"Henri Coandă"
Air Force Academy
Brasov,
Romania

BOOK OF ABSTRACTS

Students' International Conference
AFASTUD 2025 (26th Edition)

Communicating across Cultures

May 21-23, 2025
Braşov, Romania

Coanda Scientific Events

Conference Agenda

WEDNESDAY, May 21, 2025

15.00 hrs – 22.00 hrs	Arrival of delegations/ "Henri Coanda" Air Force Academy
19.00 hrs– 20.00 hrs	Dinner *(*Students' Dining Facility*)*

THURSDAY, May 22, 2025

07.30 hrs – 08.30 hrs	Breakfast *(*Students' Dining Facility*)*					
08.30 hrs – 09.00 hrs	Welcoming and registration *(Academy Auditorium)*					
09.00 hrs – 09.45 hrs	**Official Opening of the International Conference "Communicating across Cultures" AFASTUD'25** *(Academy Auditorium)*					
09.45 hrs – 10.00 hrs	**Photo Session** *(In front of Bdg A1)*					
10.00 hrs – 13.00 hrs	**Panels (I)**	**Weapons & Defense Technology** ***E - 10***	**Engineering** ***E – 73***	**Humanities & Social Sciences** ***E – 77***	**Military Sciences** ***F.E – 2.11***	**Military History** ***F.E – 3.11***
13.00 hrs – 14.00 hrs	Lunch (Students' Dining Facility*)*					
14.00 hrs – 16.00 hrs	**Panels (II)**	**Weapons & Defense Technology** ***E - 10***	**Engineering** ***E – 73***	**Humanities & Social Sciences** ***E – 77***	**Military Sciences** ***F.E – 2.11***	**Military History** ***F.E – 3.11***
16.30 hrs – 17.00 hrs	**Closing of the International Conference "Communicating across Cultures" AFASTUD'25/ "Henri Coanda" Air Force Academy's** *(Academy Auditorium***)**					
19.00 hrs – 22.00 hrs	Students' Official Dinner *(*Students' Dining Facility*)*					

FRIDAY, May 23, 2025

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

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Cdor (r.) Lect Jănel **TĂNASE**, Phd
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Conference Panels

1. Military Sciences

Conference ROOM F.E 2.11

Moderators:

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Student Diana **LAZĂR**
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Live vs. Simulated Training: Finding the Right Balance for Fighter Pilots

Denis-Liviu ALEXE, Dragoș-Costin ROTARU,
Albert Ionut Stefan PĂUNESCU
"Henri Coandă" Air Force Academy, Brașov, Romania

Such is the conundrum for fighter pilots who are yet to get flight time, though — an active debate rages about the merits of live and simulated training, and this article looks at the landscape of the dispute. As technology continues to play an escalating role in the world, simulators can provide safe, cost-efficient, and tightly controlled training scenarios. But nothing can replicate the realities of flying, with challenges that stretch and hone a pilot's basic instincts, adaptability and decision-making under pressure. This paper seeks to contrast the two methods, with a description of both of these methods' strengths and weaknesses and a proposed syncretic method for producing competent and confident aviators. Human ingenuity, brainpower, and unpredictable situations will continue to define the fighter pilot of the future.

The Evolution and Implication of Communication in the Digital Society: from Manipulation to Transparency

Ion BĂRBUȚ
"Alexandru Ioan Cuza" Police Academy, Bucharest, Romania

During the past decades, communication has changed considerably with the expansion of digital technologies and the internet. Modern society has shifted from a traditional model grounded in centralized mass media institutions to a decentralized informational world in

which every individual can produce and share content. This evolution impacts how information is perceived, used, and affected. Two underlying forces - manipulation and transparency — are locked in tension, defining both advantages and risks of communication in the digital age. The spread of misinformation, facilitated by social media and technologies like AI and deepfakes, threatens public opinion, while openness, fact-checking, and ethical reporting aim to preserve trust in information. Media literacy is vital in this context, as is the cooperation between governments, industries, and civil society to develop effective policy strategies. A multidimensional approach - technological, educational, legislative - can secure a fairer and safer digital environment for the future.

Beyond the Checklist: Flight Safety, Non-Technical Skills, and the Cadet Pilot Journey

Cristian-Ioan CĂRĂBINEANU, Vlad Ștefan ALEXANDRU, Gabriel BALAN
"Henri Coandă" Air Force Academy, Brașov, Romania

This paper explores the development of flight cadets into professional aviators through the lens of safety, instructional design, human factors, and psychological preparedness. Referencing aviation safety and educational theory models, the discourse describes how cadets move from learner to practitioner via dedicated training and the re-orientation of core beliefs. The Swiss Cheese Model, the five hazardous attitudes as identified by the FAA and non-technical skills (NTS) are key to understanding this development. Specific attention is paid to the incorporation of critical thinking, situational, and systems awareness in aviation culture. While developing a reflective practice, unpacking mental models, and developing resilience, cadets will increase their personal competence and safety as a team. Focusing on systems thinking and culture of discipline and the psychological aspects of flying, we stress the direct and indirect relationship between proactive safety attitudes and self-awareness in extreme dangerous operational conditions.

Unmanned Ground Vehicles in Maritime Operations: Present and Future Exploitation

Maria-Teodora CUREA
"Mircea cel Bătrân" Naval Academy, Constanta, Romania

The enduring presence of unexploded ordnance (UXO) and the increasingly unpredictable behavior of unmanned aerial vehicles (UAVs) in regions adjacent to conflict zones present significant challenges to national security and civilian safety. Recent incidents near Romania's borders—such as drifting naval mines and unauthorized UAV incursions—have highlighted the limitations of traditional threat mitigation strategies and underscored the urgent need for technologically advanced, adaptive solutions. Naval mines, originally deployed for defensive purposes, have become destabilized due to environmental or operational factors, drifting into Romanian territorial waters and posing threats to maritime navigation and coastal populations. Simultaneously, the unintended intrusion of UAVs into national airspace introduces new operational risks, particularly when such systems malfunction or crash, potentially causing harm to people and infrastructure on

the ground. These complex and evolving threat dynamics necessitate the development and integration of intelligent, unmanned systems capable of operating in hazardous environments with minimal risk to human life. This project explores the deployment of Unmanned Ground Vehicles (UGVs), specifically focusing on their application in Explosive Ordnance Disposal (EOD) operations. Through remote detection, identification, and neutralization of UXOs, EOD-capable UGVs represent a scalable and efficient engineering solution that enhances operational effectiveness and significantly reduces the exposure of military personnel to high-risk scenarios.

Success: A Lucky Star the Evolution of Success: Between Traditional Values and Contemporary Aspirations

Onur DERVIŞ
"Mircea cel Bătrân" Naval Academy, Constanta, Romania

Success seems to be like a lucky star shining in the sky: everybody can see it, but not everybody can touch it. This paper explores the evolution of the concept of success by comparing the values and means by which success was defined and achieved in the past with those prevalent in contemporary society. While traditional success was associated with social status, inheritance, or class affiliation, modern success is centered on individual achievements, competencies, adaptability, and social impact. The study aims to examine not only the transformation of success criteria but also the new challenges and opportunities that modern society presents. Through a comparative analysis, the paper highlights how social, technological, and cultural changes have redefined this fundamental notion. The conclusion suggests that, while success may be more accessible today, it is simultaneously more complex and individualized than ever before.

The Use of Doppler Effect in Naval Operations

Alexandru DIACU, Cristian-Robert ANGHEL
"Mircea cel Bătrân" Naval Academy, Constanta, Romania

Sound waves from a sonar instrument bounce off a moving object, such a school of fish or a submarine. The reflected waves return with a higher frequency (positive Doppler shift) if the object approaches the sonar source. The frequency drops (negative Doppler shift) if the target travels away. Sonar devices can ascertain the direction and speed of an item by examining this frequency change. This idea is essential to marine biological research, underwater monitoring, and naval navigation. Researchers use it to track marine life and examine ocean currents, while navigators use it to identify enemy submarines. Doppler-based sonar also enhances search and rescue efforts and underwater vehicle guiding. It is a vital instrument for accurately exploring and monitoring the underwater world since it can provide real-time velocity data.

Information Manipulation in the Hybrid Space: Between Public Perception and Strategic Advantage

George-Cristian ENE
"Alexandru Ioan Cuza" Police Academy, Bucharest, Romania

In the current context of hybrid conflicts, informational manipulation has emerged as a

subtle yet highly effective weapon. This paper explores how state and non-state actors exploit the informational space to shape public perceptions, create confusion, and gain strategic advantages without resorting to direct military force.
The study investigates the ways in which such informational influences impact social cohesion, trust in institutions, and decision-making processes at the strategic level. Drawing on relevant examples from recent conflicts, the paper highlights the need for a multidimensional defence approach, in which informational resilience becomes a key component of national security.
In an increasingly complex and unstable security environment, the ability to identify, understand, and counter informational manipulation is no longer optional, it is a critical necessity for the stability and survival of modern states.

National Security at Crossroads: Navigating Military Ethics and Human Rights in Modern Warfare

I.A.F.
''Mihai Viteazul" National Intelligence Academy, Bucharest, Romania

The evolving landscape of contemporary warfare generates complex challenges. From technological advancements, This paper delves into how the modern forms of conflict-including hybrid warfare, terrorism and the use of private military contractors challenge traditional ethical and legal frameworks. By examining the Just War Theory and other ethical principles fundamental in the military and security field, the study underscores the tension between safeguarding national security and upholding individual rights. Through a multidisciplinary approach, the paper highlights ethical dilemmas, current legal gaps and policy setbacks, while proposing balanced strategies that lie at the heart of the democratic values. Therefore, this paper focuses itself on explaining the weapon zing of fear in cases of terrorism to be used as hybrid threats alongside explaining the use of other options by National Armies, such as Private Military Companies, firms that have offered great backlash due to not respecting international conventions during warfare and the never-ending dilemma of the respect for human rights during wartime. Lastly, the study underpins that the blurred lines of hybrid war impose robust oversight mechanism, as well as multilateral endeavours-both at a macro-level, between international organizations, but also at a micro-level, including the state authorities and the civil society.

Military Intelligence as a Strategic Vector in National Defense Lessons from the Post-1989 Transformation of the GDDI

Andrei-Marian HANȚIG
"Alexandru Ioan Cuza" Police Academy, Bucharest, Romania

This article takes into account the strategic role of the General Directorate for Defense Intelligence (GDDI) in Romania's national security system, and more particularly its modernization after 1990. It examines how GDDI evolved from a Cold War institution to a professional military intelligence body, becoming increasingly aligned with the Euro-Atlantic security space. A pivotal aspect of the analysis is the legal system that regulates GDDI activity, as well as the norms of democratic control and institutional responsibility. The article also briefly discusses the significant reforms that enabled the agency to evolve

in accordance with the current multifaceted threat landscape—be it hybrid war or regional instability. The paper argues that GGDI plays an infinitely broader function: offering strategic direction, helping defense planning and helping ensure national resilience. In this scenario, military intelligence is not simply beneficial, it is essential to military effectiveness and national security. In conclusion, the article makes a case for Romania needing to possess a specialized, ever-changing military intelligence system like GDDI —not only for its defense policy, but also for its position and standing in NATO and the European Union.

Maritime Security in the Mediterranean Sea: Challenges, Actors and Future Perspectives

Cristian-Gabriel HRĂNICERU
"Mircea cel Bătrân" Naval Academy, Constanta, Romania

The Mediterranean region has been a strategic hub for trade, cultural interactions, and politics throughout history, yet maritime security in this area has often been overlooked in literature. This paper analyzes the current challenges of maritime security in the Mediterranean, including irregular migration, human trafficking, organized crime, and regional conflicts, especially in the context of political instability in Libya and Syria. Special attention is given to institutional interventions, such as EU operations (EUNAVFOR MED Sophia and Irini), and the influence of global actors like China, Russia, and Turkey on the region is discussed. The impact of climate change on maritime security is also examined, with a focus on environmental protection and the long-term sustainability of the region. In conclusion, the paper emphasizes the need for an integrated approach that combines military, economic, political, and ecological dimensions to ensure sustainable security in the Mediterranean.

Joint Operations of Fifth-Generation Aircraft

Alexandru IAMANDEI
"Henri Coandă" Air Force Academy, Brașov, Romania

Fifth-generation aircraft have transformed modern warfare through advanced stealth, sensor fusion, and network-centric warfare capabilities. These aircraft operate in joint environments, integrating seamlessly with land, naval, and cyber forces to enhance multi-domain operations (MDO). This paper explores the core principles of joint operations involving fifth-generation aircraft, their technological advantages, and their Interoperability with legacy platforms. The introduction of aircraft such as the F-35 Lightning II and F-22 Raptor has fundamentally altered military aviation, emphasizing data-sharing, electronic warfare, and precision strikes. A crucial advantage of these platforms is their ability to act as force multipliers for fourth-generation aircraft by extending sensor coverage and improving operational effectiveness. However, challenges such as high procurement and maintenance costs, as well as vulnerability to emerging anti-access/area-denial (A2/AD) systems, remain key concerns. This study provides an in-depth analysis of the strategic significance of fifth-generation aircraft, addressing both opportunities and obstacles in modern aerial warfare. It also examines future trends, including the integration of artificial intelligence, unmanned aerial systems, and the development of sixth-generation air combat technologies. By evaluating current

deployments and emerging threats, this paper highlights the evolution of air combat strategies and the future of joint air operations.

Upgrading Fuel Tank Monitoring on Military Ships

Marcus-Ștefan JIPA
"Mircea cel Bătrân" Naval Academy, Constanta, Romania

The modernization of fuel tank monitoring systems aboard military vessels is an essential aspect of improving operational efficiency and ensuring optimal fuel management. This research investigates the integration of advanced sensor technologies and real-time data transmission systems, aimed at enhancing the accuracy, reliability, and efficiency of fuel monitoring processes. By utilizing ultrasonic sensors for fuel level measurement and temperature monitoring, the proposed system provides precise data for fuel consumption optimization, reducing operational risks and enhancing mission readiness. The study also addresses the challenges of sensor integration, data transmission methods, and the importance of system upgrades in the context of military operations. The findings contribute to the development of more reliable and efficient fuel monitoring systems, ensuring better resource management and supporting the operational needs of naval forces.

Space Warfare: Challenges and Opportunities for Global Security

Ana-Diana LAZĂR
"Henri Coandă" Air Force Academy, Brașov, Romania

As humanity's reliance on space-based assets intensifies, space warfare has become a critical frontier in modern military strategy. The article aims to explore the evolving battlefield of conflict in space, focusing on the unique challenges and strategic considerations that define this domain. This paper examines the rapid advancement of space technologies, the increasing militarization of space, and the potential threats posed by both state and non-state actors. Key issues addressed include the development of anti-satellite weapons, the vulnerability of space infrastructure, and the legal and ethical implications of space militarization. The topic also evaluates current and proposed strategies for mitigating risks and enhancing security, including international cooperation, defensive measures, and technological innovation. By analyzing these aspects, the project aims to provide a comprehensive overview of the current state of space warfare and offer insights into future trends and strategic responses.

Traian Dârjan: A Name Among the Sky's Heroes

Anda MIHALACHE
"Henri Coandă" Air Force Academy, Brașov, Romania

This paper examines the life, final mission, and complex posthumous legacy of Romanian WWII fighter pilot Traian Dârjan, whose name remains etched in the collective memory of the nation's air force. While widely celebrated as a national hero, Dârjan's death on 25 February 1945 is surrounded by conflicting accounts—ranging from glorified wartime legend to eyewitness-based historical documentation. The study analyzes three primary narratives: the official communist-era myth depicting a voluntary sacrificial mission, a romanticized version built for military education, and the historically grounded account

reconstructed through post-1989 testimonies and archival sources. By comparing these versions, the paper reveals how political agendas, propaganda, and national sentiment have shaped Dârjan's image over time. Rather than discrediting his heroism, the paper aims to restore it by separating fact from fabrication—demonstrating that true valor does not depend on myth, but on the courage displayed in service. Traian Dârjan's story becomes a case study in the construction of military memory and the tension between narrative and historical truth. His enduring presence in both official doctrine and public imagination offers insight into how nations craft their heroes, and what it means when memory outlives certainty.

Comparative Study of Hamas snd Hezbollah in the Context of Israel – Gaza War

Maria-Sorina MILCU
"Henri Coandă" Air Force Academy, Brașov, Romania

The purpose of this article is to provide a better understanding of what Hamas and Hezbollah resistance movements mean and their implications in the Israel-Gaza war. The Israeli state is involved in multi-front war, especially against Hamas in the Gaza Strip and Hezbollah in southern Lebanon. Hamas and Hezbollah are known as some of the most important and influential terrorist groups in the world. These two groups are not only recognized for their terrorist attacks but also for their extensive actions specific to hybrid conflict. In an attempt to understand better the strategies of Hamas and Hezbollah, the article is designed as a comparative study of the two organizations, starting from the roots to the present day.

The Role of Intelligence Services in a Hybrid War

Vlad MILITARU
"Alexandru Ioan Cuza" Police Academy, Bucharest, Romania

After World War II, the operation and essential role of secret services within state conflicts were fully established. The result of the global conflagration was the division of states into democratic and communist blocs. Winston Churchill laid the foundation for this division through the concept of the "Iron Curtain." Thus, the Cold War began between the USA and the USSR, leading to a struggle between the CIA, established in 1947, and the NKVD, which became the MGB in 1946 and later the KGB. A significant part of the conflict was the arms race, particularly the development of nuclear warheads, a tool used in foreign policy for relations between the two states and simultaneously an object of intense work for intelligence services. This study provides an objective analysis of the key operations in which intelligence services played a critical role throughout the entire course of operations. The progression of the techniques employed from the Second World War to the present day is clearly observable, as is the essential role played by intelligence services throughout each historical period. Intelligence operations about another state that affect its sovereignty will always be a crucial branch of a state's strategy in warfare. This paper aims to highlight the importance of information as a component of military strategy.

The Alliance Reshaped: NATO's Strategic Response to Modern Crises and Conflicts

Robert MUCENICU
"Alexandru Ioan Cuza" Police Academy, Bucharest, Romania

After the collapse of the Soviet Union, NATO was challenged to redefine its purpose and military strategy. No longer facing a single, dominant threat, the Alliance expanded its focus beyond collective defense to include crisis management, peacekeeping, and counterterrorism. This paper explores how NATO has transformed its doctrine, force structure, and operations to stay relevant amid new threats such as hybrid warfare, cyber attacks, and regional instability. Key developments include the reform of NATO's command structure, deeper integration among allied forces, and the adoption of multi-domain operational strategies. Case studies like NATO's response to Russian aggression in Ukraine and its deployments in Eastern Europe show how the Alliance has preserved cohesion and military strength in an evolving security environment. Ultimately, NATO's ability to adapt ensures its role as a credible deterrent and security guarantor in the modern era.

The Role of Simulations and Virtual Reality in Military Training

Daniel-Mihai MUNTEANU
"Alexandru Ioan Cuza" Police Academy, Bucharest, Romania

This paper explores the transformative role of simulations and virtual reality (VR) in contemporary military training. With the evolution of technology, armed forces globally are increasingly integrating immersive digital environments to prepare soldiers for the complexities of modern warfare. The article examines the benefits of these technologies, including improved safety, cost efficiency, and realistic scenario-based training. Furthermore, it evaluates current implementations, challenges, and the future trajectory of VR and simulations within defense systems. Through a comparative analysis of traditional and tech-driven training methods, the study underscores the potential of simulations and VR in enhancing military preparedness.

