RISE SD 2023

MAY 29-31, RHODES, GREECE

SECURITY AND DEFENSE 2023
CONFERENCE

**The "Research and Innovation Symposium
for European SECURITY and Defense"**

PROCEEDINGS BOOK

Online edition

Athens, 2023

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PROCEEDINGS BOOK

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FOREWORD

We are pleased to introduce this collection of proceedings linked to the presentations made in the context of the Research and Innovation Symposium for European SECURITY and Defense 2023 (RISE-SD2023).

This conference brought together experts from across the crisis management, physical and cyber security, critical infrastructure protection, border management and defense technology spectrum to present, discuss and showcase research results and some of the most innovative solutions developed in the context of relevant European R&D projects.

The papers and presentations in these proceedings examine several aspects of security and defense challenges our world faces nowadays and offer insights into the related groundbreaking technologies and strategies being developed to address these challenges.

From cyber threats to natural disasters, this collection offers a panorama of the E.U. research and innovation potential, being a valuable resource for anyone seeking to understand the latest developments and best practices in crisis management and defense technology.

We would like to thank all the contributors to this collection for their hard work and dedication to advancing E.U. security research and innovation, and we look forward to seeing the impact of their efforts on the world at large.

The RISE-SD2023 Organizing Committee

PERIVALLON

PERIVALLON: Protecting the EuRopean terrItory from organised enVironmentAl crime through inteLLigent threat detectiON tools

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Environmental crime and, more specifically, organised environmental crime is identified as one of the key crime threats faced by the EU, being undeniably on the rise. As part of the EMPACT (2022-2025) priorities1 and having a 5-7% yearly growth in number of offenses2, environmental crime has turned into one of the leading crimes on the European and global stage. Intentional dumping of polluting substances, illegal disposal of (hazardous) waste, (cross-border) illegal trafficking of waste, and illegal trade of HFCs are examples of organised environmental crime. Such forms of crime can be challenging to detect and difficult to investigate by conventional means, highlighting the need for more sophisticated solutions enabling remote identification and evidence collection, as well as multimodal analysis and correlation of the information obtained.

PERIVALLON is the acronym for the European Commission Horizon Europe co-funded innovation action project entitled: Protecting the European territory from organised environmental crime through intelligent threat detection tools. Its focus is to combat organised environmental crime mainly by: 1) Developing an environmental crime detection and investigation platform at the forefront of technological innovation, and 2) Improving capacity building and international cooperation of security practitioners through enhanced investigation processes. The needs of Police Authorities, Border Guards and Regional and National Authorities will be addressed as the main security practitioners.

To materialise such ambition, PERIVALLON starts with approximately 17 innovative components, most around TRL53: Technology validated in relevant environment. These components will be integrated to build a unique platform providing a single-entry point for the end-users: the PERIVALLON platform. This platform will exploit the latest advancements in Artificial Intelligence (AI) in the fields of geospatial intelligence, remote sensing, online monitoring, and multimodal analytics. The capabilities include: automatic detection of waste disposal and pollutants on land and water based on satellite imagery; optimal inspection and characterisation of sites of interests based on imagery captured by (swarms of) Unmanned Aerial Vehicles (UAVs); optimised X-ray scanning of concealed objects; multimedia-multilingual online monitoring and content analysis; maritime routes prediction; pattern recognition; real-time risk assessment; predictive analysis; audit trail and secure evidence collection and exchange; and holistic situational awareness. Multidimensional integration of multimodal sensor data, ranging from satellite images, video streams from cameras mounted on UAVs, to information gathered from publicly available online sources and related administrative documents, is at the core of the PERIVALLON platform. Through the analysis and correlation of such multimodal information, the platform will support explainable decision-making by all relevant security practitioners towards detecting, investigating, and preventing environmental crimes. Further, international cooperation and secure evidence collection will be established through improved data sharing and blockchain technologies.

Moreover, PERIVALLON provides a comprehensive intelligence picture of environmental crime in Europe through its Environmental Crime Observatory. It identifies types of environmental crime in Europe and its prevalence in the EU countries, outlines their impact on the societal level, analyses the key actors involved and its links to organized crime groups and networks, with particular focus on their modus operandi both online and offline. The insights obtained will be exploited to derive enhanced investigation processes and methodologies. Comparable EU statistics as well as surveys with the relevant security practitioners will provide a multi-perspective foundation of the Observatory.

Moreover, the capacities of the involved security practitioners will be improved through PERIVALLON by means of extensive training, hands-on experience, joint exercises, and testing of key technologies in relevant environments, boosting the uptake of the PERIVALLON technological stack. To this end, the application of PERIVALLON capabilities will be validated in four transnational operational demonstrations, including one EU Agency as well as authorities from Italy, Greece, Belgium, Sweden, Romania, and Moldova.

This paper offers an initial look into the PERIVALLON project, its objectives, ambition, and the technological components that will be integrated into a tailored platform that is expected to significantly increase the capacity of relevant authorities to detect, investigate, and prevent environmental crimes in Europe and beyond.

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ProSPeReS

Vulnerability Assessment for EU Places of Worship

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Extended Abstract

Aimed toward increasing the protection level of Places of Worship (PW) in the EU, the ProSPeReS project follows a risk-based approach, which among other activities, includes Vulnerability Assessments (VAs) for selected PW.

A VA is part of risk assessment (ISO, 2018) and it entails the examination of assets, security measures, policies, and procedures at a site of interest, in order to identify its weaknesses against potential attacks against it. It is a cooperative and multidisciplinary process, acknowledged as a good practice by the European Union (EU) (EC, 2019) for improving the Protection of Public Spaces of the EU Member States, including PW.

VA workshops have been performed by the ProSPeReS consortium (including site surveys), and have been organised for a) the Christian Orthodox Church of Saint Paisios (Ioannina, Greece), b) the Catholic Archcathedral of Stanislaus Kostka (Lodz, Poland) and c) Nozyk Synagogue (Warsaw, Poland). The aim of the workshops was to identify common security needs and gaps and to exchange good practices for the protection of their PW, while bringing together the PW's management and staff, local law enforcement officers and emergency responders in order to get actively involved in the VA process, discuss various threat scenarios and consider solutions,