year: 1941**

**David-Cătălin CREȚAN**

*“Henri Coandă” Air Force Academy, Braşov, Romania*

*In the turmoil of a war that shook all of Europe in 1941, a bright light of courage, devotion, and sacrifice shone in the turbulent skies of Dobrogea and Basarabia. In the midst of tumult and uncertainty, Squadron 53 became a symbol of heroism and determination, writing with their planes the fascinating history of the fight to defend the homeland.*

*Through this presentation, we will travel together through time, we will embark on the wings of their planes, and we will delve into the heroic heart of Squadron 53 in 1941. We will discover their fascinating story, explore their daring missions, and admire their boundless courage in the face of dangers and challenges.*

*The actions of Squadron 53 in 1941 were remarkable and impressive, illustrating the courage, devotion, and sacrifice of Romanian pilots during the fight to defend Dobrogea and other important regions. From the first days of the year to the last, these heroes defied the dangers of the sky, faced adversities, and fought the enemy to defend their country, totaling 52 victories and only one loss.*

*Today, their memory continues to inspire and move us, reminding us of the price of freedom and the sacrifice of those who fought for it. Squadron 53 remains a symbol of human courage and determination, a living reminder of the spirit of sacrifice and solidarity in the face of challenges.*

## **The Aeronautical Phenomenon at its Beginnings on a National, European and Global Level**

**Damian Gabriel GÎDIUȚĂ**

*“Henri Coandă” Air Force Academy, Braşov, Romania*

*This paper investigates the evolution of the aeronautic phenomenon in its early stages, examining it at national, European, and global levels. The paper discusses the fascinating beginnings of human aviation and its subsequent development in various regions of the world. By exploring the contributions and innovations brought by aviation pioneers from different cultures and historical periods, their significant impact on technological and social progress is highlighted. From mankind's earliest attempts to take flight to the development of the modern aerospace industry, the paper provides a comprehensive perspective on the evolution of aviation and its profound influence on society. By*

*analyzing the interaction between aviation and the historical, cultural, and economic context of different regions, a complex picture emerges of how flight has shaped the world we live in today.*

## **The Actions of the Romanian Air Force in the Battle on the Territory of Czechoslovakia (December 21, 1944 - May 12, 1945)**

**Robert Gabriel GRIGORE**

*“Henri Coandă” Air Force Academy, Braşov, Romania*

*My presentation consists of explaining the actions of the Romanian Air Corps that took place in Czechoslovakia starting from December 21, 1944, and ending on May 12, 1945. We can distinguish three main stages in this historic event. The first stage begins on December 21, 1944, and ends on March 25, 1945, consisting of the expulsion of the enemy from the region of the Hungarian-Czechoslovak border by Romanian and Soviet troops. Through the use of tactical operations, they managed to defeat the enemies. The second stage takes place from March 25 until the end of April, where Romanian troops exerted significant pressure on Axis members near the banks of the Morava River. The third stage unfolded between the end of April and May 12 and included actions carried out by Romanian troops west of the Morava River as part of Operation Prague, aimed at eliminating the last fascist group, located southwest of the capital of Czechoslovakia.*

## **Nicolae Capşa, Commander of the 3<sup>rd</sup> Aeronautic Group in the Military Aeronautics Campaign of 1917**

**Simina-Ioana ILIE**

*“Henri Coandă” Air Force Academy, Braşov, Romania*

*World War I represented for humanity the largest and most destructive armed conflict, a conflict in which military aviation played an important role.*

*In this context, Nicolae Capşa became an emblematic figure of Romanian military aviation, having a significant contribution to the development and efficient utilization of air forces in the 1917 campaign.*

*The present study is a research of a historical events featuring Captain Aviator Nicolae Capşa, commander of the 3rd Aeronautic Group.*

*Analyzing in greater depth, this article explores the life and career of Nicolae Capşa, starting from obtaining his license at the Prince George Valentin Bibescu Pilot School and ending with the Romanian pilot's final mission.*

*The purpose of this documentation is to inform us about Nicolae Capşa's contribution to the progress of Romanian aviation through training a significant number of pilots as a pilot instructor, supporting the modernization of the national aviation equipment with new aircraft, and through his heroic missions.*