Analysis of Cluster-Based Configurations in Air Defense Systems

Andreea PARPALĂ
"Henri Coandă" Air Force Academy, Brașov, Romania

Cluster-type configurations in modern air defense systems represent an innovative approach to maximizing operational capabilities while ensuring cost-effective use of available resources. By grouping and integrating sensors, command-and-control units, and weapon systems within a cohesive structure, these configurations enhance the overall efficiency, responsiveness, and resilience of air defense operations. Their modular design allows for flexible deployment, rapid adaptation to evolving threats, and improved situational awareness across diverse operational environments. One of the key strengths of cluster configurations lies in their ability to promote interoperability among heterogeneous systems. This facilitates seamless communication between various defense assets, enabling faster decision-making and coordinated responses to multiple

aerial threats. Additionally, their layered structure ensures redundancy, which enhances survivability and continuity of operations even under sustained attacks.
Such configurations are particularly valuable in the protection of critical infrastructure, where rapid detection, accurate tracking, and timely neutralization of threats are essential. However, the implementation of cluster-based systems is not without challenges. Technical issues related to system integration, coordination among different components, and the complexity of managing distributed operations require robust planning and continuous refinement. Despite these challenges, the adoption of cluster-type configurations marks a significant step forward in modernizing air defense strategies. With proper integration and operational doctrine, these systems have the potential to significantly enhance national and regional defense postures in the face of increasingly sophisticated aerial threats.

Nuclear Weapon - From the Birth of Destruction to the Dilemma of the Future

Emmyly PAVEL, Ariteea ALBU
"Nicolae Bălcescu" Land Forces Academy, Sibiu, Romania

This paper investigates the historical, strategic and technological trajectory of nuclear weapons, from their genesis in the context of World War II to contemporary challenges and future prospects. The nuclear weapon is not just a vector of deterrence, but a symbolic construct of absolute power and existential vulnerability. Key events, such as the bombings of Hiroshima and Nagasaki or the Cuban Missile Crisis, have shaped a new model of global equilibrium, based on the doctrine of Mutually Assured Destruction (MAD), in which survival paradoxically depends on the mutual capacity for annihilation. In a post-bipolar landscape marked by regional proliferation (India, Pakistan, North Korea), cyber risks and the integration of artificial intelligence into military decision-making chains, the nuclear issue transcends the traditional boundaries of the nation-state, becoming a transnational, multi-sectoral and urgent matter. It analyzes emerging trends - the development of tactical nuclear weapons, hypersonic systems and autonomous platforms - that reduce reaction times and increase the risk of catastrophic failure.
The paper proposes a critical reflection on the future of nuclear weapons: are we witnessing an irreversible escalation, fueled by technological progress and geopolitical rivalry, or are the premises for a genuine restraint through multilateral control mechanisms? The conclusions underline the need to reconceptualize the global security architecture, in which nuclear weapons are no longer a pivot of strategy, but a historic warning to humanity.

The Language of Resistance: Communication as Defense in Ukraine's War Effort

David Andrei POP
"Henri Coandă" Air Force Academy, Brașov, Romania

This paper explores the vital role of persuasive communication as a defensive strategy in the context of the Russian invasion of Ukraine. It highlights how the Ukrainian government, especially President Volodymyr Zelenski and the Armed Forces, mobilized

rhetorical tools to shape public morale, influence international support, and counteract enemy narratives. In modern warfare, the ability to control narratives and inspire resistance through language proves to be as critical as military hardware. Through an analysis of speeches, psychological operations, grassroots storytelling, and digital warfare, the paper demonstrates how communication served as both a shield and a sword in Ukraine's war effort.

Information Warfare – The Weapon of the 21st Century

Marius-Daniel PREDA
"Alexandru Ioan Cuza" Police Academy, Bucharest, Romania

The 21st century has brought a new dimension to global conflict: the battle for information. Information warfare involves the strategic use of information to gain political, military, or social advantage by influencing public perception and trust. This paper explores the theoretical basis of information warfare, its evolution through digital transformation, and its practical implications by analyzing recent examples such as the U.S. elections, the Russia–Ukraine conflict, and the COVID-19 "infodemic." The study also discusses the legal challenges and national vulnerabilities, focusing on Romania's strategic position. In the age of hybrid threats, understanding and addressing information warfare is crucial for state resilience and democratic stability.

Techniques Applicable in Preventing Musculoskeletal Injuries in Helicopter Pilots

Andrei PRICOP
Institute of Military Medicine, Bucharest, Romania

One of the most common challenges faced by aviation medicine is the high prevalence of musculoskeletal injuries among crew members operating rotary-wing aircraft (RWA). These injuries arise due to a combination of factors inherent to the nature of helicopter flight. One significant contributor is the exposure to whole-body vibrations (WBV), which are generated by the aircraft's engines, rotors, and aerodynamic forces. These vibrations affect both passengers and pilots, leading to discomfort, fatigue, and potential long-term musculoskeletal complications. In addition to WBV, various occupational conditions further exacerbate the risk of injury. Helicopter pilots and crew members often experience prolonged work durations and extensive flight hours, which can contribute to cumulative stress on muscles and joints. The physical demands of flight, including rapid accelerations and decelerations, can place strain on the spine and other musculoskeletal structures. Furthermore, the mandatory use of heavy helmets and headgear, while essential for protection and communication, can lead to additional strain on the neck and shoulders, especially during extended missions. Another crucial factor is the awkward posture that pilots must maintain during flight, often due to the design of the cockpit and the necessity of maintaining situational awareness while operating complex controls. This article aims to explore the relation between musculoskeletal injuries and helicopter piloting, as well as determining techniques for preventing or alleviating such injuries.

Phishing

Bogdan-Andrei PUȘCAȘU, Horia Alexandru CEAUȘESCU, Răzvan Cristian GHEORGHE

"Mircea cel Bătrân" Naval Academy, Constanta, Romania

*This project explores the concept of **phishing** within the broader context of **cyber security** and highlights its growing threat in today's interconnected world. The work begins with an overview of the **Internet's structure and components**, emphasizing the critical role of cyber security in protecting digital systems.*
*We define cyber security as a combination of technologies, processes, and best practices that defend systems against threats such as **malware**, **ransom ware**, **insider threats**, and **advanced persistent threats (APTs)**. A special focus is placed on **cyber hygiene**, which includes security routines like regular updates, multi-factor authentication, and data backups to reduce vulnerability.*
*The central topic, **phishing**, is presented as a deceptive method through which attackers impersonate trusted sources (via emails, messages, or fake websites) to steal sensitive information. We analyze a **real-world phishing scenario** on OLX, where attackers trick sellers into giving away personal and banking data by sending fraudulent payment links. The signs of phishing — suspicious links, grammar errors, foreign numbers, and fake urgency — are detailed to help users recognize and avoid such scams.*
*Finally, the project presents alarming **statistics**, showing that phishing is the most widespread cybercrime, with billions of phishing emails sent daily and a strong upward trend in attacks in recent years.*
Through this project, we aim to raise awareness and promote safe practices online by illustrating how phishing works, how it can be recognized, and the importance of cyber security in everyday digital interactions.

The Influence of Terrain and Weather on Tactical Actions

Florin-Ioan RANGA, Andrei-Petru CROITOR

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Throughout human history, armed conflict has spanned diverse geographical regions, each defined by unique climatic and terrain characteristics, from frigid polar zones with extreme temperatures and sparse vegetation to arid deserts with scorching heat. Evidently, each climate and landscape demands a distinct strategic approach. Armed forces that adeptly adapted to these environmental factors often gained a significant advantage, sometimes securing victory, while those who failed to recognize their importance were forced to battle not only their enemies but also the unforgiving terrain and weather. After all from the above, this study wants to present both the influence of land and weather, from the point of view of armed conflicts, by providing pertinent historical examples and from the point of view of modern military laws and regulations.

The Analysis of the Romanian Military Sector Between 2004 and 2024

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This article examines the military sector after Romania joined NATO in 2004. In a dynamic world, the need for an effective army it's a must, especially in the tense regional context. The purpose of this article is to analyze how the Romanian military evolved since 2004 in the context of several crisis: the Georgian invasion from 2008, the annexation of Crimea in 2014 and the invasion of Ukraine from 2022. Moreover, by understanding the weaknesses of our military, we can understand potential improvements that could be made for a more efficient army. In the article both qualitative and quantitative research methods were used. The *key findings highlight a slow but notable shift from outdated Soviet-era equipment toward modern assets, particularly after 2014. Despite recent modernization efforts, critical vulnerabilities remain, especially in the land and naval forces, emphasizing the need for sustained investment in defense modernization amid an increasingly unstable regional security environment.*

Aviation Middle-Ear Barotrauma. Medical and Operational Implications in Military Aviation

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The flight at high altitude involves the exposure of the human body to major changes of the atmospheric pressure. In the case of military aircrafts, these variations can be extreme, especially in fast flights or in accidental depressurization conditions, making the human body vulnerable to pressure changes, involving especially the air cavities. Aviation barotrauma is a clinical entity that occurs when the gas pressure in these cavity fails to balance with the ambient pressure during the ascent or descent. We analyzed articles published between 2014 and 2024 regarding middle ear barotrauma in civil and military aviation. 501 subjects were included, from which 148 had middle ear barotrauma, meaning 29,54%. History of upper respiratory tract infections, allergy and ear-nose-throat (ENT) history are demonstrated predisposing factors for middle ear barotrauma. Barotrauma is an important issue in aviation, and a complete ENT examination and follow-up protocol are important.

The Power of the Invisible: Weaponizing Truth in Hybrid Conflicts

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In the evolving landscape of 21st-century conflict, information has emerged not only as a strategic asset but as a weapon in its own right—central to the conduct of hybrid warfare. This paper explores the transformation of information from a neutral medium into an active instrument of manipulation, influence, and destabilization. Drawing on interdisciplinary insights from communication theory, national security, international relations, and cognitive psychology, the study analyzes the mechanisms and strategies

that weaponize information in hybrid conflicts. Key techniques include disinformation, narrative manipulation, algorithmic amplification, deepfakes, and emotional engineering—all deployed to exploit cognitive vulnerabilities and fragment social cohesion. Through emblematic case studies—including the Russia–Ukraine conflict, the COVID-19 "infodemic," and the 2016 U.S. presidential election—the paper illustrates how informational warfare can alter perceptions, erode democratic legitimacy, and provoke systemic crises without the use of conventional military force. Beyond diagnosis, the study advocates for a multidimensional defense strategy grounded in information literacy, proportional regulation, and the cultivation of societal resilience. In an era where conflicts are waged over narratives rather than territories, safeguarding the integrity of the informational space is not merely a security priority—it is a democratic imperative.

The Influence of Propaganda on Soldiers' Morale in the Russo-Ukrainian War: A Psychological Perspective

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For as long as it is possible to recall, propaganda has been a destructive vector, employed to shape attitudes, form opinions, and enhance the morale of soldiers, with the additional objective of demoralizing the enemy. In modern warfare, though, the scope of propaganda is longer than the conventional poster and radio message, evolving into an immensely effective tool that uses modern media and psychological operations to control the realities perceived by both combatants and non-combatants.This study provides an in-depth examination of the influence of propaganda on military morale, its positive attributes—cohesion, motivation, and unity—alongside its potential adverse effects, such as the propagation of misinformation, trust erosion, and psychological fatigue among the military and the population at large. Further, in an effort to provide a firm grounding for this study, the psychological processes that are used to make propaganda effective are explored, such as emotional manipulation, stereotypes, repetition, and patriotism.In the subsequent sections, the current study will examine several ways to neutralize the impact of hostile propaganda. They involve enhancing critical thinking through education, developing psychological immunity, and creating strategic communication models that work. As we enter an age characterized by hybrid warfare—where information can be a more compelling instrument than traditional military might—grasping the significance of propaganda is necessary to preserve operational effectiveness and guarantee national security.In addition, states need to supplement their information protection efforts by investing in artificial intelligence, enhancing disinformation tracking, and building rapid response mechanisms to media manipulation. It will be essential to treat the psychological effects of propaganda and institute effective countermeasures to protect future generations and guarantee international geopolitical stability.

The Role of Risk Assessment in the Decision-Making Architecture of the North Atlantic Treaty Organization

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In an international environment characterized by volatility, uncertainty and the emergence of complex threats, risk assessment has become a fundamental element of the military decision-making process. This paper aims to analyze, from a theoretical perspective, how risk assessment is integrated into the decision-making architecture of the North Atlantic Alliance (NATO). Starting from the conceptual foundations of risk management and continuing with the analysis of NATO's decision-making structure, the paper highlights the interdependence between risk analysis and the formulation of strategic and operational decisions within the Alliance. The role of doctrinal standardization, the complexity of the multinational decision-making process and the challenges associated with differences in risk perception between member states are emphasized. The main conclusion argues that the coherent and anticipatory integration of risk assessment contributes significantly to NATO's decision-making efficiency and resilience in a dynamic security environment.

2. HUMANITIES & SOCIAL SCIENCES

Conference ROOM E77

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Winston Churchill's Legacy: Leadership, Inspiration, and the Power of Words

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Winston Churchill was a key leader during World War II. He was globally known for his strong leadership and powerful speeches. His experience as a politician, writer, and soldier helped him guide Britain through difficult times. As Prime Minister, he inspired British people with his determination and clear vision. His famous speeches, like "We shall fight on the beaches", gave hope to the nation. The main purpose of this paper is to show his crucial role in shaping hearts and minds, the impact of his speeches during the war and his influence in shaping the post-war world.

Breaking Silence or Breaking Law? Reassessing Interrogation in Modern Times

Mihai ANDRIESCU
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The interrogation techniques occupy a contentious space between the imperatives of national security and the obligations of international human rights law. This paper critically examines both coercive and non-coercive methods, evaluating their effectiveness in intelligence gathering, alongside their legal and ethical implications. Drawing on key

international legal instruments—including the Geneva Conventions and the United Nations Convention Against Torture—the study investigates how certain practices may violate the principle of human dignity and raise concerns about the legal accountability and the evidentiary admissibility. From a practical standpoint, the paper explores how field realities and operational pressures have influenced the adoption of controversial methods, particularly in cases such as Guantanamo Bay, Abu Ghraib, and alleged CIA black sites in Eastern Europe. These case studies highlight the risks of reputational damage, unreliable intelligence, and long-term strategic costs when ethical lines are crossed. The analysis also presents alternative, evidence-based interrogation models that align with both the intelligence objectives and the legal standards. Ultimately, the paper advocates for a clear, enforceable framework that balances the operational necessity with the legal compliance, reinforcing the need for transparency, oversight, and respect for the rule of law in all intelligence and military practices.

George Washington – The Battlefiled General who Forged a Nation

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George Washington (1732-1799) is a name synonymous with the American independence and the birth of a nation. This paper explores the life and legacy of Washington, focusing on three defining aspects: his early military career, his leadership during the Revolutionary War, and his presidency. Washington's journey began in Virginia, where his early experiences as a surveyor and soldier in the French and Indian War shaped his character and prepared him for the challenges ahead. When the American Revolution erupted, Washington was the natural choice to lead the Continental Army. His ability to rally troops and to adapt to changing circumstances, and his persevere through hardships like the brutal winter at Valley Forge was instrumental in securing victory against the British. As the first President of the United States, Washington faced the daunting task of building a new government from scratch. His decisions, from creating a national bank to advocating for neutrality in foreign conflicts, set the foundation for the nation's political and economic systems. Perhaps one of his most significant acts was stepping down after two terms, a move that reinforced the principle of peaceful transitions of power. However, Washington's legacy is not without its contradictions. This paper also examines his ownership of enslaved people, a stark contrast to his advocacy for liberty and equality. By delving into these complexities, this study offers a nuanced perspective on Washington's life and his lasting influence on American history.

War, Trauma and Reintegration: A Sociological Perspective

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This presentation explores the psychological and sociological effects of war on individuals and communities, focusing on trauma, displacement, and the challenges of reintegration. By analyzing the experiences of refugees and soldiers, the study highlights the persistence of post-traumatic stress, the transmission of trauma across generations, and the vital role of community support in healing. A sociological view reveals that reintegration requires

collective action, institutional support and long-term psychological care to rebuild affected societies after conflict.

The Role of Women in War: From Historical Figures to Modern Conflicts

Isabela-Andreea BABOI
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Ever since the beginning of organised warfare, women have served in the military throughout the world. By abandoning traditional roles such as cooks, women have played crucial roles and have served in combat, often disguised as men, alongside their male colleagues. But the intricate story of their service, their roles and duties stretch further back in time. This paper addresses these aspects and aims at comparing data collected from the literature on the roles of women in military history (Alexievich, S. (2017), Carreiras, H. (2006), Hayashida, T. (2016), Monahad, E.M. & Neidel-Greenlee, R. (2010), Mundy, L. (2010)), with a focus on the U.S., Britain, Japan, and NATO countries. The paper reveals that women's roles during wartime were underrated in spite of their great significance. Moreover, women have witnessed persistent barriers to their full integration in military institutions despite their efforts.

Canine Warriors

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In the complex and high-stakes arena of modern warfare and security operations, special operations dogs have emerged as indispensable allies, bridging the gap between human capability and operational demands. These highly trained canines, selected through a meticulous breeding process for traits such as intelligence, agility, and resilience, undergo rigorous training to master skills like explosive detection, tactical tracking, and suspect apprehension. Their training mirrors the intensity of special operations forces, preparing them to excel in diverse and unpredictable environments, from dense urban landscapes to remote combat zones. On the battlefield, these dogs provide a unique tactical advantage, leveraging their acute senses and physical prowess to detect threats, locate targets, and protect personnel. Their presence not only enhances mission success but also bolsters the morale and confidence of their human counterparts. However, their deployment also raises important ethical considerations, particularly regarding their welfare and the responsibilities of their handlers. This project explores the multifaceted role of special operations dogs, examining their training, operational contributions, and the ethical implications of their use. By shedding light on their critical role in modern warfare and law enforcement, this study underscores the enduring partnership between humans and canines in the pursuit of security and mission success.

Naval Baptism: A Look into U.S. and Romanian Ceremonial Tradition

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Sailors have long relied on traditions to bring structure, identity, and a sense of belonging to life at sea. Among these, the naval baptism stands out as one of the most symbolic rituals, especially for those embarking on their first extended voyage. In maritime culture,

this baptism is not a religious ritual, but rather a ceremonial act of inclusion. It welcomes newcomers into the ship's community through a series of light-hearted yet meaningful challenges. These may include symbolic trials, humorous questions, creative tasks, and even theatrical roleplay. The purpose is not to humiliate, but to build unity, establish respect, and mark the passage from outsider to crew member. In the Romanian Navy, this tradition is preserved aboard the training ship Mircea, one of the country's most iconic vessels. The ceremony typically takes place upon the ship's return to the Black Sea, at the end of a cadet's first long voyage. It is organized by senior members of the crew, who guide the event with a mix of discipline and humor. Unlike other navies where initiation may involve exaggerated rituals or physical trials, the Romanian version is more restrained and symbolic. It reflects core naval values such as professionalism, dignity, and teamwork. Though the format differs from ceremonies like the U.S. Navy's Equator Crossing, the Romanian naval baptism serves a similar purpose. It marks an important professional milestone, fosters strong interpersonal bonds, and reinforces the cultural legacy of seafaring.

Between War and Borders: Romania's Security and Humanitarian Challenges in the Wake of the Ukraine Conflict

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In the context of the ongoing war in Ukraine, neighboring countries are significantly affected, not only politically and economically, but increasingly from a military and security standpoint. Romania, a NATO member bordering Ukraine, faces rising challenges, particularly in terms of aerial threats.
This paper aims to analyze the aerial dimension of the Ukraine conflict and its impact on the stability of the Black Sea region and Romania's national security, the use of drones, missile strikes near Romanian borders, airspace violations, and the broader implications of modern aerial warfare on regional defense strategies.
Beyond strategic and military considerations, the paper will also explore the social and economic effects of these aerial threats — from civilian anxiety in border areas to the pressure placed on national air defense systems.
By using recent case studies, reviewing relevant literature, questionnaires and incorporating interviews, this research contributes to a better understanding of emerging aerial threats and the measures Romania must take to ensure national security in a time of regional conflict.

