

## Preface

The main aim of the Twelfth International Conference *Digital Presentation and Preservation of Cultural and Scientific Heritage (DiPP2022)* is to bring together as many interested institutions as possible working on digitising, recording, documenting, archiving, presenting, protecting and managing cultural and scientific heritage, so that they can share their advanced thoughts, know-how and experience. Public and specialised libraries, museums, galleries, archives, community centres, research institutions and universities are expected to share and acquire knowledge, skills, and expertise at the event.

Four types of papers are presented – invited papers, full papers, short papers, and project papers. The first three types discuss current scientific results, trends and achievements in the field of digital preservation and presentation of cultural and scientific heritage. The project papers present developments in progress, part of them experimental, made by memory institutions during their institutional projects.

- *Invited papers*

The paper by Eliza Stefanova and Krassen Stefanov analyses the utilization of digital libraries for knowledge access and sharing in the digital market in the context of the European Open Science Cloud infrastructure.

The paper by Nektarios Moumoutzis, Marios Christoulakis, Chara Xanthaki, Nikos Pappas, Yiannis Maragkoudakis, Stavros Christodoulakis and Desislava Paneva-Marinova describes a digital storytelling platform for creation of traditional shadow theatre scenarios and characters and its use in mixed reality installations.

The paper by Zinta Haļzova analyses the collections and databases of the online local history research in Latvian public libraries as sources of oral history and historical heritage.

The paper by Zsolt László Márkus, Tibor Szkaliczki, György Szántó, Miklós Veres, Zsolt Weisz, Detelin Luchev, Desislava Paneva-Marinova, Maxim Goynov, Radoslav Pavlov and Lilia Pavlova presents the Bulgarian-Hungarian cooperation in the development of a virtual walk in the Church of Nativity in Arbanasi, Bulgaria.

- *Full papers*

The paper by Alexander I. Iliev and Ameya Mote proposes a final neural network model for recognition of basic human emotions in a video dataset.

The paper by Antonia Staneva, Katia Rasheva-Yordanova and Daniela Borissova presents the approaches for the creation of interactive lessons on mural paintings.

The paper by Svetoslava Dimitrova, Tereza Trencheva and Evelina Zdravkova and Kamelia Planska-Simeonova compares data on four types of industrial property, based on the World Intellectual Property Organization (WIPO) Indicators.

The paper by Evita Pilege, Sandra Plota, Girts Pilegis, Marga Zivitere, Detelin Luchev and Maxim Goynov discusses the influence of the information and communication technologies on cultural rights.

The paper by Sebiha Madanska presents one of the ontologies in the project for the Semantic Modelling of the Bulgarian Pre- and Revival houses.

The paper by Mariya Grancharova-Hristova, Nevena Moraliyska, Todorka Glushkova and Konstantin Rusev examines an approach to standardized presentation and virtualization of Bulgarian heritage sites and its use secondary school education.

The paper by Rosen Ivanov and Victoria Velkova presents the architecture and implementation of a service that delivers personalized content to open-air museum visitors.

The paper by Dušan Tatić describes the use of digital application for presentation of the military history of Niš, Serbia.

The paper by Stanislav Simeonov and Ekaterina Gospodinova demonstrates a new method for constructing modal interfaces for information structure of a smart gallery.

The paper by Radoslav R. Yoshinov, Iveta B. Koleva and Borislav R. Yoshinov evaluates the efficacy of application of an electronic archive in the rehabilitation.

The paper by Neli Simeonova and Ekaterina Gospodinova describes the creation of a mathematical model processing the output signal of video surveillance systems for cultural heritage protection.

The paper by Magdalena Stoyanova, Diego Stoyanov and Lilia Pavlova outlines the study of an ancient icon using imaging techniques and the identification of its possible authors.

The paper by Sujith Gunjur Umapathy and Alexander I. Iliev presents an approach with multi-loss functions to handle unbalanced classes in floorplans using U-Net architecture.