*The story of his life remains a source of inspiration and motivation for us to dedicate ourselves to our passions and to constantly exceed our limits, thus creating a brighter future for Romanian aviation.*

## **The Aerial Power in Post-World War Conflicts: The Arab-Israeli Wars**

**Marius-Andrei MATEȘAN**

*"Henri Coandă" Air Force Academy, Brașov, Romania*

*The Arab-Israeli wars have represented a crucial battleground for air power in the post-World War era. These conflicts, occurring between Arab states and Israel, have demonstrated the strategic importance of air superiority and aerial capabilities in modern warfare. This research paper analyzes the evolution and impact of air power in the Arab-Israeli wars, highlighting the decisive role of military aviation in shaping the outcomes of these conflicts. It examines the tactics, technologies, and strategies employed by both sides in the struggle for air supremacy, emphasizing the innovations and adaptations that have occurred over time. Additionally, it explores the long-term consequences of decisions and actions in the aerial domain on the overall outcomes of the wars and on the balance of power in the region. Through a detailed analysis of the interaction between air power and the geopolitical dynamics of the Arab-Israeli conflicts, this paper contributes to a deeper understanding of the impact of military aviation on the outcomes of modern conflicts and its influence in determining the balance of power globally.*

## **The Poetry of Flight, Emilia Ilie**

**Paula MĂZGĂREAN**

*"Henri Coandă" Air Force Academy, Brașov, Romania*

*In 1935, during the interwar period, a fifteen-year-old girl from Transylvania landed in the heart of Bucharest, following a forced marriage to a pilot from the Royal Squadron. Vicissitudes and turmoil hastened her spiritual development, and thus, at just sixteen, Emilia Ilie, upon graduating from the „Mircea Cantacuzino” Pilot School in Băneasa, became the youngest female pilot in the world, setting an absolute world record. She was part of the golden generation of Romanian Aviation. Writer and pilot Ionel Fernic stated that Smaranda Brăescu, Irina Burnaia, and Emilia Ilie are „the three graces of Romanian Aviation”.*

*I chose to speak and bring to the attention of my colleagues the story of the ambitious young Emilia Ilie because it was a source of inspiration for young people who aspired to engage in the „Romanian Wings”. Among them was the renowned pilot Traian Dârjan, who, in her early years of flying, sought her out in Bucharest, asking for her help in becoming a pilot.*

*She lived her life intensely, within a world in which the celestial meaning of the words homeland and patriotism was carried with honor only by pilots.*

## **History of the World's Highest Jump**

**David-Alexandru MIHĂILĂ, Denisa STANCIUC, Andrei AROMĂNEȘI**

*"Nicolae Bălcescu" Land Forces Academy, Sibiu, Romania*

*Basophobia, also known as the fear of falling, is an inherent phobia shared by both humans and most animals. This fear is deeply embedded in our essence, woven into the*



*very fabric of our existence. However, the question arises: What about those individuals who defy millions of years of evolution? This paper endeavors to explore the journey of how humans became capable of space exploration. It delves into the challenges and triumphs of one of the greatest achievements ever made, the history of the world's highest jump, and the early days of the space race, which was well underway before space became a tangible frontier. Notable accomplishments, such as "Excelsior III" and "Project Manhigh," are examined, shedding light on the pioneers who pushed the boundaries of human achievement.*