Gender in Uniform: Tracing the Evolution of Women's Roles in the Military

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Across centuries of military campaigns, women have historically participated alongside men in diverse unofficial capacities. Functioning as wives, nurses, cooks and seamstresses, their contributions were crucial in sustaining the physical and emotional welfare of soldiers. The requirements of the First World War generated a significant re-evaluation of women's roles within the armed forces. Faced with substantial male casualties, the military started to reassess the potential of women's increased

involvement. This pivotal moment marked a shift in perception, gradually moving women beyond the traditional purview of emotional support and advancing them toward greater parity with their male counterparts. This paper explores the evolution of women's roles in the military, discussing the current international perspectives on gender in the military and presenting Romania's approach to gender integration in the military.

Abraham Lincoln – The Poor Boy Who Became a Leader

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Abraham Lincoln, the 16th President of the United States, remains an iconic figure in modern history for his profound impact on society. From a modest childhood in a log cabin in Kentucky, Lincoln self-cultivated a solid education and work ethic that guided him throughout his life. His empathy for ordinary people and belief in equal opportunity marked both his early political career and his years of national leadership. As president during the American Civil War, Lincoln succeeded in preserving the Union, turning the conflict into a struggle for freedom and equality. The Emancipation of slaves through the Emancipation Proclamation and the adoption of the 13th Amendment redefined the nation's values. His visionary policies, such as the Homestead Act and support for transcontinental infrastructure, accelerated the country's economic and social development. His speeches, such as the Gettysburg Address, articulated the democratic ideals of liberty and equality, and his legacy symbolizes resilience, integrity, and moral leadership. Even after his death, Lincoln continues to inspire generations by his example, demonstrating that humble beginnings can give rise to great achievements and providing valuable lessons for promoting unity, justice and progress.

Discipline and Rigor, or Harassment? Military Training between Excellence and Hazing

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The main purpose of military training is to cultivate discipline, resilience and operational excellence, yet it often walks a fine line between rigorous preparation and harmful hazing. Training programs aim to develop physical endurance, mental toughness, build comradeship, and many specialization-related skills, which are crucial for combat preparation. Certain traditions and unofficial rituals, however, tend to blur the distinction between demanding training and mistreatment.
While rigorous training includes simulating high-stress scenarios and reinforcing teamwork, hazing can lead to psychological and physical harm, diminishing morale and unit effectiveness. In this case, commanders are put in a position where they have to come up with a solution for making up a balance between toughness and empathy. The challenge lies in distinguishing necessary hardship from counterproductive abuse.
Modern military institutions increasingly recognize these issues and have already started to implement policies for preventing hazing while maintaining high training standards. Ethical leadership oversight , and evidence –based training methods are essential in ensuring that military excellence is achieved, without resorting to harmful practices. This paper explores the balance between effective military training and the risks of excessive

or abusive practices that may constitute hazing. At the same time, it serves as a guideline for structured and ethical training that emphasizes skill-building, resilience and respect over coercion and humiliation. By pointing out the differences between demanding but ethical training and hazing is necessary, in order to preserve both the effectiveness and well-being of military personnel, ensuring that they remain combat-ready, without unnecessary psychological or physical harm.

The Disappearance of Flight MH370: Aviation Crisis, Global Response and Human Impact

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The disappearance of Malaysia Airlines Flight MH370 shook the global community, not only as an aviation incident, but as a profound human tragedy marked by uncertainty, grief, and unanswered questions. Despite extensive international efforts, the lack of conclusive evidence left families and the public suspended in a state of prolonged ambiguity, which in turn shaped emotional, social, and cultural responses far beyond the borders of the nations involved.
This paper explores the broader human dimensions of the event, considering how individuals and communities reacted to the unknown, how speculation and media narratives influenced public perception, and how collective behavior shifted in the face of an unresolved crisis. Through this lens, the MH370 tragedy reveals the psychological vulnerability of modern society, the erosion of trust in institutions, and the deep human need to find meaning in inexplicable events. Far from being solely a case of technological failure, the disappearance of MH370 emerges as a symbol of the limits of control in an age defined by data and certainty.

Richard Winters – Leadership, More than Orders

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Major Richard "Dick" Winters was the commander of Easy Company (101st Airborne Division) during the intense and complicated moments of World War II. He managed not only to succesfully lead a bunch of lads into the hell of war, but to put the base of what was known at that time, one of the world's most efficient company. This was the result of Winter's outstanding traits such as: discipline, courage, integrity, composure and empathy, characteristics that embodied his command act. His leadership didn't consist just of well planned orders or skillfully crafted military actions, but in setting an example for his men. He turned himself into a living proof of his own ideeas, thus earning the role of company's commander.

The Rwandan Genocide and Hotel Rwanda: A Comparative Analysis of Historical Events and Cinematic Representation

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This article examines how Hotel Rwanda participates in memory construction and the challenges of adapting Rwandan genocide history to the screen through individual memory. The Rwandan Genocide, which took place in 1994, remains one of the most devastating events in modern history. Over a period of 100 days, an estimated 800,000 people, primarily from the Tutsi ethnic group, were slaughtered by the Hutu majority. The genocide's horrific events have been depicted in various forms of media, including the 2004 film Hotel Rwanda*. This film, directed by Terry George, portrays the true story of Paul Rusesabagina, a hotel manager who saved the lives of over a thousand refugees during the massacre. This article explores the connection between the Rwandan Genocide and* Hotel Rwanda*, analyzing how the film reflects the historical events while also highlighting the differences between the reality of the genocide and its cinematic representation.*

Post-Traumatic Stress Disorder in Modern Warfare – A Comparative Analysis of Military Approaches

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This article offers a comparative overview of PTSD prevention and treatment strategies employed by the United States, the United Kingdom, and Israel. It highlights the shift from reactive to proactive approaches, emphasizing early intervention, unit-level support, and operational integration of mental health services. Despite differences, all three models underline the importance of destigmatization and timely care, suggesting that effective PTSD management in modern warfare relies on adaptable, comprehensive frameworks tailored to combat realities.

Enhancing FL Learning Through Digital Simulation and Gamification: A Case Study of *War Thunder*

Rares FASIE
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In recent decades, video game simulators have demonstrated significant potential in military training, and War Thunder*, a popular video game simulating air, land, and naval combat from World War II up to the modern period, could be used to enhance soldier training. Therefore, the aim of this project is to showcase the potential exploitation of the* War Thunder *videogame to create a foreign language (FL) training environment for cadets, as the game offers complex simulations of military vehicles and combat strategies. Games like* War Thunder *can be used as gamification techniques in higher education programs, and could be further used in military education as part of a broader training program that includes controlled combat simulations.*

The Psychology of Disinformation: Techniques of Manipulation and Deception in Mass Media

Daniel-Pavel FRUNZĂ
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In a global context characterized by information overload and the exponential growth of digital content, disinformation has emerged as a major challenge to contemporary society. This paper examines, from a psychological perspective, how mass media employs techniques of manipulation and fabrication to shape public perception and mislead audiences. Drawing on cognitive theories related to attention, memory, and biases, the study investigates how the human mind processes and often accepts false information as true, especially when it is presented in a credible or emotionally charged format.
The research explores several common techniques used in disinformation, such as deepfakes, biased image selection, and manipulative headlines, highlighting their impact on general audiences. A practical case study is used to analyze a viral video that, while appearing authentic at first glance, is based on the intentional falsification of context. This example underscores the risks of uncritical media consumption and the need to develop media literacy among users.
The main objective of this paper is to highlight the connection between the psychology of information reception and the media techniques of manipulation, offering both a theoretical and practical foundation for identifying and combating disinformation. Furthermore, the study emphasizes the importance of media literacy and critical thinking in today's environment, where the boundaries between truth and fiction have become increasingly difficult to discern.

Dwight D. Eisenhower: From Small Starts to Outstanding Leadership

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The life and legacy of Dwight D. Eisenhower, a significant person in the history of the 20th century who influenced both the political and military spheres, are examined in this essay. It looks at how he rose from a humble background to become a renowned military commander during World War II, eventually leading the Allies to victory. Eisenhower's journey from military duty to the president is also examined, with particular attention paid to his handling of the Cold War, his domestic growth plans, and his foreign policy stance. The paper considers how his leadership tenets—unity, fortitude, and strategic thinking—had a significant impact on global relations, Western civilization, and modern leadership philosophies.

From Human to Machine: The Moral and Legal Challenges of Autonomous Weapons

Dan-Darian GROZA
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This article explores the ethical and legal implications of Autonomous Weapon Systems (AWS) in the context of modern warfare. As technology rapidly advances and artificial intelligence (AI) becomes increasingly sophisticated, armed forces around the world are

beginning to integrate autonomous weapons into their military operations. These systems are capable of identifying, selecting, and engaging targets without direct human intervention, raising fundamental questions about responsibility and control in armed conflicts.
From a moral standpoint, the use of autonomous weapons raises critical issues regarding the delegation of life-and-death decisions to machines. Who will be held accountable in cases of miscalculations or collateral damage, such as civilian casualties? Furthermore, the ethical dilemma revolves around whether humanity should allow technology to control such decisions, considering the inherent risks involved.
Legally, the deployment of autonomous weapons challenges the application of international humanitarian law, including the Geneva Conventions, which mandate human accountability in armed conflicts. These weapons could significantly alter international norms, and existing regulations are ill-equipped to address the new challenges posed by AI in warfare.
This article aims to examine these ethical and legal challenges, analyzing the potential impact that autonomous weapons may have on the future of warfare and international regulations. It seeks to provide insight into the need for new frameworks to govern the use of AI in military contexts and ensure that these systems are aligned with human rights and legal standards.

Terrorism in the Public Speeches of George W. Bush (2001-2005)

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This paper explores the impact of terrorism and counterterrorism on the United States and the rhetoric of the actions taken in this matter under President George W. Bush as displayed in the speeches given between 2001 and 2005. It examines the rhetorical strategies and discourses used in the immediate aftermath of the 9/11 attacks, the conceptualization of the "War on Terror", and the way in which the capturing of Saddam Hussein was addressed by the President. Through the analysis of George W. Bush's speeches and international reactions, the study highlights the use of moral binaries (essentially, Good and Evil) in shaping both domestic perception and global interventionism.

The Effect of Social Media on Team Morale and Cohesion in the Military Environment

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The impact of social media on military communication and team dynamics has significantly transformed the operational landscape in the 21st century. Initially, social media platforms emerged as tools for personal connectivity, enabling service members to maintain relationships with family and friends during deployments, thereby enhancing morale and fostering a sense of community. As these platforms became more integrated into military culture, they evolved to facilitate real-time communication and information sharing, which are crucial for effective coordination during training exercises and operational missions.However, the widespread use of social media also presents

considerable challenges. The rapid dissemination of misinformation can undermine trust within units, while potential distractions may detract from the focus required for mission success. Furthermore, issues related to privacy and the pressure to uphold an online presence can lead to increased stress levels among personnel, impacting their overall well-being and cohesion.Looking forward, the future of social media in the military context holds significant potential. Continued advancements in technology are likely to enhance the benefits of these platforms, necessitating the development of effective strategies to mitigate risks associated with their use. By fostering a culture of responsible social media engagement, implementing comprehensive training, and establishing clear guidelines to protect sensitive information, military organizations can harness the advantages of social media to strengthen team morale and cohesion. Ultimately, understanding the evolving impact of social media is essential for adapting to the challenges of modern military operations and ensuring the resilience of military teams in an increasingly interconnected world.

The Digital Generation: How Social Media is Changing Human Interaction

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This paper explores the far-reaching impact of social media on communication patterns, identity formation, and emotional well-being among the digital generation. It offers a multidisciplinary overview that includes insights from communication theory, and cultural studies, while addressing the benefits and challenges of social media in shaping modern human interaction.

Waves of Influence: The Role of Social Media in Shaping Naval Prestige

Mihai-Alexandru NEDELCU, Dan-Cristian IANCU
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In the context of global digitalization, social media has become a vital strategic tool for institutions aiming to construct and preserve their public image and long-term reputation. In military education, particularly within prestigious institutions such as "Mircea cel Bătrân" Naval Academy, the use of digital platforms transcends basic promotion and becomes a fundamental part of communication, visibility, and institutional branding. By highlighting traditions, leadership training, discipline, and the everyday life of cadets through images, videos, and interactive posts, the Academy reinforces its identity and credibility in the public eye. This paper examines how the Romanian Naval Academy effectively utilizes platforms such as Facebook, Instagram, and YouTube to promote its ceremonial values, academic performance, and dynamic cadet environment. These communication channels enable the Academy to showcase its modern capabilities while remaining rooted in military discipline and honor. Social media also acts as a powerful recruitment tool, offering future cadets a first-hand look into academy life and fostering a sense of pride and belonging before enlistment. Through strategically planned digital content, the Academy ensures message consistency, combats misinformation, and presents an authentic and inspiring image to both national and international audiences. The research further explores the dual role of social media in

modern military education: as a channel for institutional engagement and as a cultural bridge between the military and civil society. However, the use of these tools must respect strict ethical standards, avoid superficiality, and reflect institutional integrity. Ultimately, this study illustrates how social media, when used with purpose, professionalism, and strategic intent, can significantly enhance the visibility, prestige, and cultural influence of military academic institutions in the 21st century.

Manufacturing a Heroine: Media, Myth, and the Exploitation of Jessica Lynch in Iraq War Narratives

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This paper examines the construction and consequences of the fabricated hero narrative surrounding Jessica Lynch, a U.S. soldier captured during the 2003 Iraq War. Through a critical analysis of media coverage, government communications, and cultural artifacts, the study reveals how Lynch's traumatic experience was distorted into a propagandistic tool to justify military intervention and rally public support. By contrasting her portrayal with the erasure of marginalized soldiers—such as Lori Piestewa, a Native American casualty, and Shoshana Johnson, a Black POW—the research highlights systemic racial biases in wartime storytelling. The analysis further critiques the 2003 film Saving Jessica Lynch as a case study in "militainment," demonstrating how entertainment media sanitizes conflict to align with nationalist agendas. Lynch's eventual rejection of the myth, through congressional testimony and advocacy, underscores the ethical imperative to prioritize truth over sensationalism. Her journey—from exploited symbol to advocate for veterans—exposes the psychological and societal costs of imposed celebrity, urging a reevaluation of how trauma and identity are commodified in service of political narratives.

Empathy - A Lost Human Value? Navigating its Complexities

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The aim of this paper is to retrace a concept's evolution – empathy (the ability to understand and share the feelings of another person) – from early human societies to the present day, focusing on its unique expressions in GenZ and military environments.
More precisely, it will examine whether this human value still manifests itself and retains a well-defined role in society as well as in the Navy, or whether it is fading away to the point of disappearance. In this respect, the transition from emotional to digital empathy will be pointed out herein.
Moreover, the concept will be seen from a double angle. First, from the historical perspective, traditional military culture has always perceived empathy more as a weakness rather than a strength, and second, from the current perspective, how GenZ entering the Navy is bridging the gap and reshaping military culture by integrating new forms of expressing empathy.
Ultimately, this paper will consider how empathy will continue its evolution under the impact of AI, social and geo-political changes, redesigning military/naval dynamics.

The Strategy of Fear: How Does the Terrorism Psychologically Work

Marian-Sebastian PARASCA
"Alexandru Ioan Cuza" Police Academy, Bucharest, Romania

Psychobehavioral sciences and the field of public order and national security are strongly related, considering the idea that people represent the work object: authorities work with different types of individuals, victims, witnesses, perpetrators and this is why this type of personnel has and must know how to communicate and cope with any situation that might come across. Terrorism is known as a tough subject, a complex deviation of the society, hardly noticeable, despite the multiple causes, modus operandi and social implications this phenomenon has. The specificity of this act is precisely represented by the effects that the act produces on groups of people; even an isolated event, whose target is represented by a single person, produces effects that are felt at the level of the entire social group. The way of working is usually a well-thought-out pattern, in the idea that the terrorist targets vulnerable people, prone to arouse feelings of pity among the media channels and the population. The current article aims at the psychological implications that terrorism has on the victim, his transformation from a common person into an object, an instrument of manipulation and intimidation. The terrorist must be seen as more than a threat, he must be studied from a psychological perspective, in order to anticipate similar tendencies.

The Importance of Cybersecurity: The Strongest Weapon that Ever Existed

Robert-Ioan PETRE, Stefania Monica POPA
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In today's interconnected world, cybersecurity is more important than ever. As technology advances, so do the threats that target individuals and organizations. Cybersecurity is the practice of protecting digital systems, networks, and sensitive data from malicious attacks. This document explores the significance of cybersecurity, beginning with an introduction to its fundamental principles and then examining its role in everyday life and the military sector. The purpose of this is to raise the awarness of the threats that appear more frequently day by day and learn how to protect from them.

Henry VIII – Warlord and Legacy Builder

Mihaela PÎRVU, Gabriel MANOLACHE
"Nicolae Bălcescu" Land Forces Academy, Sibiu, Romania

Henry VIII emerges as a commanding figure in Tudor history, renowned for his tactical brilliance and relentless pursuit of military supremacy. His reign was defined by strategic reforms that transformed England's military capabilities, notably the establishment of a professional navy, which became the cornerstone of England's defense and expansionist ambitions. Through precise military campaigns and the construction of formidable fortifications, Henry secured England's borders and asserted its dominance across the European theater. His marital alliances, calculated as both personal and political tools, forged critical partnerships while strengthening his internal position. Simultaneously, his religious upheaval, culminating in the break from the Catholic Church and the founding of

the Church of England, consolidated his power and redefined the monarchy's role in the religious sphere. By expertly blending military might, political acumen, and ideological transformation, Henry VIII solidified his legacy as a ruler who wielded authority with an unyielding will, reshaping the future of England through both force and strategy.

Sovereignty and the Crisis of Democracy in the Context of War: A Contemporary Analysis

Cezar-Vasile PITI

"Alexandru Ioan Cuza" Police Academy, Bucharest, Romania

This paper examines the complex relationship between sovereignty, democracy, and the impact of war in contemporary global politics. Sovereignty, as the foundation for a state's autonomy, is frequently challenged in times of conflict, while democracy faces increasing threats in the face of external pressures and internal instability. The study highlights how war acts both as a catalyst and a consequence of these crises, particularly in the context of territorial disputes, political upheavals, and the erosion of democratic institutions. Through historical examples such as the Weimar Republic and the Falklands War, the paper explores the ways in which war exacerbates the fragility of democratic systems. Additionally, the paper discusses how war mobilizes societies, reshapes national identities, and influences social and political change, with the American Revolution serving as a key example of resistance movements and external alliances driving the quest for independence. Ultimately, the paper argues that while sovereignty allows nations to maintain control, it is continuously tested during wartime, and democracy, though resilient, is at risk of erosion in times of conflict. Understanding these dynamics is crucial to grasping the broader implications of war on political systems and national identities.

Psychology of the Masses and Manipulation Techniques in Military Operations: Strategies of Influence and Control in Psychological Warfare

David-Florin RADU, Alexandru BUTURUGĂ-DELCEA, Sorin URSU

"Carol I" National Defense University, Bucharest, Romania

With an emphasis on current tactics of influence and control in psychological warfare, this article explores the psychology of the people and the manipulation methods used in contemporary military operations. The paper examines how new technologies like artificial intelligence (AI), social media, and cyber capabilities have been used to transform traditional psychological operations (PSYOPS) into complex cognitive warfare tactics. The integration of digital technologies with psychological techniques is demonstrated via case studies of contemporary conflicts, with a heavy focus on the conflict between Russia and Ukraine. The paper also examines the ways in which reflexive control strategies and AI-powered misinformation operations, including the spread of fake news, are being employed to destabilize societies and sway public opinion on a large scale. These techniques take use of flaws in human reasoning to accomplish strategic goals without using physical force. As such, this study demonstrates the revolutionary influence of cognitive warfare on current conflict dynamics by fusing historical understanding with contemporary applications, while also highlighting the moral

dilemmas these tactics present, as they conflate military and civilian objectives, prompting serious concerns about their long-term effects on society.