The paper by Stefka Kovacheva and Ludmila Dimitrova overviews the web-based application “Me and UNESCO” and the database “Bulgarian cultural and historical heritage under the protection of UNESCO”.

- *Short papers*

The paper by Georgi Kostadinov, Kristian Milev, Stefan Staynov and Asya Stoyanova-Doycheva proposes an algorithm for automated tourist guide route generation.

The paper by Todor Todorov and Shpend Lutfiu explores the principles and standards for risk management of modern digital museums.

The paper by Elena Zaharieva-Stoyanova discusses problems related to the development of cross stitch pattern software.

The paper by Daniela Pavlova explores the potential use of mobile devices and applications for non-expert contribution to the digitalisation of cultural heritage.

The paper by Todor Todorov, Galina Bogdanova and Nikolay Noev discusses accessibility issues arising from the use of CAPTCHA protection techniques.

- *Project papers*

The paper by Yanislav Zhelev, Mariya Monova-Zheleva and Evgeniya Nikolova presents the most significant initiatives related to the digitalisation of the cultural heritage of the region of Burgas, Bulgaria.

The paper by Viktoriya Ivanova presents the project “Creating a digital collection in the fund of the University library in University of Ruse “Angel Kanchev”.

The paper by Ivet B. Koleva, Borislav R. Yoshinov and Radoslav R. Yoshinov describes the creation of an electronic archive of medical educational materials.

The paper by Zhanina Dubarova-Kostadinova, Radovesta Stewart and Todor Kostadinov proposes approaches for application of digitalisation techniques in the design stage of cultural heritage presentation.

The paper by Aneta Karaivanova, Emanouil Atanassov and Todor Gurov gives an overview on the current competences in HPC, HPDA and AI in Bulgaria and outlines plans for future development.

The paper by Aneta Karaivanova, Emanouil Atanassov, Todor Gurov, Peter Stanchev and Georgi Simeonov summarizes the Bulgarian participation in the e-infrastructure part of the NI4OS-Europe project.

- *Workshops and Demos*

*The Workshop and the 13<sup>th</sup> National Information Day: Open Science, Open Data, Open Access, Bulgarian Open Science Cloud*, chaired by Peter Stanchev, Aneta Karaivanova, Yanita Zherkova, Hristiyaniya Klisarova, Radoslav Pavlov and George Simeonov gives an overview of the current landscape and the activities on national and institutional level regarding Open Science, Open Access to scientific information, Open Data and the overall development of the Bulgarian Open Science Cloud.

*The Workshop on Approaches, Models and Tools for Digitization of Specific Ethnographic Objects*, chaired by Yanislav Zhelev, Mariya Monova-Zheleva and Evgeniya Nikolova outlines a proposed methodology and a model for digital presentation, preservation and promotion of ritual recipes and presents the online training resources developed.

*The Information Day: Research Infrastructure Services in the Humanities and Social Sciences*, chaired by Desislava Paneva-Marinova, Maxim Goynov, Detelin Luchev, Yanislav Zhelev, Mariya Monova-Zheleva, Radoslav Pavlov, Lubomir Zlatkov, Nikolay Noev, and Lilia Pavlova presents results of the work of the Institute of Mathematics and Informatics at the Bulgarian Academy of Sciences and Burgas Free University teams on the project CLaDA-BG, the Bulgarian National Interdisciplinary Research e-Infrastructure for Resources and Technologies in Favor of the Bulgarian Language and Cultural Heritage, Part of the EU Infrastructures CLARIN and DARIAH: the development of the Humanities and Social Sciences Data Storage, Retrieval and Curation En-

vironment and its implementation in the Digital Library “Virtual Encyclopedia of Bulgarian Iconography” and for the needs of the “Ivan Vazov” Regional Library in Plovdiv and “Peyo Yavorov” Regional Library - Burgas.

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