## **Operation Urgent Fury**

**George-Marian MIHALCEA**

*"Henri Coandă" Air Force Academy, Braşov, Romania*

*This paper delves into the multifaceted dynamics surrounding the U.S.-led invasion of Grenada in 1983, triggered by the assassination of Prime Minister Maurice Bishop and a subsequent violent coup. It outlines the geopolitical backdrop, emphasizing Bishop's communist affiliations with the Soviet Union and Cuba, which fueled tensions with the United States. The strategic importance of Grenada, with its proximity to American shores and burgeoning Cuban influence, compounded by the construction of a modern airport and the presence of American citizens on the island heightened U.S. concerns. The paper elucidates the meticulous planning and organizational structure of Operation Urgent Fury, orchestrated by Joint Task Force (JTF) 120 under Vice Admiral Joseph Metcalf. It chronicles the transition from evacuation contingency to full-scale intervention, catalyzed by Barbados' Prime Minister's plea for military action to restore order in Grenada. However, the operation encountered significant hurdles, including a dearth of real-time intelligence, communication breakdowns, and logistical challenges. Despite meticulous planning, the execution of the invasion faced formidable obstacles. Airborne assaults encountered unexpected resistance, underscoring the "fog and friction of war." Nevertheless, the operation achieved critical objectives, securing key sites and evacuating American citizens. The aftermath prompted introspection, highlighting the necessity of integrated staff teams and yielding invaluable lessons for future joint contingency operations. The study concludes by underscoring the pivotal role of the U.S. Air Force in facilitating successful evacuations and advocating for advancements in equipment and strategic planning, as evidenced by the development of the C-17 transporter. Ultimately, Operation Urgent Fury demonstrated the indispensable role of joint military operations in navigating complex geopolitical landscapes.*

## **The Queen of the Air, Smaranda Brăescu**

**Miruna-Camelia MOCANU**

*"Henri Coandă" Air Force Academy, Braşov, Romania*

*May 21, 1897 is the date of birth of Smaranda Brăescu, the date on which a new page is written in the grandiose book of the history of national and world aeronautics. The Queen of the Air becomes an emblematic figure for Romanian parachuting and beyond, being the first woman from Romania to hold an international parachutist's license and the fourth woman in the world. Smaranda also acquired the international pilot's license. Her*

*life brings to light the courage, determination, belief in her own dreams and the grace she has always had. The Queen of the Air or "Air Defier", as she was called by the press of the time, is, par excellence, the image of the woman fighter, the fearless jumper and the skilled pilot who did not limit herself to proving her potential, but showed the world that she is "broken from the sky". Smaranda Brăescu broke record after record, being at the time the holder of the national record for parachute jumping, both for women and men, as well as the holder of the women's world record. The queen of the air penetrated the mysteries of aviation with great ardor, leaving a unique legacy in the sky and on earth.*

## **The Role and Evolution of the IAR-99 Combat Training Aircraft in the Romanian Air Force**

**Daiana-Christine-Ionela PERT**

*"Henri Coandă" Air Force Academy, Braşov, Romania*

*The following study delves into the significance and evolution of the IAR-99 combat training aircraft within the context of military aviation. The IAR-99 represents a pivotal asset in the training and preparation of fighter pilots, offering a balance of performance, versatility, and cost-effectiveness. The aircraft is entirely produced in Romania but foreign companies with more advanced technologies also helped in the process. Through a comprehensive analysis of its design, capabilities, and operational history it is emphasized the critical role played by the IAR-99 in shaping the training protocols and military preparedness. Furthermore, it examines the technological advancements and adaptations that have enhanced its efficacy over time, elucidating its continued relevance in contemporary training programs. By tracing the developmental trajectory of the IAR-99, this study not only highlights its contributions to pilot education but also underscores its broader implications for defence strategies and the progress of the Romanian Air Force. The objective of this research is to bring to our attention the importance of a high-performance aircraft in the service of the air force and also, to highlight the idea that the Romanian aeronautical and technological industry has reached great heights, if not the greatest, by building the IAR-99.*

## **A Short Analysis of NATO's Resolute Support Mission in Afghanistan in 2015**

**Gabriel POP**

*"Henri Coandă" Air Force Academy, Braşov, Romania*

*Following the conflicts in the Middle East, seeing the results that NATO had with its previous mission, The International Security Assistance Force, the North Atlantic Alliance decided to launch a new mission called Resolute Support, a non-combat mission aimed at training, advising and assisting the Afghan National Defense and Security Forces (ANDSF). So, this paper follows the analysis of the starting point of the mission, the results that the previous mission had, The International Security Assistance Force, the objectives that NATO pursued by launching the Resolute Support mission, how it was carried out, the forces deployed in the region, and not least, the outcomes brought by this multinational mission within the North Atlantic Alliance in the Middle East.*