Student Guide to AI-Enhanced Critical Thinking

Andrei-Gabriel ROMANESCU
"Mircea cel Bătrân" Naval Academy, Constanta, Romania

The application of generative artificial intelligence (AI) in learning opens up transformative prospects as well as deep ethical challenges. With critical thought and problem-solving central to learning in the 21st century, tools like ChatGPT and Grammarly are giving unprecedented facilitation, streamlining operations such as content summarization, feedback, and individualized learning. Thoughtful application by humans of AI can enhance intellectual depth by enabling learners to engage in deeper analysis, ongoing questioning, and intellectual examination. For instance, the immediate feedback offered by AI as well as the generation of countervailing positions facilitate reflective revision and metacognitive skills. The line between helping and over-reliance remains indistinct, however. For instance, unbalanced over-reliance risks downplaying authentic intellectual work and originality. This paper will share practical ideas on how students can efficiently enhance their learning process and boost their critical thinking skills with the help of generative AI tools.

History as Individual Experience in *Devil at My Heels* by Louis Zamperini

Mădălina-Corina ȘCHEIANU, Silvia-Amalia TOMA
"Henri Coandă" Air Force Academy, Brașov, Romania

This paper provides an in-depth analysis of Devil at My Heels by Louis Zamperini, 2008 through the lens of microhistory, investigating how the subjective experience of a prisoner of war during WWII offers a valuable perspective on history. By focusing on the personal story of Louis Zamperini, the memoir transforms individual trauma into a broader cultural document, shedding light on the human experience within the context of global conflict. The analysis incorporates key concepts from microhistory, particularly those introduced by Italian scholars (Levi, Ginzburg), which emphasize the significance of personal narratives in understanding historical events from an individual's point of view. Drawing on narratological frameworks, the paper explores concepts such as "point of view" and "autodiegetic narrator" (Genette, 1980), alongside the distinctions between "reliable" and "unreliable narrator" (Booth, 1983). These tools help to reveal how Zamperini's account is shaped by his perspective as a survivor, where subjective memory and emotional truth take precedence over objective facts. The memoir serves not only as a personal recounting of wartime suffering and survival but also as a narrative that engages with the process of self-reconstruction and redemption after the trauma of war. In the specific intercultural context of Japanese POW camps, where the rules of warfare and human rights are disregarded, the memoir illustrates the brutal realities of captivity and the psychological toll of dehumanization. However, it also demonstrates the resilience of the human spirit, showing how storytelling and communication play essential roles in reconstructing identity, forging connections, and ultimately achieving redemption. Zamperini's journey, from being a young Olympic athlete to enduring unimaginable hardships as a POW, highlights the complex relationship between historical

events and personal narratives. Through his memoir, we understand how such individual accounts can shape collective memory and contribute to the broader historical discourse on WWII.

By situating Zamperini's memoir within the broader framework of microhistory, this paper argues that personal accounts like his offer a unique and essential perspective on history, one that humanizes historical events and connects them to universal themes of suffering, survival, and recovery. As a historical document, the memoir emphasizes the importance of memoirs as key sources for understanding both the individual and the collective dimensions of human experience in times of war.

Microhistory: The Vietnam War From the Perspective of Writer and Humanitarian Le Ly Hayslip

Alexandra-Monica STOICA

"Henri Coandă" Air Force Academy, Brașov, Romania

Understanding the repercussions of a large-scale conflict within the life course of those involved, military personnel and civilians alike, regardless of the historical moment it occurred, serves as a precious lesson, as George Santayana's quote proclaims: "Those who do not remember the past are condemned to repeat it". Microhistory, as a branch of global history, plays the essential role of scrutinizing the consequences of war by focusing on the micro-universe made of individual-level experiences as object of study, in order to explore complementary information on a specific historical phenomenon, such as a conflict and its aftermath. This article discusses such a perspective, an analysis of the experience of a person who not only survived one of the most memorable wars in history through its brutality and gruesomeness, but also started a journey towards self-healing, forgiveness and reconciliation. Through association and generalization, her experience is not unique. Hundreds of innocent victims have shared it, although each coped with the atrocities differently. What makes her story unique and valuable is the strength to confront her trauma and heal her emotional wounds, while fighting for the rights of her people.

The Influence of Three Generations and of AI Over Gender Discrimination - The Morale in the Military –

Bianca-Ștefania VARVARA

"Henri Coandă" Air Force Academy, Brașov, Romania

When it comes to human interaction, is there ever a perfect way to optimize communication between individuals in the military field? As we must have already recognized patterns of gender discrimination all around us through the years, it is important to unmask this phenomenon's impact on a specific community: the military. This field is supposed to be constantly changing for the better and we are responsible to make sure its course doesn't get affected by civil matters, such as propaganda and fake news. Over the years, the military has developed ways to improve inner matters, as if creating a world inside the units' walls would keep outside problems-outside. This paper aims to ensure that transparency as an act of trust between the military and the civilians remains intact as we try to solve gender discrimination issues that have broken through the gates of the military units. Before wearing the uniform, every soldier is a human being

and that should not be forgotten, but protected. Military personnel are solely responsible for ensuring a best work performance, no exception. The first step into solving an issue is admitting there is an issue all along. In order to do that, I invite you to be a part of our journey as I analyze the impact of gender discrimination from the eyes of three generations and a representative of AI. My study's purpose is to help with future guidelines of gender equality to implement in the military fields.

3. Engineering

Conference ROOM E73

Moderators:

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Study on the Possibility of Implementing Radio Direction Estimation Algorithms Using USRP N310

Andreea APOSTOL
"Nicolae Bălcescu" Land Forces Academy, Sibiu, Romania

The presented paper analyzes the steps by which radio direction estimation algorithms are used to visualize the direction from which a radio signal originates. This study aims to use ULA (Uniform Linear Array) and URA (Uniform Rectangular Array) antennas and integrate them into a simulation in order to find the direction of origin of the signals, what the contrast between the phase and time differences is when the signal reaches the antennas and how the systems for estimating the directions of arrival (DOA) affect the signal at the receptor . The difference between ULA and URA antennas is exemplified by using them in a more complex system that can be implemented physically and not just digitally. These two arrays of antennas have several particularities such as the DOA algorithms used by each antenna, its angled directions and their representation from a matrix point of view. The simulation was conducted as a preliminary study for a hardware implementation of this system using a USRP N 310 software defined radio platform.

Magnetic Measurements Execution for Naval Platforms

Irina-Elena AXINTE, Nicușor-Cristian COMĂRNICEANU
"Mircea cel Bătrân" Naval Academy, Constanta, Romania

This paper presents the complete methodology for executing magnetic measurements on ships, with direct applicability to naval magnetic protection systems. A robust measurement model is developed based on the analysis of the vertical components of the magnetic field generated by the ship's ferromagnetic structure. An engineering algorithm is proposed for computing and compensating these components using the four cardinal magnetic path method and an integrated system of compensation circuits. Practical interpretations are offered, and the effectiveness of measurements is evaluated in the context of designing and optimizing naval magnetic compensation systems. Limitations of the proposed method are also highlighted, along with future directions for experimental validation.

Contributions Regarding the Magnetic Field of Circuits in Compensation Windings Used on Vessels Specialized in Mine Countermeasures

Irina-Elena AXINTE, Nicușor-Cristian COMĂRNICEANU
"Mircea cel Bătrân" Naval Academy, Constanta, Romania

This paper focuses on the study of the magnetic field generated by planar electrical circuits, with direct applicability in electromagnetic compensation systems used on military vessels specialized in mine countermeasure operations. A rigorous analytical model is developed, based on the magnetic scalar potential and the evaluation of the magnetic field vector components at points located outside the circuit. A modern engineering approach is adopted, involving the transformation of coordinates into a relative form, which allows for scalable results across various constructive dimensions. The paper offers a clear interpretation applicable directly in the design, optimization, and simulation phases of compensation windings, essential for reducing the magnetic signature of naval platforms. The limitations of the analytical model are also highlighted, and future directions for numerical and experimental validation are proposed.

Doppler Effect

Ioan BALAN
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The Doppler Effect is a fundamental physical phenomenon that describes the frequency shift of a wave observed when the source and the receiver are in relative motion. This paper explores the theoretical principles of the Doppler Effect and its practical applications in radar technology. By examining the mathematical foundations and performing simulations using GNU Octave, the paper illustrates how the Doppler shift can be used to determine the relative speed of moving objects. A case study focused on vehicle speed detection with Doppler radar highlights how different parameters influence signal characteristics and measurement accuracy. This study emphasizes the critical role of the Doppler Effect in modern traffic monitoring systems and offers insights into optimizing radar performance through parameter adjustments.

Pulse Processing Circuits

Octavian BĂLAN
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My paper focuses on pulse processing circuits, which are important in various electronic applications such as digital computers, television, telecommunications and radar systems. These circuits are used to handle signals that change abruptly due to switching phenomena such as load changes or interruptions in circuits. In this context, pulse-processing RC circuits are analyzed, which are used to generate various waveforms such as triangular, exponential and linear signals. The RC circuit is studied to demonstrate how it can be used to transform input signals into a desired waveform. The results are supported by simulations carried out using Cadence OrCAD PSpice software, which help to validate the theoretical behavior of the circuits.

Study on Electromagnetic Wave Propagation in Water for Wireless Charging of Underwater Drones

Ovidiu-Andrei BOALCA
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This paper investigates the feasibility and performance of underwater wireless power transfer (WPT) systems for autonomous underwater vehicles (AUVs). As AUV operations expand in scope and duration, the need for efficient, contactless energy delivery becomes increasingly critical. Traditional charging methods rely on physical connectors, which are prone to wear, corrosion, and alignment issues in submerged conditions. WPT presents a promising alternative, offering more flexible and durable recharging capabilities. Seawater's electrical properties—such as conductivity, salinity, and permittivity—play a significant role in how electromagnetic waves propagate through the medium. These parameters directly affect signal attenuation and transmission efficiency, especially at higher frequencies where energy is rapidly absorbed. For this reason, low-frequency magnetic fields are often more effective for underwater applications, as they experience less attenuation and can penetrate further into conductive environments. To assess these challenges and opportunities, this study uses simulation models developed in ANSYS Maxwell. The models include various coil geometries and operating frequencies, allowing for the analysis of how alignment, transmission distance, and material properties affect WPT efficiency. Results confirm that optimal performance is achieved at lower frequencies, with precise coil positioning being essential to minimize energy losses. Ultimately, this research provides design insights for engineers developing underwater WPT systems. Key factors such as frequency selection, coil configuration, and environmental conditions must be carefully balanced to ensure reliable energy delivery to submerged platforms like AUVs.

Modern Techniques for Pollution Control Onboard Ships

Andrei-Robert BONTAS
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Maritime pollution presents an essential environmental problem which affects both oceanic ecosystems along with human health conditions and worldwide ecological

stability. The pollution impact of ships emerges from numerous sources including oil spills, air emissions, waste discharge, ballast water and chemical leaks so effective pollution control strategies must be put into practice. Under International Convention for the Prevention of Pollution from Ships(MARPOL), ships need to use oil-water separators paired with double hull designs and emission control systems and waste control equipment to decrease their environmental influence. Liquid pollution in ships is controlled through innovative response plans, management procedures and oil-absorbing technology developments. The reduction of air pollution through ships involves the use of renewable energy systems, low-sulfur fuels, scrubbers, energy-efficient engines and wind-solar assisted propulsion solutions. Garbage pollution receives control through waste sorting combined with recycling and proper incineration methods while ballast water treatment stop invasive species transmission. Ships must operate wastewater treatment systems in addition to maintaining a set of biodegradable cleaning supplies to follow regulations regarding sewage and chemical release. Modern technology now include artificial intelligence-based monitoring of pollution as well as hybrid powers and alternative energies that use hydrogen and ammonia.

Synthesis of Time Series

Cătălina CHIȚU
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In the current digital era, digital signal processing plays a crucial role across a wide range of domains, from telecommunications and biomedical engineering to audio and video processing. A key concept within this discipline is signal correlation, which enables the evaluation of the degree of similarity or relationship between two signals. This project explores both the theoretical foundations and practical applications of signal correlation. The study includes algorithm development for autocorrelation and cross-correlation, followed by their application to various simulated scenarios.

The Modernization of Naval Anti-Aircraft Projectiles

Eduard-Mihai COJOCARIU
"Mircea cel Bătrân" Naval Academy, Constanta, Romania

The AO18 30×166mm AHEAD projectile, designed in Fusion 360, was a remarkable success, resulting in a fully functional model at the design stage. The software proved to be highly efficient in the design and modeling process.
Fusion 360 provided an intuitive and powerful working environment, allowing easy creation and modification of the projectile's geometry. The implementation of mathematical modeling had a significant impact on the results. By applying appropriate mathematical principles, the projectile was designed according to the required specifications, ensuring predictable performance and behavior under operational conditions.
In conclusion, the AO18 30×166mm AHEAD projectile project developed in Fusion 360 demonstrated the efficiency and power of this modeling software. Mathematical modeling played a crucial role in achieving the desired results, and its integration into the program was seamless. By utilizing Fusion 360, a functional, optimized projectile tailored to specific requirements was successfully created, ensuring the project's success.

Tactical AI Support System for Air Force Operations

Călin DUPLEA, Andrei VINCENE
"Nicolae Bălcescu" Land Forces Academy, Sibiu, Romania

Modern large language models (LLMs) offer a foundation for developing advanced decision support systems in Air Force command centers. This paper proposes a semi-supervised decision-making engine that aggregates multi-modal battlefield data and employs LLMs to generate tactical recommendations. We outline the foundations of LLMs – from base models like GPT-2/GPT-3 to newer open models such as LLaMA and DeepSeek – and discuss their training methods (pretraining on massive corpora, supervised fine-tuning, and reinforcement learning from human feedback). The architecture of an Air Force command center decision engine is presented, integrating LLMs with multi-modal inputs (text reports, sensor data, imagery, signals) to produce actionable outputs aligned with Air Force doctrine (e.g., contributing to Air Tasking Orders and operations plans). We describe how game-theoretic reasoning and tactical heuristics can be incorporated, with a human-in-the-loop ensuring alignment with commander intent and ethical constraints. The proposed system promises faster decisions, fewer human errors, and adaptivity to changing scenarios. Diagrams of the LLM training pipeline and the system's modular design are provided to illustrate our approach.

The Effects of Meteorological Phenomena on USV Routes

Andrei-Dorian GHEORGHE, Evelin Vicentiu OPREA
"Mircea cel Bătrân" Naval Academy, Constanta, Romania

Uncrewed Surface Vehicles (USVs) are increasingly used in marine engineering for tasks like environmental monitoring, surveying, and research. However, their navigation can be heavily influenced by changing weather conditions, including wind, waves, and surface currents. This paper investigates how such meteorological factors affect USV route planning and reliability in real-time scenarios. Using the OpenDrift simulation framework, we model the interaction between USV trajectories and dynamic marine weather conditions. By integrating real-time environmental data into the simulations, we analyze how different weather patterns impact route deviation, travel time, and overall mission success. The results show that incorporating weather-aware strategies into navigation systems helps improve performance and reduce uncertainty during missions. This study highlights the value of simulation tools like OpenDrift in designing more robust and adaptive control systems for USVs, offering practical insights for engineering students interested in autonomous marine technologies.

Method for Database Updating in ML Applications: A Complete Workflow

Teodor-Mihail GIURGICĂ
"Nicolae Bălcescu" Land Forces Academy, Sibiu, Romania

Network intrusion detection systems rely on machine learning models trained on labeled datasets. However, the rapid evolution of cyberattacks requires constant updates to the training data. This paper presents a method for updating an ML-based intrusion detection

system by capturing real attack traffic, converting it into a structured dataset, and integrating it into the existing CSV-based database. Using a real-world attack scenario between two virtual machines, we generate SYN flood and sniffing traffic, store it in .pcap format, and convert it into a structured .txt file using Python scripts. The newly generated attack data is appended to the initial dataset to improve detection capabilities. Experiments conducted on Random Forest classifiers achieved an accuracy of 100% after updating the dataset. Comparisons for computing time took in training the model are presented across multiple execution environments.

The Analysis of Security Risks and Threats of IoT Devices

Daria-Andreea HUZDUP
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The Internet of Things (IoT) has revolutionized numerous sectors by providing interconnected devices that optimize various aspects of daily life. However, the rapid growth of IoT has introduced significant security challenges. These challenges primarily stem from vulnerabilities within the devices, communication networks, and data storage platforms. IoT devices, which often lack standardized security measures, are prime targets for cyberattacks that compromise data confidentiality, system integrity, and functionality. This paper explores the various security risks associated with IoT, including ethical, privacy, and technical threats, and proposes strategies to mitigate these risks. Addressing these risks requires a multifaceted approach: implementing robust authentication protocols, ensuring regular software updates, encrypting data transmissions, and segmenting networks to isolate IoT devices. Adopting a defense-in-depth strategy, which layers multiple security measures, further enhances the resilience of IoT ecosystems. This paper explores the critical security risks associated with IoT devices and outlines best practices essential for safeguarding these interconnected systems in an increasingly digital landscape.

Simulation of A Military Radar Display System Using Unreal Engine

Melina IFTIME
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With this presentation, I am pleased to focus on the simulation of a military radar display system using Unreal Engine, aiming to create an interactive and realistic environment for testing, training, and algorithm development. The simulation provides a reliable testing environment that allows the evaluation of radar behavior under diverse operational conditions. By leveraging Unreal Engine's capabilities—such as dynamic lighting, detailed textures, and visual effects—it becomes possible to recreate complex target detection scenarios that contribute to the realism of the simulation. The virtual radar model facilitates performance evaluation by enabling the adjustment of key parameters like detection range, scanning angle, and target type. This allows for comprehensive testing of the radar's responses, aiding in the improvement of detection algorithms. Moreover, integration with control and monitoring systems enables real-time visualization of target movements, identification, and display of critical data such as distance, speed, and direction, all within an intuitive user interface.

Autonomous Jamming and Electronic Countermeasure Systems Based on Artificial Intelligence

Alexandra-Florentina MITRACHE
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In the context of digital transformation, ensuring secure and reliable navigation for intelligent systems has become an important research area. Modern applications such as autonomous guided vehicles, robotics, autonomous unmanned vehicles (AUVs), airplane navigation, and other intelligent systems heavily rely on GPS for real-time positioning and navigation accuracy. However, GPS signals are vulnerable to various attacks, including jamming and spoofing, which can compromise system availability and pose significant risks to both human safety and material assets. Additionally, these threats undermine the integrity of navigation systems and the reliability of the services they provide. This survey aims to present a comprehensive review of the existing literature in this field, with a particular emphasis on leveraging artificial intelligence (AI) techniques to detect and mitigate these threats. By synthesizing findings from multiple studies, the goal is to highlight the critical role of AI in enhancing the security of navigation systems for intelligent *applications.*

Analysis of the Efficiency of Compartmentalization in a Corvette-Type Ship

Florina-Raluca MUSCĂ
"Mircea cel Bătrân" Naval Academy, Constanta, Romania

This paper analyzes the efficiency of compartmentalization in a military corvette-type ship and investigates the consequences of flooding on its nautical performance. Corvettes are warships primarily designed for coastal defense, anti-submarine warfare, and convoy protection. Due to their balanced combination of mobility, firepower, and operational cost-efficiency, these vessels are essential components of modern naval forces.
The study focuses on the Corvette 265 "Contraamiral Horia Macellariu", a Romanian Navy ship, evaluating its compartment arrangement and the impact of flooding on buoyancy and stability. Various types of tanks (fuel, oil, and water) and structural compartments are examined in detail. Case studies simulate different flooding scenarios to assess how damage affects the ship's behavior, operational safety, and maneuverability.
The paper also reviews current research trends and methods related to ship damage control and flooding modeling, including contributions from international studies and Romanian specialists. Geometrical and hydrostatic analyses are performed using theoretical frameworks and practical tools, such as Chebyshev integration and AutoCAD modeling.
By highlighting critical aspects of ship design and response to onboard flooding, the thesis contributes to the understanding of maritime safety and informs strategies for damage prevention, risk management, and crew preparedness. The findings support the need for optimized compartmentalization in naval vessels to enhance resilience and maintain navigational performance under adverse conditions.

Automated Bone Cancer Diagnosis in MRI and CT Scans Using YOLO and Image Processing

P. SUKANYA, P. Naga Sai RAGHAV, M. Hari NARAYANA, K. Ajay Naga KRISHNA

Velagapudi Ramakrishna Siddhartha Engineering College, Andhra Pradesh, India

Bone cancer is a life-threatening condition that demands early and accurate detection to improve treatment outcomes. This study presents a deep learning-based approach for detecting bone cancer in medical images using the YOLO object detection algorithm. The proposed method involves a multi-step pipeline including image preprocessing, segmentation, feature extraction, and classification. A bilateral filter is first applied to reduce noise while preserving edges, enhancing image quality for analysis. The YOLO model is then trained on a labelled dataset of X-Ray scans to detect and localize cancerous regions in bone tissue. Experimental results demonstrate high accuracy and reliability in identifying abnormal growths, indicating the potential of this approach for assisting in clinical diagnosis. The framework offers a fast, automated solution for bone cancer detection, contributing to more efficient and consistent diagnostic workflows in medical imaging.

Development of a Real-Time Audio Streaming System Using Raspberry PI and Python

Sebastian POPA, Bogdan DOBROTĂ

"Mircea cel Bătrân" Naval Academy, Constanta, Romania

This paper presents the design and implementation of a real-time, unidirectional audio communication system using the Raspberry Pi platform. Leveraging its affordability, low power consumption, and open-source software compatibility, the proposed system operates on a client-server model. Audio is captured, encoded in WAV format, and streamed over a local area network using TCP/IP protocol. The system demonstrates practical use of Python libraries for audio processing and network communication. Key features include low-latency transmission, in-memory processing, and a modular, scalable architecture. Despite limitations such as unidirectional flow and lack of security features, the system lays the groundwork for future enhancements including bidirectional streaming and encryption. The implementation highlights the potential of Raspberry Pi in constrained communication environments and its applicability in military or institutional contexts.

Analysis of the Vertical Motion of the Submersible Drone Modeled Using a Second Order Linear System in MATLAB

George-Petruț SANDU

"Mircea cel Bătrân" Naval Academy, Constanta, Romania

The modeling of the vertical motion dynamics of a submersible drone can be achieved through a system of differential equations, in which its behavior is described by a second-order linear system. This includes the mechanical parameters of the drone, such as mass, friction coefficient, and stiffness, and is influenced by the applied external forces, such as gravity and buoyancy.

The main goal of this project is to analyze the vertical motion of the submersible drone, starting from a second-order linear differential equation. We will calculate the index response of the system, the behavior of the drone when it is subjected to a step signal (for example, a sudden change in the desired depth), in order to study how the system reacts to input changes. All this using the MATLAB software.

Freight Efficiency Analysis in Cargo Shipping

Andreea-Monica TĂNASE
"Mircea cel Bătrân" Naval Academy, Constanta, Romania

This paper introduces a comprehensive methodology and a supporting software application designed to assess the viability of freight agreements for cargo ships. The proposed approach considers both direct and indirect voyage-related costs, including fuel, crew, port fees, maintenance, insurance, and administrative expenses, as well as compliance with IMO energy efficiency standards.
Unlike existing tools that focus primarily on operational costs and voyage planning, our methodology integrates complete cost evaluation with carbon intensity indicators (CII) to determine whether a voyage meets the IMO efficiency thresholds. A detailed breakdown of cost structures is provided, using a range of ship and voyage-specific parameters (e.g., ship type, speed, fuel consumption, travel distances across navigation zones).
The developed software enables rapid simulations of different voyage scenarios, supporting shipping companies in making informed decisions within tight market timeframes. This capability offers a competitive edge by minimizing calculation time and enabling swift responses to charter opportunities. The proposed system thus serves as a strategic management tool, ensuring that freight contracts are both economically and environmentally sustainable.

Ship Underwater Radiated Noise

Adelin Sorin TIPU, Petrica-Valentin TABAC
"Mircea cel Bătrân" Naval Academy, Constanta, Romania

This document analyzes underwater noise pollution generated by ships, highlighting its negative impact on marine fauna, especially species that rely on sound for navigation, feeding, and communication. It describes the main noise sources — engines, water flow along the hull, and propellers — and how they affect aquatic ecosystems. The document presents noise reduction measures such as quiet propulsion technologies, speed reductions, and rerouting of maritime traffic. It also mentions European and international legislative initiatives aimed at managing this type of pollution. The need for greater involvement from the maritime industry to mitigate underwater noise effects is emphasized.

Current Aspects of Engine Development for Vehicles

Rares-Andrei VASILE, David-Cristian TURK
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The transition from traditional internal combustion engines (ICE) to hybrid and electric engines represents a major shift in the automotive industry. This article explores the key differences between these engine types, emphasizing efficiency, environmental impact,

and performance. While combustion engines offer reliability and widespread infrastructure, they contribute significantly to pollution and fuel dependency. Hybrid engines serve as a bridge, combining combustion with electric power to enhance efficiency and reduce emissions. Fully electric engines eliminate tailpipe emissions but face challenges such as battery range limitations and charging infrastructure development. This study provides a comparative analysis of advantages and disadvantages to aid in understanding the future of automotive propulsion.

Digital Modulation Techniques: Principles and Software-Based Simulation Analysis

Liliana-Maria VERES
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Digital modulation of signals is a process through which digital symbols are transformed into waveforms compatible with the characteristics of the telecommunication channel over which they are to be transmitted. Telecommunications involve the transmission of various types of signals via communication channels, which may be either wired (using physical cabling: coaxial cable, fiber optics) or wireless. The latter includes satellite communications, television broadcasting, and wireless telephony. For example, phase-shift keying (PSK) and quadrature phase shift keying (QPSK) are commonly found in space communication systems. The aim of this paper is to present a method through which students can understand the concept of digital modulation by employing software that enables visualization of the signals involved in this process, as well as the resulting modulated signals. Additionally, this paper serves as a guide that highlights an alternative of using a conventional oscilloscope, specifically by utilizing the SIMULINK tool available in MATLAB's library. Therefore, this work outlines the advantages of employing this software as an educational instrument, emphasizing its numerous benefits in the teaching process, by allowing practical implementation of theoretical knowledge acquired during courses focusing on electrical signals and circuits.

Components of the Electric Field of Maritime Vessels

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This project presents an analysis of the electric fields generated by maritime vessels, caused by the interaction between the ship's metallic hull, seawater, and onboard electrical systems. These electric fields can affect equipment operation, crew safety, and may even trigger sensitive devices such as naval mines.Four main types of electric fields are identified: the contact (static) field, leakage field, alternating (variable) field, and displacement field. Each has specific causes and effects on the vessel and requires dedicated technical solutions.To ensure protection, the project proposes methods such as cathodic protection, proper grounding of onboard equipment, electromagnetic shielding, and continuous monitoring of currents and potential differences.Efficient control of these fields contributes to enhanced safety, corrosion prevention, and reduced vulnerability of the vessel in the marine environment.

4. Weapons & Defense Technology

Conference ROOM E10

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Signal Sampling. Nyquist-Shannon Theorem. Signal Reconstruction

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When it comes to capturing the essence of a real-world signal, is there ever a perfect way to translate the analog into the digital? Just as no communication is truly flawless, sampling too comes with its own limitations and trade-offs. This paper seeks to understand how we can faithfully represent continuous-time signals in discrete form, a process at the heart of digital technology today. Beneath every transformation lies a delicate balance: between sampling rate and signal fidelity, between precision and efficiency. At the core lies the Nyquist-Shannon sampling theorem, which defines the minimum sampling rate required to avoid aliasing and preserve original signal content. Beyond sampling, the role of quantization is analyzed, highlighting how finite precision affects signal representation. The study also considers the challenges of under-sampling, reconstruction errors, and trade-offs between resolution and data efficiency. Through this exploration, we aim to better understand how discrete-time signals form the foundation of modern communication, control, and data processing systems. Sampling is not just a technical necessity—it is a transformation that shapes how information is captured, stored, and interpreted. From my perspective, understanding the theoretical and practical aspects of signal sampling is essential for anyone working with digital systems. It provides the foundation for reliable data acquisition, processing, and interpretation.

Optimizing the Propagation of Light in the Black Sea

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This study investigates how underwater image quality can be improved by adjusting the wavelength of artificial light sources, with a particular focus on the Black Sea. Known for its unique and challenging optical conditions, such as low salinity, stratified water layers, and variable turbidity, the Black Sea significantly limits underwater visibility. These factors impact the effectiveness of marine operations, especially in critical areas like underwater inspections, environmental monitoring, and maritime defense. The aim of this project is to develop advanced lighting strategies that enhance visibility by identifying which wavelengths propagate most effectively through turbid water. To explore this, numerical simulations were performed using COMSOL Multiphysics, specifically the "Electromagnetic Waves, Frequency Domain" module. These simulations modeled how light behaves at different wavelengths under realistic Black Sea conditions, including variations in turbidity, salinity, and depth. The Lambert-Beer law was applied to validate the numerical results and better understand how light intensity decreases with distance and environmental changes. By analyzing the relationship between wavelength and attenuation, the study was able to identify optimal spectral ranges for maximizing visibility in underwater environments. These findings have direct applications in military contexts, such as detecting underwater threats like naval mines, as well as in scientific research, offshore infrastructure inspection, and environmental conservation. Ultimately, the project provides a solid foundation for developing adaptive optical systems, such as those used in underwater drones or diving equipment, that are better suited for the complex and dynamic conditions of the Black Sea.

Technological Advancements in Weapons and Defense: Innovations, Ethical Challenges, and Strategic Implications in the Era of Autonomous Systems, Artificial Intelligence, and Cyber Defense

Marius CHIRIAC
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The rapid evolution of weapons and defense technologies is reshaping modern warfare. With advancements in autonomous weapon systems, artificial intelligence (AI), hypersonic missiles, and cyber defense, nations are facing new challenges and opportunities in securing their borders. This paper explores the technological innovations that are redefining military power, the ethical concerns resulted from these advancements, and their strategic implications for national and international security. By analyzing the latest trends in defense technology, this work seeks to provide a comprehensive understanding of how these developments may shape future conflicts and security policies.

IRIS-T SLM - Medium-Range Air Defense Missle System

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Nowadays, in the global security landscape, rapid technological advancements significantly influence both the nature of threats and the way nations develop their defense capabilities. Modern technologies have enabled a wide range of more and more sophisticated aerial threats—from advanced-generation fighter jets and ballistic missiles to autonomous drones and hypersonic systems. Faced with these dynamic challenges, traditional defense systems are no longer sufficient, making it necessary to constantly adapt and implement modern, integrated, and efficient solutions.
One of the most important purposes of these systems is to protect the population and critical infrastructure. In the event of an air attack, anti-aircraft missiles can be launched quickly to destroy enemy targets before they cause damage or casualties. This type of protection is vital for vital for strategic objectives such as power plants, airports, military bases or densely populated areas.
Air defense systems are evolving at a fast pace, becoming more complex and capable of detecting, tracking, and neutralizing multiple threats in real time. These systems integrate next-generation sensors, high-performance radars, advanced command and control capabilities, and versatile interceptors, all operating together within an intelligent network.

Integrated Air Defense Systems (IADS)

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This paper explores the architecture, operational strategies, and strategic significance of modern Integrated Air Defense Systems (IADS). It highlights how these systems integrate radar surveillance, command and control, missile technology, and electronic warfare to provide a layered and adaptive defense against a wide range of aerial threats. By examining current implementations such as the Patriot, S-400, and Iron Dome systems, the study illustrates the technological complexity and strategic utility of IADS in modern military doctrine. The paper also underscores the importance of interoperability and innovation in maintaining effective airspace protection.

Detection of Unexploded Ordnance via Visible and Infrared Spectrum

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Unexploded ordnance (UXO) is a persistent threat in post-conflict environments, requiring effective remote detection. This study assesses the visibility and detectability of four types of ammunition—a 30mm cartridge, a hand-held defensive grenade, an 88mm projectile and an anti-aircraft CA94 round—using drone-captured images in both the visible and infrared spectrums. The images were obtained at altitudes of about: 40m, 50m, 70m, and 90m from sea level, on two types of terrain (vegetation and sandy terrain). Thermal images were analyzed with DJI Thermal Analysis Tool 3 to extract temperature signatures. The effectiveness of the detection is compared according to the type of

spectrum, flight altitude, ammunition sizes and environmental context. The results show that larger munitions are significantly easier to detect, especially in visible-spectrum images at lower altitudes, while thermal infrared images are found to be advantageous for revealing otherwise camouflaged objects (for example, in foliage) through their heat signatures. Dense vegetation has been found to impede visual detection, while infrared imaging could penetrate to some extent camouflaging, depending on thermal contrast. In the sand field, all types of ammunition were generally visible in low-altitude RGB images, but infrared still provided valuable contrast under certain conditions. In general, the detection performance decreases with the increase in altitude for both spectra due to the low resolution of the image and details. These findings highlight the complementary roles of high-resolution visible images and thermal analysis for UXO detection based on mini-UAVs and highlight how the optimal flight altitude and sensor choice must be adapted to the target size and the environment.

Design and Development of a Modular Electronic Warfare Platform for NATO Airframes

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In the evolving context of modern warfare, the electromagnetic spectrum has become crucial domain. This research presents the proposed design and development of a modular and AI-assisted electronic warfare platform thought for seamless integration with a wide range of NATO airframes, including fixed-wing aircraft, rotary-wing platforms, and unmanned aerial vehicles (UAVs).The system utilizes a modular architecture, represented by line replaceable units (LRUs) enabling fast reconfiguration for a new mission in the sphere of electronic warfare adequate to the needs of the battlefield. At its core, there is an AI-integrated Command and Control Unit (CCU) designed to autonomously manage threat detection and deploy adaptive countermeasures in real-time. The platform follows a plug-and-play approach, significantly reducing the need for avionics modification while enhancing operational flexibility and multi-platform interoperability. This research addresses a critical capability gap by proposing a cost-efficient alternative to expensive EW aircraft, capable of supporting autonomous operations and joint force integration under NATO standards. Comparative analysis with existing airborne EW systems highlights the advantages of the new system in achieving electromagnetic dominance in contemporary and future conflicts.

Invisible Speeds: Radar Blind Spots and Aerodynamic Extremes in Military Airspace

Diana Elena CORB
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This paper examines the unusual aerodynamic behavior and radar detection limitations associated with the 2004 USS Princeton incident. Is is presented a technical analysis of observed phenomena that defy conventional radar and propulsion systems. The study highlights key challenges in modern radar systems related to maneuverability, electromagnetic interference, and atmospheric propagation. Possible scientific

explanations are proposed, including adaptive jamming, metamaterials, and ducting effects in the troposphere.

Moving Average Filters

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The moving average filter is one of the simplest and most commonly used tools in digital signal processing for reducing random noise and enhancing relevant signal features. This paper provides a comprehensive analysis of the filter's operation, implementation, advantages, and limitations. The moving average filter operates by averaging signal values within a sliding window, effectively attenuating high-frequency noise. However, it introduces signal delay, cannot separate close frequency components, and may distort abrupt transitions if the window size is not properly chosen. To evaluate the filter's performance, a practical implementation in OCTAVE is presented, using a noisy rectangular signal filtered with two different window sizes. Results demonstrate that smaller windows retain sharp transitions better, while larger windows enhance smoothing but compromise detail accuracy. The study concludes that the moving average filter is a reliable and effective method for applications involving random noise, but the parameters need to be adapted to the signal characteristics.

Doppler Effect: Theoretical Analysis and Practical Applications

Mihai-Cristian CRUCERU
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The Doppler effect is a fundamental wave phenomenon observed when there is relative motion between a wave source and an observer, leading to a shift in frequency. This study investigates the principles, applications, and recent advancements in the understanding of the Doppler effect across various domains, including acoustics, optics, and astrophysics. Through theoretical analysis and experimental validation, we explore key factors influencing frequency shifts, such as velocity, wave medium, and relativistic effects. Additionally, this research highlights modern applications, such as Doppler radar, medical ultrasonography, and redshift measurements in cosmology, demonstrating the effect's critical role in scientific and technological advancements. My findings underscore the continued relevance of the Doppler effect in both fundamental research and practical innovations.

An Overview of the Unmanned Ground Vehicles Application in Explosive Ordnance Disposal Operations

Maria-Teodora CUREA
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The proliferation of unexploded ordnance (UXO) and the unintended movement of unmanned systems in proximity to active conflict zones have introduced new layers of complexity to national defense and public safety efforts. Romania, situated near the theater of the ongoing Russian-Ukrainian conflict, has experienced increasing exposure to drifting naval mines and uncontrolled UAVs—phenomena that have revealed critical

vulnerabilities in existing threat response frameworks. Naval mines, once anchored for tactical defense, have been destabilized and carried by sea currents into Romanian waters, posing direct risks to both maritime infrastructure and civilian populations. Similarly, UAVs that lose communication or control may cross into restricted airspace or crash unpredictably, raising both physical and security-related hazards.
These developments underscore the need for autonomous intervention systems that can respond swiftly and safely in environments strewn with explosives. This research explores the practical deployment of Unmanned Ground Vehicles (UGVs) in support of Explosive Ordnance Disposal (EOD) missions. Designed for remote operation and equipped with advanced sensing and navigation technologies, UGVs enable safe engagement with hazardous devices, significantly reducing the danger to human operators. By enhancing precision, efficiency, and operator safety, such systems offer a viable path forward in addressing the evolving risks posed by modern conflict spillover.

A Technical Overview and Operational Analysis of the KP-SAM Chiron Man-Portable Air Defense System

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The KP-SAM Chiron (Korean Portable Surface-to-Air Missile), developed by South Korea's LIG Nex1 in cooperation with the Agency for Defense Development (ADD), is a modern man-portable air-defense system (MANPADS) designed for short-range interception of aerial threats. Operational since the mid-2000s and integrated into the Republic of Korea Armed Forces, the Chiron offers a sophisticated solution to counter low-flying aircraft, attack helicopters, and unmanned aerial vehicles (UAVs). This system represents a strategic advancement in asymmetric defense capabilities by providing mobility, precision, and enhanced resistance to countermeasures. The Chiron uses an advanced infrared homing guidance system, which enables fire-and-forget capability and improved accuracy in tracking fast and maneuverable targets. Its imaging infrared (IIR) seeker allows for all-weather, day-and-night operations, making it a reliable asset in diverse combat environments. With a range of up to 7 km and an altitude engagement ceiling of approximately 3.5 km, it fills the tactical gap between short-range air defense guns and medium-range missile systems. In this paper, a comprehensive technical and operational evaluation of the Chiron is presented. Key focus areas include its guidance technology, seeker sensitivity, warhead effectiveness, propulsion design, and system portability. The paper also addresses its battlefield integration, comparing it with other global MANPADS such as the American FIM-92 Stinger and the Russian 9K38 Igla. By analyzing combat readiness, user interface design, and logistical support, the study provides insights into why Chiron is not only effective for national defense but also attractive for international export markets.The importance of mobile air defense in contemporary warfare—especially against fast, low-altitude threats—is increasing rapidly. KP-SAM Chiron embodies the direction in which modern portable defense systems are evolving: combining lightweight construction, robust guidance, and user adaptability in a compact and efficient form. Understanding its capabilities and performance characteristics is essential to comprehending the broader trends in short-range air defense strategies worldwide.