## **A Glorious Flight: Captain Aviator Mircea T. Bădulescu, the Hero of the Budapest**

**Oana-Maria PUȘCAȘ**

*"Henri Coandă" Air Force Academy, Brașov, Romania*

*Over the years, Romania has become internationally known for its achievements in the aeronautical field: from creating the first prototype of a flying machine to gifting the world a large series of flying aces. Captain Aviator Mircea T. Bădulescu, an outstanding historical figure, is one of the elite Romanian pilots of World War II. The study is focused on his journey, from a young enthusiast to Commander of Dive Bombarding Air Squadron. During his service, between 1942-1945, he accumulated 175 war missions on the Eastern front and 105 war missions on the Western front and was decorated with the „Mihai Viteazul” Military order with swords and the „Aeronautics Vitruve” Order in the ranks of Golden Cross, Knight, Officer and Commander. Due to the „beautiful military skills, exquisite moral qualities”, Mircea T. Bădulescu will always be a remarkable name in the world of flying aces.*

## **Heroism and Sacrifice: The Romanian Air Corps in the Operation for the Liberation of Transylvania**

**Sabin COJOCARU**

*"Henri Coandă" Air Force Academy, Brașov, Romania*

*The historical past of Romania is marked by bloody events and sacrifice. The pages of historical archives reveal, through words written in blood, impressive pages of battle and heroism of the bearers of the air weapon. In the period between September and October 1944, the Romanian Air Corps fought and defeated the fascist German-Hungarian forces, liberating Transylvania, the ancient Romanian land tragically torn from the country's body in the fateful year of 1940, through the Vienna Dictate. This article aims, with the unique arguments provided by military archives, to explore the aerial battles of the Romanian Air Corps in its first operation on the Western Front, after the Romanian Army joined the coalition of the United Nations, with the ideal deeply felt in the heart of every airborne fighter for the recovery of the Romanian territories lost in the tragic events of the early stages of the Second World War II.*

## **Commodore Aviator Engineer Nicolau D. Constantin, Memoirs from the Sky Battle of Mărășești**

**Teodora-Maria STĂNICĂ**

*"Henri Coandă" Air Force Academy, Brașov, Romania*

*This study analyzes the importance of air observers through the memoirs of a young airman who participated in the Battle of Mărășești during World War I. Military aviation was a controversial topic during that time, and the memoirs of the anonymous aerial observer Constantin Nicolau provide insights into the missions carried out by the Romanian Air Force on the battlefield.*

*Constantin Nicolau's fascination with aviation led him to join the F7 Squadron, later F5 (Farman), 2nd Aviation Group in Tecuci. During his service, he had the privilege of working with notable figures and carried out missions at Nămolosa, the most significant one being at Mărășești. After the war era ended, he went to Paris to study aeronautical engineering.*

*This study aims to explore the meaning of acts of bravery and pay tribute to the air observers who were heroes in the war of national unification, based on the life journey of one of the airmen who felt the thrill of war and the unwavering fervor of devotion to the motherland.*

## **First Ascension: The Wright Brothers and Epocal Flight in the Era of Motorized Aviation**

**Diana TAIWAN**

*"Henri Coandă" Air Force Academy, Brașov, Romania*

*In the vast annals of aviation history, the tale of the Wright brothers stands as an extraordinary testament to human ingenuity and perseverance*

*Born in the heart of America's heartland, Orville and Wilbur Wright shared an insatiable curiosity for flight from a young age. Armed with little more than determination and an unyielding belief in their vision, the brothers embarked on a relentless pursuit to conquer the skies.*

*Through meticulous experimentation and countless setbacks, they gradually unlocked the secrets of controlled, powered flight. On a fateful December day in 1903, their dreams soared to reality as they piloted the world's first powered aircraft, the Flyer, over the sandy dunes of Kitty Hawk, North Carolina. In a matter of seconds, they forever changed the course of history.*

*Their groundbreaking achievement sparked a revolution, igniting the imaginations of dreamers and innovators across the globe. The Wright brothers' pioneering spirit paved the way for the modern aviation industry, transforming the world into a more interconnected and accessible place.*

*But their story is not merely one of technological triumph. It is a testament to the boundless potential of human endeavor, proving that with perseverance, passion, and an unwavering commitment to a dream, anything is possible. Today, as we look to the skies filled with wonder and awe, we owe a debt of gratitude to Orville and Wilbur Wright, whose indomitable spirit continues to inspire generations to reach for the stars*

**Notes:**