M.O.XTech_Bomb

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The M.O.XTech_Bomb project represents an innovative advancement in precision-guided munitions, leveraging thermal-seeking technologies to enhance target acquisition and strike accuracy in combat scenarios. This heat-guided bomb is engineered to autonomously identify, track, and engage heat-emitting targets with minimal operator input. Central to the system is a high-resolution infrared sensor array capable of detecting a wide thermal signature spectrum, allowing the bomb to differentiate between active threats and ambient heat sources. Coupled with a real-time onboard AI algorithm, the bomb can prioritize targets based on temperature thresholds, movement patterns, and pre-programmed engagement parameters.
Designed for deployment in complex environments—both urban and open terrain—the M.O.XTech_Bomb offers scalable payload delivery with minimal collateral damage. Its modular design allows for integration with various aircraft and UAV platforms. A novel propulsion and guidance system ensures high maneuverability mid-flight, enhancing precision and minimizing interception risk.
The project emphasizes safety, control, and operational efficiency, featuring multiple failsafe modes and remote override capabilities. M.O.XTech_Bomb also includes encrypted communication protocols for secure mission updates and dynamic retargeting. The development process incorporates advanced simulation environments and rigorous field testing to ensure operational reliability.
By combining cutting-edge thermal imaging with adaptive targeting algorithms, M.O.XTech_Bomb stands at the forefront of next-generation smart weaponry, offering a strategic edge in modern warfare. This project not only showcases technological sophistication but also underlines the importance of precision and accountability in defense innovations.

Develop of Frankensam Anti-Aircraft System

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The Frankensam anti-aircraft system is a hybrid defense solution combining elements from multiple existing platforms. Designed to counter modern aerial threats such as drones and missiles, it features modularity, mobility, and cost-efficiency. By integrating advanced targeting and missile technologies, Frankensam delivers flexible and effective air defense. Its development highlights innovative reuse of proven systems to meet evolving battlefield requirements.

A Technical Overview and Operational Analysis of the Gravehawk Air Comparative Analysis of Surface-to-Air Systems: Gepard, PGZ-09, and Stryker MK44

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Air defense artillery has undergone continuous evolution since its early deployment in World War II, where anti-aircraft guns were used to counter enemy aircraft through manual and mechanical targeting systems. Today, air defense systems are a crucial element of national and regional security strategies, playing a key role in protecting against aerial threats including aircraft, drones, and ballistic or cruise missiles. During the Cold War, the proliferation of aerial and missile threats prompted major powers to invest heavily in integrated air defense networks. According to the Center for Strategic and International Studies (CSIS), nations such as Russia and North Korea pose considerable challenges to U.S. and allied airspace security, with advanced air defense systems forming a critical part of their military postures. These countries continue to modernize their air defense arsenals, focusing on improving detection range, tracking accuracy, engagement speed, and interoperability. The growing reliance on air defense artillery reflects broader trends in military modernization, especially in nations with limited offensive air capabilities. By developing layered defense systems capable of neutralizing both conventional and emerging aerial threats, these actors demonstrate how air defense artillery remains a key factor in deterrence and strategic defense planning.

Weapons and Communications Systems: Strategic Integration and Technological Advancements

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Weapons and communications systems constitute the backbone of modern military operations, enabling effective force projection, situational awareness, and command coordination. This paper explores the technological development and strategic importance of these systems, emphasizing their interdependence in achieving operational superiority. Advances in precision-guided munitions, electronic warfare, secure communications, and satellite-based networks have transformed the battlefield, allowing for faster decision-making and more accurate targeting. Through an analysis of current military technologies and communication architectures, the study highlights the shift toward integrated, network-centric warfare. The findings underscore the need for continuous innovation in both kinetic and information-based capabilities to maintain effectiveness in modern and future combat scenarios.

Satellite Jamming in Modern Conflict: Techniques, Link Vulnerabilities and Electronic Protection in Space-Based Warfare

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Satellite jamming represents a critical threat to space-based communication and intelligence systems. This paper explores the operational mechanisms of satellite jamming, the vulnerabilities of satellite links, and the suite of electronic protection (EP) techniques developed to counter these threats. Both uplink and downlink jamming methods are analyzed using geometric link equations to assess feasibility based on factors such as line-of-sight (LOS), power levels, antenna gain, and propagation losses. The study further categorizes jamming attacks by their effects—ranging from denial of service to deception—and provides case-based simulations to assess real-world effectiveness. Particular attention is given to the metrics of jamming effectiveness, such as the Jamming-to-Signal Ratio (J/S), and how these relate to received signal quality. To mitigate such attacks, modern satellites deploy a combination of spread spectrum techniques (e.g., frequency hopping and direct-sequence), polarization management, and cryptographic safeguards. The paper concludes with an evaluation of how artificial intelligence may revolutionize both jamming and anti-jamming operations, transforming satellite warfare into a dynamic, adaptive contest. Through quantitative and scenario-driven analysis, the research outlines current challenges and anticipates future directions in the contested domain of space electronic warfare.

Modern Air Defense Capabilities: A Case Study on the Oerlikon Air Defense System

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The Oerlikon air defense system, developed by the Swiss defense company Oerlikon Contraves (now part of Rheinmetall Air Defence), represents one of the most reliable and versatile short-range air defense solutions in the world. Designed primarily for close-range protection against low-flying aircraft, helicopters, unmanned aerial vehicles (UAVs), and precision-guided munitions, the Oerlikon system has undergone continuous modernization to meet contemporary battlefield demands. This project explores the historical development, technological components, operational principles, and combat effectiveness of the Oerlikon system. The analysis focuses on its integration with modern radar and fire control systems, its modular architecture, and its deployment in both static and mobile configurations. Additionally, the study highlights recent upgrades such as the Skynex system and their role in countering evolving aerial threats. By evaluating its performance in various operational environments, the project underlines the strategic relevance of the Oerlikon system in current and future military doctrines.

Smart Weapons: The Rise of AI on the Battlefield

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Conflict in the 21st century looks nothing like it did before. Traditional frontlines have blurred, and today's battles often involve non-state actors, cyber tools, and information warfare instead of just tanks and troops. In this changing landscape, smart weapons, powered by artificial intelligence and advanced autonomy, are redefining how wars are fought. These systems offer unmatched speed, precision, and adaptability, making them game changers on the modern battlefield. This project explores the shift from automated to truly autonomous systems, highlights key technologies like drone swarms and smart missiles and looks at how humans and machines are working together in combat. It also considers the strategic advantages these tools bring and the ethical questions they raise as we race toward an AI driven future of warfare.This paper explores the evolution from automation to autonomy, key smart weapon platforms and human machine teaming dynamics. It further examines the operational benefits and ethical dilemmas these technologies pose. As the boundary between war and peace blurs, and as strategic competition intensifies, the deployment of AI driven weapons demands a critical balance between innovation and global responsibility.

Combat Tactics Involving Unmanned Aerial Vechicles (UAVs)

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The dramatic evolution of Unmanned Aerial Vehicles (UAV) has remodeled the battlefield of today with the introduction of new possibilities in combat strategy and operational utilization. This article discusses the tactical use of UAVs in contemporary warfare, particularly their use in reconnaissance, target acquisition, precision strikes, and electronic warfare. By examining contemporary wars and exercises, the article illustrates how UAVs improve situational awareness, reduce risk to human life, and offer timely intelligence to commanding units. Particular emphasis is given by the authors to swarm tactics, collaborative attacks by drones, and the integration of UAVs with joint arms operations. Moreover, counter-UAV operations and asymmetric warfare brought in by non-state actors using commercial drones are a constantly evolving threat. Military doctrine continues to develop in anticipation of new technologies, and as such, it is critical to appreciate the strategic and tactical deployment of UAVs in an effort to maintain battlefield supremacy. The essay concludes with consideration of the way forward for drone warfare in the form of AI-powered autonomy, stealth, and the ethical implications of unmanned combat systems. This interdisciplinary has the promise of bringing much penetrating insight into UAV-combat strategy and its implications for contemporary military thinking.

Development of a Multi-Stage Coilgun Prototype for Experimental Study of Electromagnetic Propulsion

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Electromagnetic weapons represent a transformative shift in modern defense strategies, leveraging electromagnetic energy to disable or destroy targets without relying on conventional kinetic force. These systems, ranging from high-powered microwave devices to railguns and directed-energy weapons, offer significant tactical advantages, including precision, reduced collateral damage, and the capacity to neutralize electronic systems. As global defense sectors increasingly prioritize technological superiority, electromagnetic weapons are becoming a focal point of military innovation and investment.
In this article, we explore the development of a small-scale electromagnetic weapon prototype, aimed at demonstrating the core principles behind these advanced systems. The study focuses on design parameters, component selection, energy storage and discharge mechanisms, and the resulting electromagnetic field characteristics. Through this experimental model, we aim to provide insight into the practical challenges and potentials of deploying electromagnetic technology in compact, adaptable forms suitable for specific defense applications.

Algorithms for Reconstructing Sampled Signals Continuous Signal Reconstruction from Discrete Signal

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Signal reconstruction can have serious consequences for the accuracy, reliability and security of radar systems. The paper investigates the process of signal reconstruction in the context of modern telecommunications and signal processing. Through a detailed theoretical analysis of signals and a practical implementation of digital technologies and also mathematical methods, this resource aims to improve the efficiency of information transmission and processing. Analog signals from all around the world, including sound or electromagnetic signal are often converted into discrete signals to facilitate processing and transmission. At the destination these signals are reconstructed to ensure high-quality reproduction of information. The presentation discusses an important algorithm such as Nyquist-Shannon sampling theorem and the process of reconstruction using the sinc function, to ensure accurate signal reconstruction while minimizing distortion. Signal reconstruction using the sinc function is a key technique in signal processing, particularly when reconstructing continuous signals from their discrete sample. This method is grounded in the Nyquist-Shannon sampling theorem, which states that continuous signal can be perfectly reconstructed from its samples if it is sampled at a rate at least twice the highest frequency component of the signal. This process is essential for maintaining data integrity and ensuring the efficient transmission and accurate representation of information across modern communication systems. The goal of this study is to provide a comprehensive understanding of how these algorithms function and their significance in preserving the integrity of original data during digital signal processing.

Information Jamming in Electronic Warfare: Operational Requirements and Techniques

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Information jamming in electronic warfare refers to a type of electronic attack where jammers emit interfering signals towards an enemy's system, disrupting the receiver with highly concentrated energy. The goal of information jamming is to hinder the enemy's effective use of the electromagnetic spectrum. This interference can affect various types of information, including voice and non-voice communications (e.g., video or digital formats), command signals for controlling remote assets, data received from distant equipment, or the position and movement of friendly or enemy forces. Information jamming is considered a "soft kill" because it temporarily disables an enemy asset without destroying it. It can be deployed from air, sea, land, or space by both manned and unmanned systems, and can target communications, radar, or other services. Within the framework of information operations, information jamming plays a role in both offensive and defensive counter-information strategies in electronic warfare.

Development of a Shock-Reducing Parachute Prototype for Enhanced Pilot Safety in F-16 Ejection Systems

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Military aircraft pilots face a tremendous number of challenges due to the rapid evolution of technological innovations and the need to operate at ever-so-high airspeeds. This paper aims to investigate the connection between the injuries sustained by high-performance jet aircraft (HPJA) ejected and the parachute system incorporated in the airframe of the F-16 Fighting Falcon. Considering the context of a supersonic multirole fighter aircraft, the drag chute of the F-16 ejection seat consists of a critical system component for minimizing landing roll distance, particularly on confined landing space or under unfavorable weather conditions. Nevertheless, operational experience has revealed several concurrent issues that are prone to compromise the overall efficiency of this system, jeopardizing the pilot's safety. Having assessed the clinical characteristics and the severity of orthopedic, musculoskeletal and other injuries from military training-related parachute jumping, we intend to provide the conceptual framework for minimizing the exposure to life-threatening risks. The prototype will imply a substantial improvement of the classical parachute used nowadays by optimizing materials and reconfiguration of the structural aspects. We were inspired by cross-analyzing already existing equipment used in modern theatres of operations.

Electronic Warfare in the 21st Century - The Impact on Military Operations

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The importance of electronic warfare has been intensified due to geopolitical tensions and regional conflicts in the 21st century. Nations believe that electronic warfare can provide strategic advantages and also discourage potential adversaries. Technical and technological advances from industrialized states have led to the development of a variety of electronic warfare specialized technologies which have superior performance and capabilities compare to electronic systems, considered objects to be researched, neutralized or destroyed with energy waves. The knowledge of the principles that act within this modern form of contemporary conflict development has become a priority condition for achieving victory on the battlefield. This paper presents the analysis of the dynamics of international strategies in electronic warfare, comparing the strategy of a NATO member with Russian strategies.

Directed Energy Weapons: Strategic Innovation Across Military Cultures

Dragoș PĂTRAȘCU
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This paper examines how directed energy weapons (DEWs) are influencing military doctrine across a range of strategic cultures. Using technical specifications and real world deployment examples, I examine how high energy lasers, high power microwaves and particle beam systems are moving from research approaches to operational systems. The analysis highlights how unique military cultures generate different evaluations of these weapons' use at the strategic level in the cases of the United States, China and Russia, which results in asymmetric pathways of development. The analysis suggests that the successful integration of DEWs is a function of both the level of technological sophistication but also the degree of convergence of those systems with a strategic culture and tradition. The analysis challenges the prominent technological determinism narratives in the literature on defence innovation, while offering some consideration for defence planners undertaking multinational operations in an increasingly contested global security environment.

Artificial Intelligence in Warfare: The Emergence and Implications of Autonomous Weapon Systems

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The integration of Artificial Intelligence (AI) into warfare has led to the development of Autonomous Weapon Systems (AWS), which can operate independently to identify, target, and engage enemies without human intervention. This article explores the emergence of AWS, the technological advancements that have made them feasible, and their current applications in military operations. By reviewing the capabilities of these systems, including drones and AI-powered defense mechanisms, the article highlights

both the potential benefits—such as enhanced precision, reduced human casualties, and operational efficiency—and the significant risks they present.
The legal and ethical implications of AWS are central to the discussion, with particular focus on accountability, compliance with international humanitarian law, and the moral dilemmas raised by autonomous machines making life-and-death decisions. Issues such as the loss of human control, civilian casualties, and the need for robust regulatory frameworks are explored. The article also examines the strategic consequences of AWS on global security, including the impact on arms races, asymmetric warfare, and the future of human oversight in military operations.

Oerlikon GDF Antiaircraft Artillery System: Capabilities, Evolution and Strategic Relevance

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The Oerlikon 35 mm antiaircraft artillery system, initially designed in Switzerland during the Cold War, has evolved to become a key player in modern air-defense due to its adaptability, precision, and versatility in countering various aerial threats. This paper explores the development, capabilities, and operational relevance of the Oerlikon system, focusing on its ability to address the growing complexity of contemporary aerial warfare. Originally conceived for short-range air defense of static military positions, the Oerlikon system has undergone a series of significant upgrades to enhance its performance against modern threats, particularly fast-moving, low-altitude targets such as drones, cruise missiles, and precision-guided munitions. The research outlines the effectiveness of the system, emphasizing its high rate of fire, rapid response time, and improved targeting accuracy enabled by advanced fire control systems, radar integration, and electro-optical sensors. One of the most notable innovations is the introduction of AHEAD (Advanced Hit Efficiency and Destruction) programmable ammunition, which increases the system's lethality, especially in engagements involving small, agile targets. The paper also examines the technological upgrades, such as digitalized command and control systems, automated fire control, and AI-supported threat classification, which allow the Oerlikon platform to operate more efficiently in multi-threat environments. Additionally, the paper discusses the system's continued relevance in layered defense architectures. Its mobility, modularity, and cost-effectiveness make it an ideal complement to missile-based air defense systems, providing a critical last line of defense. These enhancements have allowed the Oerlikon 35 mm system to remain a valuable asset in both land-based and naval air defense strategies, illustrating the system's adaptability to emerging threats and modern military requirements.

Defense System

Eduard PLĂCINTĂ-TOMA
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The Gravehawk air defense system represents a creative and pragmatic response to the evolving challenges of modern warfare. Developed by the United Kingdom in collaboration with Denmark, this short-range system was specifically designed to support Ukraine in its defense against the growing threat of drones, cruise missiles, and loitering

munitions. Rather than designing an entirely new missile platform, engineers focused on creatively repurposing Soviet-era R-73 (AA-11 Archer) air-to-air missiles, which were already in Ukraine's inventory. These heat-seeking missiles were adapted for ground-launch by integrating them into a modular, containerized system that could be quickly deployed and remotely operated. plans were made to deliver at least 15 operational Gravehawk units to Ukraine in 2025, marking the beginning of its formal deployment. The system has since been recognized as a clever example of defense innovation—leveraging existing resources to meet urgent battlefield needs without the long timelines typical of new weapon development. The Gravehawk system represents a strategic enhancement to Ukraine's air defense capabilities, offering a cost-effective solution to address the increasing threat of drones and other low-altitude aerial attacks. Its deployment underscores the ongoing international support for Ukraine's defense efforts.

The Use of the Patriot System in the Ukraine Conflict

Darius-Costinel PREDA
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This study examines the deployment and operational effectiveness of the Patriot air defense system in the context of the ongoing military conflict in Ukraine. Since 2023, several NATO member states, including the United States, Germany, and the Netherlands, have supplied Ukraine with Patriot missile batteries to counter Russian aerial threats. The analysis draws upon operational data, official defense reports, and case studies of successful intercepts of ballistic and hypersonic missiles, including the Kh-47M2 Kinzhal. Findings indicate that Patriot systems have played a critical role in defending high-value targets and strategic urban centers such as Kyiv, demonstrating high interception capability and tactical flexibility under combat conditions. However, their sustained effectiveness depends on interceptor stockpiles, continuous maintenance, and sustained logistical and technical support from allied forces. The study underscores the strategic value of advanced integrated air and missile defense (IAMD) assets in modern warfare and highlights the necessity of international defense cooperation to ensure national airspace security against evolving aerial threats.

CA-94 Manpad Missile System

Manuel Constnatin PREDOI
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The CA-94 is a Romanian-developed man-portable air defense system (MANPADS), derived from the Soviet 9K32 Strela-2, tailored for national needs. Designed for short-range defense against low-flying targets such as helicopters, drones, and attack aircraft, the system uses a shoulder-fired launcher and a passive infrared-guided missile. While technologically outdated by modern standards, its strengths lie in high mobility, simplicity, and low cost, making it suitable for infantry use in rugged terrain. The CA-94 remains a notable example of Romania's Cold War-era military industry, still serving in training and defensive roles. Despite its limited engagement envelope and vulnerability to countermeasures, it represents a significant chapter in Romanian air defense capabilities.

Organizing and Employing Electronic Warfare Systems for the Protection of Airspace in the Current Black Sea Context

Antonia PURICI
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Electronic warfare has become, in modern military strategies, one of the most important domains, especially in geostrategically significant areas like the Black Sea region. Before the onset of the military conflict between the Russian Federation and Ukraine, following Russia's invasion of Ukraine on February 24, 2022, one could affirm that the Black Sea region has been and will continue to be a strategically contested area between regional and global powers such as the bordering states (Russia, Ukraine, Bulgaria, Turkey, and Georgia) as well as NATO. However, after more than three years of military conflict, the evolution and unfolding of the war confirm the importance of the Black Sea from both economic and military perspectives. It has become a real theater of war, highlighting the critical role of modern electronic warfare systems in countering advanced weapons technologies used for the first time in this conflict. The pre-conflict situation was already complex due to the area being a confluence of various states with different statuses: NATO members (Romania, Bulgaria, and Turkey), neutral states or former Soviet republics (Ukraine, Georgia), and Russia—a recognized military power. The current security context and regional developments have prompted NATO to adopt innovative and immediate actions, increasing its presence, cooperation, and especially airspace surveillance. In a world of global processes and Russia's expansionist tendencies, the Black Sea will continue to play a significant role in European history and regional security developments. Economically, the Black Sea region is a known source of wealth, pivotal for both littoral and distant states, while also serving as a major maritime transport corridor. Today, the region faces unprecedented risks, threats, and vulnerabilities, and countering them is a top priority for the collective efforts of regional and allied states, which, through a united effort and enhanced military presence on the eastern flank, can deter further conflict escalation.

Sonic Weapons As A PSYOP Instrument In Contemporary Conflicts

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This article analyses the evolving use of sound as a strategic instrument within the broader framework of psychological warfare. From ancient sound-based rituals to the sophisticated use of long-range acoustic devices in contemporary conflicts and civil unrest, sound has proven to be a potent psychological tool. The article traces the historical roots of sonic weapons, such as the Aztec death whistle and "Ghost Tape No. 10" from the Vietnam War and examines their transformation into modern technologies used for crowd control and psychological disruption. Particular attention is given to the 2025 Serbian protests, during which authorities allegedly deployed a U.S.-made long-range acoustic device (LRAD) against demonstrators. This case exemplifies the complex intersection of psychological operations, non-lethal weapons, and civil rights. Furthermore, the paper discusses potential military applications of sonic weapons in

conventional warfare, highlighting their capacity to disorient, demoralize, and manipulate enemy forces without direct physical confrontation. By situating these developments within the broader context of psychological operations, the article calls for critical reflection on the strategic implications of acoustic weapons in military conflicts.

A Comparative Assessment of Shooter Effectiveness in Surface to Air Missile Defense Systems Against Different Types of Target

Alin-Gabriel ȘTIR
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Missile defense has been recognized as a continuously developing field over the past several decades. The first operational missiles were introduced by Nazi Germany during World War II, featuring mechanical autopilot systems designed to guide the missile along a predetermined flight path. Today they are the main weapon for attack and defense keeping evolve. During the Cold War, the world's major powers developed nuclear missile capabilities. According to the Center for Strategic and International Studies (CSIS), there is clear agreement that both Russia and North Korea pose significant security threats to the United States and its strategic allies, with their missile arsenals already representing a serious danger within their respective regions. These combatants continue to enhance and refine the effectiveness of their systems in terms of operational range, speed, guidance technology, and destructive power. A continuous rivalry exists between these nations. The challenges in military modernization have led to a focus on missile forces, highlighting the limitations of their air capabilities, the advancements in their missile arsenals, as well as the combat effectiveness provided by their current missile systems. Additionally, they are working on developing conventionally armed precision-strike forces and exploring options for deploying nuclear-armed missiles. The U.S. emphasis on the potential nuclear threat from Russia overlooks the reality that even moderately advanced nations with limited air power can already incorporate missiles as a crucial component of their deterrence and defense strategies.

The Impact of Geophysical and Magnetic Anomaly Zones on HF Wave Propagation and Ionospheric Behavior: Exploring Earth-Atmosphere Interactions

Raul-Nicolae VADUVA, Robeert-Ionut MICU
"Nicolae Bălcescu" Land Forces Academy, Sibiu, Romania

This paper investigates the influence of geophysical and magnetic anomaly zones on the propagation of HF radio waves and the behavior of the ionosphere. Using VOACAP simulations and real-world-inspired scenarios, the study explores how geomagnetic anomalies significantly impact the reliability and quality of radio communications. By examining various antenna configurations and geographic contexts, the research identifies how magnetic anomalies distort HF signals, providing valuable insights for future improvements in predictive models and communication strategies.

5. MILITARY HISTORY

Conference ROOM F.E 3.11

Moderators:

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The Influence of NATO In RoAF and How this Alliance Has Strengthen the Position of Romania in Easter Flank

Alberto-Damian ADOCHIȚE
"Henri Coandă" Air Force Academy, Brașov, Romania

The National Strategy of Defence in Romania is a document directly related to the legislative part of the defence, developed by the parlament. It has been changed every five years, especially after the new elected president, and is conturing the position of national authorities in order to occur the threats, vulnerabilities and risks exercised by different factors.
It can be modified in order to combat the threats against national sovereignty. For example, the most recent one, the unauthorized entrances of UAV systems controlled by Russian forces into the air space of Romania, systems which could not be shot down. In the last decades, the Romanian Air Force has been part of the modernization plan alligned to other NATO`s states, part of the strengthening of the eastern flank in order to suppress Russia`s threat against Europe. Romania has developed it`s national security under NATO`s partenership and guidance, which enhanced the power of deterrence against any threat. Nonetheless, the Air Force of Romania has been modernising their military assets with the acquisition of: General Dynamics F-16 Fighting Falcon, Sentinel Radars, Patriot Systems or the ongoing acquisition contracts for HIMARS, F-35 Lighting II. The military infrastructure is also part of the modernisation, especially preparing for the military airplanes of the 6th generation.

All this development and improvment are essential for the national security, in order to keep the pace with other states.

Traian Vuia - Pioneer of Global Aviation and Founder of the Romanian Dream of Flight

Alexandra Adnana ANTIM
"Henri Coandă" Air Force Academy, Brașov, Romania

This presentation explores the life and achievements of Traian Vuia, a Romanian inventor and aviation pioneer who defied the technological constrains of his era by conceptualizing and constructing one of the world's first flying machines. Born in 1872, Vuia's fascination with flight led him to develop one of the first self-propelled, heavier-than-air aircraft, the Vuia I, which he successfully flew in 1906 near Paris, France. His flight was a significant achievement in aviation history, making him one of the earliest pioneers to prove that powered, controlled flight could be achieved without the aid of external mechanism like catapults or rails.
Vuia's contributions extend beyond his singular achievement, as they are a part of a larger context of early aviation experimentation in Europe. While contemporaries such as the Wright brothers also achieved significant strides, Vuia's work was marked by his independent approach to flight. His innovations in aircraft design, such as the use of a propeller for vertical thrust and the lightweight structure of his monoplane, influenced future developments in aeronautical engineering.
Despite facing skepticism from many in his area of specialization, Vuia's perseverance and technical competency positioned him as a key figure in global aviation.

Wings of Change: Tracing the Evolution of Air Force Doctrine Through The Trials of World War II

Radu-Ștefan BĂLĂȘOIU
"Henri Coandă" Air Force Academy, Brașov, Romania

This presentation explores the profound impact of World War II on the development of aviation. It outlines the state of aircraft technology before the war, highlights the major innovations that emerged during the conflict—such as jet propulsion, radar, and pressurized cabins—and examines how mass production revolutionized the aircraft industry. Furthermore, it delves into how aviation shaped military strategies and discusses the long-term legacy of wartime advancements on commercial flight and space exploration. Through this analysis, the presentation demonstrates how WWII acted as a catalyst for one of the greatest technological leaps in the history of aviation.

Refugees in Contemporary Europe: Legal Status and Integration Perspectives

Daria-Menalisa BALINT
"Henri Coandă" Air Force Academy, Brașov, Romania

This paper aims to analyze the situation of refugees in contemporary Europe, focusing on their legal status and the challenges related to their integration into host societies. In the context of recent humanitarian crises, such as the Syrian conflict, the European Union has

faced increasing pressure on its asylum systems. The study explores the existing legal framework at both the European and national levels, highlighting significant differences in the application of refugee protection standards among member states.

Aviator Captain Vasile Craiu - *The Falcon of Mărășești*

Ana-Maria BALTĂ, Cristian Ștefănuț MIRIȚĂ
"Henri Coandă" Air Force Academy, Brașov, Romania

T*his paper explores the life and activity of the Romanian aviator Vasile Craiu, known as "The Falcon of Mărășești" due to his exceptional performance in aerial battles during the Battle of Mărășești. The study presents the stages of his professional training, the evolution of his military career, and his significant contributions during World War I. Craiu stood out for his combat flight missions, becoming a symbol of courage and boldness in the face of enemies. The paper also analyzes his posthumous recognition through the commemoration of his achievements and the tributes paid to him over time. This work offers a detailed perspective on a remarkable figure in Romanian aviation history, whose sacrifice was a symbol of dedication and devotion to his country.*

A Brief History of Artillery and Anti-Aircraft Missiles in the Romanian Army

Robert-George BÂRC
"Henri Coandă" Air Force Academy, Brașov, Romania

T*his study presents a succinct yet thorough exploration of the historical trajectory of artillery and anti-aircraft missile capabilities in the Romanian Army. Beginning in the late 1800s and extending to the present day, the paper examines how evolving strategic demands, technological progress, and military doctrines have reshaped Romania's defense posture. The analysis highlights the influence of changing international alignments, regional security pressures, and broader global military developments. Drawing upon a diverse range of sources—including archival materials, defense policy documents, and military historical accounts—the research sheds light on Romania's efforts to modernize and restructure its artillery and air defense systems in response to emerging threats and its integration into multinational defense.*

Aerial Advantage: The Tactical Impact of Drones on Bakhmut's Defensive Operations

Mihai-Dorin BEȘTI
"Henri Coandă" Air Force Academy, Brașov, Romania

This paper aims to highlight the strategic effectiveness of drones used in defensive manners when accounting for the lack of other viable means of protection against imminent threats. By displaying the necessary information highlighting how Bakhmut acted as a key city for the Russian offense plan against Ukraine and how such a city was overtaken, a more thorough painting depicting the strategic and offensive capabilities of the Russian offensive can be drawn. Furthermore, this paper will delve into the fantastic defense of the Ukranians using drones and what measures did the Russians take to try to stop them. Given the tense and dissonant views portrayed in the media, misinformation

and contradictory statements grow and flourish at an alarming rate. As, an extensive segment has been dedicated to clarify what fake news I have found about this battle.

Aviator Constantin Cantacuzino: The Prince of the Skies

Florin BRĂDEAN
"Alexandru Ioan Cuza" Police Academy, Bucharest, Romania

This paper aims to present the life and successful carreer of the pilot and historical figure Constantin "Bâzu" Cantacuzino, emphasizing on his piloting skills, career as a military aviator and the crucial role he had in strengthening the Romanian Royal Air Force during his active duty service. The research explores his technical and strategic contribution as a leader to secure the victories of Romania in the battles to come in World War 2. The paper also reflects the long-term impact that his achievements had on aerial defense tactics later on in contemporary Romania.

The Role of Bomber Aviation in Suporting Operation Overlord

Auraș BRĂTUC
"Henri Coandă" Air Force Academy, Brașov, Romania

The Allied invasion of Normandy on 6 June 1944, known as Operation Overlord, was one of the greatest military achievements in history. This essay focuses on the decisive though often underestimated role played by bomber aviation in making the operation one of victory. Strategic bombing sorties prior to D-Day regularly lessened the fighting capability of the Luftwaffe and executed the Transportation Plan, disrupting the battlefield by interdicting France's railways and bridges. Heavy bombers blanketed D-Day beach fortifications heavily while medium bombers entered to take on tactical ground-support roles. In the weeks following the landings, bomber aviation played an important part in making possible the breakout from the beachhead, which came to fruition in Operation COBRA in late July 1944. In this essay, using the assistance of primary sources and military studies, it is evident that without the complete contribution of bomber aviation—from strategic planning on through to tactical battlefield assistance—Operation Overlord could have faced much greater impediments or indeed completely failed. The conclusion drawn by the article is that the integration of bomber aviation into the combined arms approach was a deciding factor in the successful liberation of Western Europe.

Flight and Honor: The Story of Ioan Dicezare in the Shadow of War

Denisa-Loredana CIOABĂ
"Henri Coandă" Air Force Academy, Brașov, Romania

This paper aims to analyze the military career of fighter pilot Ioan Dicezare, one of Romania's leading air aces during World War II. Within the broader context of the Eastern Front campaigns, Dicezare carried out over 500 combat missions and achieved 16 confirmed aerial victories, distinguishing himself through courage, discipline, and technical mastery. The study situates his activity within the framework of Romanian military aviation between 1939 and 1945, highlighting the logistical challenges, strategic missions, and sacrifices faced by fighter pilots. The case study on Ioan Dicezare emphasizes not only his operational performance but also his exemplary moral conduct during and after the war. The analysis demonstrates that Dicezare was not merely a

skilled aviator but also a symbol of military honor in a historical context marked by uncertainty and political change. His silence and dignity in the postwar period reinforce the idea that true military honor transcends official recognition. This research seeks to bring greater visibility to an underappreciated historical figure and to highlight the essential role of moral integrity in the professional identity and historical memory of the Romanian military.

Balkan Wars

Alex COJOCARU
"Henri Coandă" Air Force Academy, Brașov, Romania

This study analyzes the causes, developments, and consequences of the two Balkan Wars (1912-1913), events that significantly altered the geopolitical map of the Balkan Peninsula. The first part of the paper explores the historical context, rivalries between the Balkan states, and their desire to free themselves from Ottoman rule. The second part details the course of the conflicts, and the final section examines the impact on the region and the implications for World War I.

The Napoleonic Military Revolution: Innovation, Structure, and Tactical Dominance in the Grande Armée

Dragos-Constantin CONORO
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The structure of armies during the Napoleonic era was revolutionized by Napoleon Bonaparte through organizational and tactical innovations. The French army relied on mobility, flexibility, and efficient integration of forces, organized into autonomous army corps composed of infantry, cavalry, and artillery. The infantry, the main pillar, was structured into regiments and brigades, with specialized units (grenadiers, voltigeurs) for rapid maneuvers. The cavalry ensured reconnaissance and swift attacks, while the artillery, modernized by Napoleon, provided concentrated fire on enemy weak points.

Sailing Through Skin. Navigating the Depths of Tattoo Culture: Origins, Designs, and Meanings

Flavius COSTESCU, Robert-Ioan PETRE
"Mircea cel Bătrân" Naval Academy, Constanta, Romania

This paper delves into the rich tradition of tattoos among sailors, unraveling their origins, designs, and symbolic meanings. From ancient seafaring cultures to modern maritime practices, tattoos have been an integral part of a sailor's identity. By investigating historical records, cultural anecdotes, and contemporary perspectives, this paper explores how tattoos evolved from practical markers of seafaring experience to intricate works of art expressing personal narratives and affiliations. Examining various tattoo designs prevalent among sailors, such as anchors, nautical stars, and mermaids, alongside their symbolic significance, sheds light on the deep-rooted maritime culture. Through this exploration, we gain insight into the enduring allure of tattoos within the sailor community and their time-honored significance in maritime heritage.

The Invasion that Never Was: Unpacking Operation Sea Lion

Sergiu COZMA
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Operation Sea Lion, Adolf Hitler's proposed invasion of Great Britain in 1940, stands as one of the most intriguing unrealized military campaigns of the Second World War. This paper explores the conceptualization, planning, and ultimate cancellation of the operation, offering a comprehensive analysis of why the invasion never materialized. While often dismissed as a flawed or fantastical scheme, Operation Sea Lion was taken seriously by both the German High Command and British defence planners.
By examining German war diaries, naval and air force planning documents, and British counter-invasion preparations, this study reconstructs the strategic calculus behind the operation. Key factors in the operation's abandonment include the Luftwaffe's failure to achieve air superiority during the Battle of Britain, the Kriegsmarine's limited amphibious capabilities, and logistical challenges posed by the English Channel's geography. Moreover, the paper delves into internal German disagreements, the underestimation of British resilience, and the influence of broader strategic priorities, such as the planning for Operation Barbarossa. The psychological and political impact of the threatened invasion on British society and military doctrine is also assessed.
Through this detailed unpacking of Operation Sea Lion, the paper contributes to a deeper understanding of how unrealized plans can nonetheless shape wartime policy and perception. It ultimately argues that the failure to launch the invasion was not merely a missed opportunity for Germany, but a critical turning point that preserved Britain as a base for Allied resurgence in Europe.

The Actions of Zeppelins in World War I

Vasilică Alexandru DINIȚĂ
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This study examines the role and impact of zeppelins in World War I, focusing on their use in military operations. Zeppelins represented a new frontier in aerial warfare, being employed both for strategic bombings on enemy cities and for reconnaissance and patrol missions. The analysis includes the technological evolution of zeppelins, their tactical deployment, and their effects on civilian morale and military strategies. Additionally, the study discusses the implications of zeppelins on the development of military aviation and total warfare in the 20th century.

Captain Gheorghe Popescu-Ciocănel

Ionița DUNCA
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Gheorghe Popescu-Ciocănel (1913–1944) was a symbol of heroism and excellence in the Romanian military aviation. From his humble beginnings in Ploiești to becoming a decorated and respected pilot, his life was a journey marked by ambition, discipline, and dedication. Participating in some of the most dangerous aerial missions of World War II, he demonstrated remarkable courage and unmatched skill in aerial combat, achieving 19 confirmed victories. Decorated with the highest military honors, Gheorghe Popescu-

Ciocănel became a legendary figure in the history of Romanian aviation. His heroic death during the defense of Ploiești against an American air raid solidified his status as a national hero, exemplifying the ultimate sacrifice for his country. His life remains a powerful example of patriotism and excellence, continuing to inspire future generations.

The Typology and Specific Characteristics of Theaters of Operations Over the Past 30 Years. The Historical and Geopolitical Context of the International Intervention in Afghanistan

Tania-Ionela FLOREA
"Henri Coandă" Air Force Academy, Brașov, Romania

This paper explores the evolution of military theaters of operations over the past three decades, with a focus on the changes triggered by unconventional threats and the rise of asymmetric warfare. The study analyzes the shift from traditional interstate conflicts to modern complex environments, characterized by non-state actors, blurred frontlines, and urban combat. Special attention is given to the case of Afghanistan, highlighting the geopolitical stakes, the international intervention led by NATO, and the challenges faced by coalition forces. The paper also discusses the lessons learned in terms of military strategy, political reconstruction, and the limits of external interventions in fragile states.

Radars in Romania's Air Defense During the Cold War

Alexia-Mihaela GOARNĂ
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The article analyzes the role of radars in Romania's national defense during the Cold War, highlighting its impact on air security. The first part will present the geopolitical context of the period and how Romania became a part of the Warsaw Pact. The next section will explore the radars infrastructure used, including the types of radars and how they contributed to defending the airspace. The article will also examine Romania's strategy to develop a more independent military capability, separate from Soviet influence. Finally, the post-1989 period will be discussed, focusing on the modernization of radar systems and integration into NATO structures. This study emphasizes the importance of radars for national security and how it has evolved over time.

The Battle of the Coral Sea

Maria-Emilia GOGOTĂ
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The Battle of the Coral Sea (May 4–8, 1942) represents a defining moment in the history of aeronautics during the Second World War. It was the first naval engagement in which the outcome was determined exclusively by carrier-based aviation, rather than direct gunfire between surface ships. The opposing forces were the Allied Air and Naval Forces, composed primarily of the United States and Australia, and the Imperial Japanese Navy. This paper analyzes the aeronautical dimension of the battle, focusing on the coordination, tactics, and effectiveness of naval air groups that shaped the course of the conflict. While Japan sought to expand and consolidate its defensive perimeter in the South-West Pacific and isolate Australia from American support, the Allies aimed to halt

Japanese expansion and protect Australia. The battle thus resulted in the first loss of a Japanese aircraft carrier (Shoho), and although the United States lost the Lexington, the strategic objective of stopping the Japanese advance toward Port Moresby was successfully achieved. The paper also analyzes the technological and tactical conclusions drawn from this battle, emphasizing the decisive role of cooperation between air forces and naval forces. This interdependence had a significant impact on the development of naval-air operations and shaped the course of future conflicts, particularly the Battle of Midway.

The Revolution of Air Warfare in the Interwar Period and the Early Stages of the Second Word War

Radu Andrei JUGĂNARU
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Aviation in World War II played a key role not only in the initial successes of the Wehrmacht but also in shaping the evolution of modern warfare. The Luftwaffe, Nazi Germany's air force, was among the most advanced in the world at the beginning of the conflict. It played a crucial role in the Blitzkrieg strategy, which combined rapid tank and infantry assaults with precise air strikes. This high level of coordination highlighted the importance of integrating air power into combined military operations.
Beyond its tactical role, the Luftwaffe aimed to achieve air superiority—a relatively new concept at the time, but one that proved essential for controlling the battlefield. Its dominance was clearly demonstrated during the campaigns in Poland, France, and the early stages of the Eastern Front.
This project explores how German aviation developed both as an institution and as a powerful military force. It also examines how close coordination with ground forces reshaped the modern warfare.. The Luftwaffe showcased the devastating potential of air power, making other nations to rethink their military doctrines and cementing aviation as a vital component of modern combat.
Through an analysis of the Luftwaffe's evolving tactics, technologies and strategic impact, this project aims to reveal how German air power influenced the course of early stages of World War II and left a lasting legacy on modern military doctrine.

For Our Freedom and Yours: The Distinguished Service of Polish Pilots in the British Royal Air Force During the Second World War

Marek KOPLIN
Faculty of Security, Logistics and Management, Military University of Technology, Warsaw, Poland

As the invasion of Poland rapidly progressed in 1939, many pilots of the Polish Air Force managed to escape to France and later to Britain after the fall of France. Following the signing of the Anglo-Polish agreements, Polish fighter squadrons were formed to support the Royal Air Force. The actions of Polish squadrons during the Battle of Britain and other operations until 1945 played an important role in the defense of the United Kingdom against Nazi Germany's aggressive expansion. Among the squadrons, the 303rd "Tadeusz Kościuszko Warsaw" Fighter Squadron was one of the most effective, claiming the highest number of enemy aircraft shot down among all fighter squadrons during the campaign.

The valiant efforts of the Royal Air Force and the Polish pilots were among the factors which ultimately led to the cancellation of Operation Sea Lion and prevented Hitler's plans for a ground invasion of the British Isles. In the later stages of the war, Polish pilots took part in numerous Allied operations against Nazi Germany. This paper explores the tactical, strategic and symbolic significance of the efforts of the Polish pilots during their service in the Royal Air Force throughout the Second World War.

From Medieval Fortresses to Modern Missile Shields: Strategic Continuities in Romanian Defense Thinking From the Middle Ages to the NATO Era

Cristina LEFTER
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This paper investigates the long-term continuities in Romanian strategic thinking by tracing a historical arc from medieval fortresses to the NATO missile defense system at Deveselu. Romania's defensive strategies have consistently reflected its geopolitical vulnerability and complex relations with neighboring powers. Whether through stone citadels, Cold War-era bunkers, or modern anti-ballistic installations, Romanian defense culture has emphasized territorial control, alliance-building, and infrastructure-based deterrence. By analyzing these persistent themes across centuries, this paper argues that modern defense choices are embedded in a strategic culture that has adapted to technological evolution while preserving foundational logics rooted in geography, history, and national identity.

Psychological Warfare and Use of Force for Maintaining Control in the Communist Era the Pitești Experiment

Matei-Costin LEMNARU, Alexandru-Ionuț CLOCOȚAN, Andrei BÎRDEA
"Alexandru Ioan Cuza" Police Academy, Bucharest, Romania

The Pitești Experiment, which happened in Romania between 1949 and 1952 remains the most brutal torture programe in the history of the whole Soviet bloc.
It was initiated under the leadership of Partidul Muncitoresc Roman and sanctioned unofficially by institutions such as the political police(Securitatea), it aimed to reeducate political prisoners, which were mainly elites, such as students and intellectuals, through systematic dehumanization.
One of the most effective techniques for breaking the spirit was that the victims were not only forced to endure torture, but to also torture their peers, thus erasing the line between victim and torturer, instilling paranoia and the constant feeling that they were alone in their suffering. Directed by Alexandru Nicolschi, and under the supervision of Eugen Țurcanu, prisoners were subjected to immense psychological and physical torture, including isolation, brutal beatings and self-hummiliation.
Through these methods, they were aiming to break the human spirit, forcing the victims to admit to fake crimes, not only admitting to said crimes, but also blaming their own family for crimes they didn't commit and promote the ideology imposed on them by the perpetrators.

The experiment was finally exposed after the regime's fall in 1989, despite it's efforts to hide the truth. This event stands as a reminder of the dangers of totalitarianism, regimes which prioritise control over humanity.
The Pitesti experiment is a lesson, teaching us how weaponised ideology can convert simple humans to instruments of repression.

Development of Anti-Aircraft Artillery and Missile Systems in the Post-War Period

Sebastian LETEA
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The paper analyzes the evolution of artillery and anti-aircraft missile systems in Romania in the post-war period, in the context of geopolitical, military and technological changes. Starting from the experience of World War II, when Romanian air defense focused on protecting troops and strategic objectives, the study traces the structural and operational transformations that occurred with Romania's entry into the Soviet sphere of influence. The Sovietization of the Romanian army involved not only the adoption of Soviet military equipment, but also the profound reorganization of the command and training structures. The establishment of the Territorial Air Defense Command marked an essential stage in the development of an integrated defense.
The paper documents the transition from classical artillery to modern surface-to-air missile systems, starting with the introduction of the S-75 Dvina system, followed by successive modernizations such as the S-75M Volkhov, KUB, Neva or Strela. The post-communist period brings to the fore the need for integration into NATO systems, and Romania has invested in modern systems such as Hawk, Patriot and HIMARS, strengthening air defense and actively contributing to collective security.
The study highlights the importance of protecting national economic and strategic objectives, a constant in air defense doctrine over the decades, with increased relevance in the current international security context.

From The Radars of the World Wars to Modern Radar Technologies

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The paper analyzes the evolution of radar technologies, from the radars used in the early world wars to modern radar systems. It investigates how early radars were essential in military strategy, helping identify and track targets. The article examines major technical advancements made during the interwar period and World War II, highlighting their use in military conflicts. It also explores innovations in the post-war period and the development of high-performance radar technologies, which led to the creation of modern radar systems used today in various fields, from defense to civilian navigation. The article examines the impact of these technologies on military strategies and national security, as well as the challenges and development directions for the future.

The Importance of Air Defense in Southeastern Romania in the Context of the Current Conflict on the Eastern Flank

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In the context of escalating tensions on NATO's eastern flank, especially following the outbreak of the war in Ukraine, southeastern Romania has gained strategic importance in terms of national and regional security. This paper explores the role of air defense in this vulnerable region, with a particular focus on the Mihail Kogălniceanu Air Base, one of Romania's key military installations near the Black Sea.
Situated at the intersection of NATO's eastern frontier and close to potential zones of conflict, the base ensures rapid reaction capabilities, supports air surveillance, and facilitates joint operations with allied forces. The geographical features of Dobrogea, including its open plains, the Danube Delta, and maritime access, add both tactical advantages and logistical challenges to air defense planning.
The study also examines the historical evolution of the Mihail Kogălniceanu Air Base, its current infrastructure, and its critical role in collective defense efforts. While the base's location offers strategic leverage, it also increases exposure to potential threats, underlining the need for constant security upgrades and a possible redistribution of military assets across the country to enhance resilience.
By reinforcing air defense systems and improving interoperability with NATO partners, Romania not only strengthens its national defense but also contributes to the stability of the Black Sea region. This paper highlights why the southeastern airspace must remain a top defense priority in current and future security strategies.

Media as an Actor in Promoting Peace

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This chapter explores the complex role of mass media in promoting peace during times of conflict, emphasizing its potential to shape public opinion, facilitate dialogue, and support reconciliation processes. Through responsible information dissemination and historical case studies—from community radio in Africa and peace journalism during the Vietnam War to media contributions in the Northern Ireland and Middle East peace processes—the chapter highlights how media can act as a positive force for peace. Initiatives such as the ZaMir network and Cold War-era campaigns are also examined for their use of media to counter propaganda and promote democratic values. At the same time, the analysis addresses the limitations of media's role, including the risks of disinformation and manipulation, especially via social media, underscoring the need for ethical and regulated journalism. Ultimately, the chapter concludes that media can serve either as a driver of conflict escalation or as an effective tool for peacebuilding, depending on how it is used.

The Role and Art of Artillery at Dien Bien Phu

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This presentation explores the communication dynamics and strategic narratives of the First Indochina War (1946–1954), with a focus on how military, political, and ideological messaging shaped the conflict. Following Japan's World War II defeat, France attempted to reclaim its colonial authority in Indochina, facing fierce resistance from the Viet Minh, a nationalist-communist movement led by Ho Chi Minh. The war escalated into a symbolic and tactical struggle, culminating in the Battle of Dien Bien Phu. Through innovative communication and coordination, General Vo Nguyen Giap mobilized Viet Minh forces and heavy artillery across treacherous terrain, surprising French troops who had relied on conventional strategies and underestimated their enemy. This session will highlight the role of propaganda, morale-building, and logistical communication in shaping public perception and military outcomes. The defeat of French forces and the signing of the Geneva Accords marked a pivotal moment in decolonization and set the stage for the Vietnam War, offering critical lessons in strategic communication under conflict.

The Impact of Modern Radars in Electronic Warfare: Technologies, Strategic Applications and Geopolitical Implications

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Modern radars are a crucial pillar of electronic warfare, with essential applications in target detection and tracking, protecting own units through jamming, and manipulating information on the battlefield. This paper analyzes the technological evolution of radars and their use in electronic warfare, focusing on their impact on military strategies and international security. We will explore modern radar technologies, their applications, the geopolitical implications of their use, and the challenges associated with their implementation in current conflicts.

War and Refugee Influx: Regional Implications in the Former Yugoslavia

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Wars are one of the most important causes of forced migration, forcing many people to leave their homes and seek safety in other countries. A clear example is the war in the former Yugoslavia (1991–2001), which led to one of the worst humanitarian crises in Europe since World War II. More than four million people have been forced to flee their homes, and about two million have become refugees in other countries. This mass migration has had a strong impact on the security and stability of the region.
In addition to human suffering, the arrival of large numbers of refugees has put pressure on the social, economic and political services of neighbouring countries such as Croatia, Bosnia and Herzegovina, Serbia and Macedonia. In some places, this situation has led to conflicts between already tense ethnic and social groups, which has further increased instability. The refugee crisis has also led to changes in international asylum and refugee

protection policies, with some countries starting to strengthen their borders and change their attitudes towards migration.
This paper aims to analyze the link between war and forced migration, showing how the displacement of large numbers of people can destabilize affected areas. At the same time, it is important to understand how the international community reacts to such crises. Studying the former Yugoslavia can help us learn important lessons about forced migration and its effects on global politics and security, especially in a world where conflicts are increasingly prevalent.

The Manifestation of Religious Feelings in the Context of Authoritarian Regimes

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In today's world, the freedom to believe, to question, or to express faith in various forms is often taken for granted. Yet history tells a different story—one written in fire, in silence, and in resistance.
A profound truth that has echoed across centuries reminds us that the soul does not need permission to believe. This quiet yet undefeated force has endured through empires, dictatorships, and ideologies that sought to silence it.
This paper traces the long and turbulent journey of religious expression under authoritarian regimes, from Antiquity to the modern era. It begins with the Babylonian captivity, where the suppression of Jewish identity marked one of the earliest efforts to extinguish a collective spiritual consciousness. It continues with the persecution of Christians in the Roman Empire under Nero and Diocletian, and the transformation of Christianity into a state religion under Constantine the Great. The narrative then turns to the Inquisition and witch hunts—periods when religion became a tool of fear and coercion.
The French Revolution brought a new dogma—the Cult of Reason—and violently displaced the divine. The twentieth century was shaped by the Bolshevik Revolution, Stalinist and Maoist atheism, under which religion was systematically repressed. In communist Romania, faith endured in whispers, in hidden icons, and in unspoken prayers. The paper concludes with a reflection on the present, where belief coexists with ideological polarization and subtle secular censorship. It argues that religious feeling, far from being extinguished, has endured, transformed, and remains a profound expression of human dignity and hope.

From Deployment to Legacy: 15 Years of the C-27J Spartan in Romanian Air Force Operations

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The following study delves into the significance of the operational history, strategic impact, and future prospects of the C-27J Spartan in Romanian Air Force service over its 15-year deployment (2010–2025). As a cornerstone of Romania's tactical airlift capabilities, the C-27J has played a pivotal role in military logistics, NATO missions, humanitarian operations, and national defense modernization. Through an analysis of

its missions, interoperability, and cost-effectiveness, this study highlights how the Spartan has addressed Romania's need for a medium-lift aircraft capable of operating in diverse environments—from austere airstrips to NATO-led theaters. The paper also evaluates challenges in maintenance, fleet utilization, and evolving NATO requirements, while exploring potential upgrades or replacements in the context of Romania's 2030 defense strategy. By combining operational data, expert insights, and comparative analysis with platforms like the C-130 Hercules and An-26, this research underscores the C-27J's legacy as a versatile asset and its implications for Romania's future air mobility doctrine.

The Role of Naval Aviation in the Battle of Midway

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The Battle of Midway (4–7 June 1942) was a pivotal clash in the Pacific War, chiefly decided by carrier-based air power. Using broken Japanese codes, Admiral Chester Nimitz anticipated the attack, positioning three U.S. carriers (Enterprise, Hornet, Yorktown) northeast of Midway. On 4 June U.S. torpedo bombers (TBD Devastators) bravely drew off Japanese fighters (Zeros) despite being nearly annihilated. This sacrifice cleared the way for Douglas SBD Dauntless dive-bombers, which fatally hit three of four Japanese carriers (Akagi, Kaga, Soryu) in eight minutes. The remaining carrier Hiryu counter-attacked and damaged Yorktown, but U.S. dive-bombers later destroyed Hiryu. American naval aviation (aircraft and pilots) thus dealt crushing blows while intelligence and tactics were key. By 7 June all four IJN carriers were lost and Yorktown sank, a victory that shifted naval superiority. This paper examines the planning, execution, and impact of naval aviation at Midway, drawing on historical records and analyses. It shows how air power, carrier coordination, and intelligence (codebreaking) combined to secure a strategic U.S. victory.

Lieutenant Commander Dumitru Naidinescu Commander of the "Balta Verde" Airport in Craiova

Andreea ȘANDRU
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Endowed with exceptional abilities and a natural vocation for flight, Commander Aviator Dumitru Naidinescu emerged as a prominent figure in Romanian aviation, distinguished by his comprehensive professional training, leadership, and patriotism. A graduate of the Băneasa Flight School and a veteran of World War I, Naidinescu made significant contributions both in combat missions and in the development of aviation education in Romania.

Throughout his military career, he stood out not only for his bravery in aerial missions but also for his unwavering dedication to instructing and mentoring future generations of pilots. As a flight instructor at Tecuci and later in Craiova, he trained numerous pilots, among whom the most notable is Smaranda Brăescu, Romania's first female parachutist and aviator. His role in shaping Romanian military aviation extended into the interwar period and World War II, where he served in commanding roles at the Aerodrome of Caracal and the Pilot School at Craiova.

Commander Naidinescu was decorated for his valor and professionalism, including with foreign military honors, and remained an emblematic figure in the history of Romanian aeronautics. His legacy is preserved not only through military archives and personal correspondence, but also through artifacts and cultural heritage objects, such as his flight equipment, now held in national collections.

The Role of Air Superiority in Coalition Operations During the Gulf War

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The 1991 Gulf War marked a watershed moment in modern warfare, demonstrating the decisive impact of air superiority on coalition military operations. This paper examines how the swift achievement of air superiority during the earliest hours of Operation Desert Storm fundamentally shaped the subsequent course and outcome of the conflict. Drawing on primary sources and historical analyses, the study explores the command structure that enabled effective coordination of multinational air assets, the technological and human factors that facilitated dominance of Iraqi airspace, and the cascading effects of air superiority on both strategic bombing campaigns and ground operations. The research reveals that air superiority was not merely a preliminary phase but rather the critical enabling factor that allowed coalition forces to operate with minimal opposition, neutralize Iraqi military capabilities, and achieve their objectives with remarkably low casualties. The findings highlight enduring principles for future coalition operations while acknowledging the unique contextual factors that characterized this conflict. This analysis contributes to our understanding of how air superiority transforms the operational environment and serves as a force multiplier in coalition warfare.

Lieutenant Enescu Athanase

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Lieutenant Enache Athanase, a Romanian World War I pilot, obtained his military pilot's license on June 24, 1914 (the 26th pilot licensed). A graduate of the Cotroceni Military Aviation School, later having the chance to advance in the military hierarchy to the rank of air squadron general, he was one of the senior officers who held important positions in the management of Romanian aviation during the First World War.

One Man Judged, a System Exposed: The Trial of Lieutenant Calley

Maria TESLIUC
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The trial of Lieutenant William Calley for his role in the My Lai massacre remains one of the most pivotal and contentious episodes in the history of American military justice. This study examines the context, legal proceedings and ramifications of the trial, analyzing primary sources and scholarly work to explore themes of responsibility, command authority, legality and memory. The article argues that while Calley was the sole individual convicted, the massacre reflected systemic failures at all levels of the U.S. military establishment. Drawing from the investigative journalism of Seymour Hersh, the scholarly analysis of Howard Jones, and the legal retrospection by Joseph Berger, this

article reconsiders the Calley trial as a lens into the challenges of accountability in wartime, the evolution of military law and the shifting moral consciousness of the U. S. Army.

Wings of Honor: The Life And Military Contributions of Romanian Aviator Alexandru Dudu Frim

Lucian Ionuț TOCITU
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This paper analyzes the strategic and symbolic contributions of Alexandru "Dudu" Frim to Romanian military aviation. Using a historiographical and operational lens, the study examines his transition from civilian pilot to military aviator, emphasizing his role in enhancing aerial reconnaissance, long-range flight capabilities, and doctrinal innovation during the interwar and WWII periods. Frim's career is contextualized within broader airpower development and national defense paradigms. Drawing on archival sources and military records, the research highlights his influence on the professionalization of the Romanian Air Corps and the integration of aviation into multi-domain operations. The paper contributes to a deeper understanding of how individual agency intersects with institutional evolution in early 20th-century military aviation.

The Treatment of American Aviator Prisoners of War in Romania During the Second World War in Accordance with International Humanitarian Law

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This paper offers a detailed analysis of how American prisoners of war were treated in the Timișu de Jos camp, where Allied officers and non-commissioned officers captured during air raids in the Bucharest area and the Prahova Valley were interned. The study highlights the humane and dignified attitude of the Romanians, demonstrated despite the difficult conditions of the time.

The Role of Radars in the Second World War

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World War II was marked by the use of radar, a technology essential to the success of military operations. This project analyses the importance of radars in air and naval battles, territorial defence, and electronic warfare. Radar enabled the early detection of enemies, preventing surprise attacks and coordinating interceptions. It also profoundly influenced military tactics and strategy, having a significant psychological impact on both troops and the population. This project explores how radar contributed to changing the course of the war and transforming modern warfare.

From Cavalry to UAV's: Technological Revolutions in Romania's Military History

Vasile VOINEA
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This paper explores the evolution of military technology in Romania, tracing the transition from traditional cavalry units to the integration of modern unmanned aerial vehicles (UAVs). Through a historical lens, it examines key milestones in the Romanian Armed Forces modernization process, including Soviet-era mechanization, NATO-driven reforms, and recent advancements in drone warfare. By analyzing the socio-political and strategic contexts that shaped these transformations, the study highlights Romania's adaptive military strategy and its pursuit of technological self-sufficiency. The research underscores how technological revolutions have not only redefined Romania's defense capabilities but also its role within regional and global security frameworks.