

Preface

The main aim of the Ninth International Conference *Digital Presentation and Preservation of Cultural and Scientific Heritage (DiPP2019)* 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 Charalampos Symeonidis, Iason Karakostas, Efstathia Martinopoulou, and Ioannis Pitas presents a variety of state-of-the-art algorithms and commercial software used in 3D reconstruction and employs one of them for generating 3D monument surface models of some of the most popular Paleochristian and Byzantine monuments located in Thessaloniki, Greece.

The paper by Nektarios Moumoutzis, Yiannis Sifakis, Stavros Christodoulakis, and Desislava Paneva-Marinova discusses a concrete system addressing creativity and learning in the field of cultural heritage (history teaching and learning): ViSTPro. ViSTPro enables the visualization of spatiotemporal processes, thus facilitating active learning of historical events.

The paper by Szabolcs Czifra, Adrienn Pálinkás, Zsolt László Márkus, Tibor Szkaliczki, Miklós Veres, and Zsolt Weisz introduces GUIDE@HAND application which promotes archaeological sites by using a variety of interactive multimedia objects including maps, serious games, augmented reality, videos, panorama pictures, guided tours among others.

Niv Ahituv's paper discusses how the scientific discipline of Data Sciences fits into academic programs intended to prepare data analysts for the business, public, government, and academic sectors.

Kiril Simov's paper reports on the integration of language and knowledge resources within CLaDA-BG infrastructure. The idea is to encode linguistic knowledge on all levels of language from text analysis, grammatical annotation and lemmatization to semantic and conceptual annotation.

- *Full papers*

The paper by Danail Dochev, Radoslav Pavlov, Desislava Paneva-Marinova, and Lilia Pavlova gives a glimpse on the innovative functionalities and potential of the Digital Ecosystems for Cultural Heritage concerning digital content production, its management, distribution, aggregation, enrichment and reuse.

Joanna Spassova-Dikova's paper presents the latest developments and achievements of the scientific field Cultural and Historical Heritage and National Identity of the Bulgarian Academy of Sciences for digitization and preservation of the Bulgarian cultural and historical heritage by using transdisciplinary approaches.

The paper by Huiling Feng, Xiaoshuang Jia, Yanyan Wang, Li Niu, and Yongjun Xu explores the backgrounds of the new paradigm of digital memory emerging in digital preservation and presentation in the cultural heritage field.

The main objective of Rosen Ivanov's paper is the description of the design and preliminary tests of a service for personalized content delivery in smart museums.

Benjamin Hanussek's paper presents the delegation of multimedia development to outsourced companies at expense of museums' integrity.

The paper by Desislava Paneva-Marinova, Jordan Stoikov, Maxim Goynov, Detelin Luchev, Radoslav Pavlov and Lilia Pavlova proposes a solution for intelligent data curation that can be implemented in a virtual museum in order to provide opportunity to observe the valuable historical specimens in a proper way.

Michela Tramonti's paper discusses how the artworks, part of our cultural heritage, can become effective learning tools to be used for the study of scientific subjects, mainly science and mathematics.

Orlin Kuzov's paper overviews the role of the educational multimedia games in building lasting interest among young people in loving and preserving the cultural and historical heritage of a country.

The paper by Magdalena Stoyanova and Lilia Pavlova analyzes the reliability of digital post processing techniques to support distinguishing of application methods, original and remade areas, and for detailed damage assessment through digital mapping the condition and historic phases of the mosaics in Torcello/Venice.

The paper of Ivan Derzhanski and Olena Siruk describes a research of the intensifying (relative) adjectival prefix pre- in Bulgarian and Ukrainian in a bilingual corpus of parallel texts.

Radoslav Pavlov and Detelin Luchev's paper discusses problems and best practices for providing open access to digital repositories for scientific publications in social sciences and humanities. It presents an example for improving the open access to those digital repositories globally and locally.

- *Short papers*

Radovesta Stewart and Stanislav Simeonov's paper overviews the process of digitalizing old studies related to the cultural heritage from the archives of Regional historical museum in Burgas.

The paper by Nikolay Noev, Galina Bogdanova, Todor Todorov, and Negoslav Sabev presents some of the problems in developing digital cultural resources for educational application of serious games and suggests a model offering better accessibility to people with visual disabilities.

The paper by Neli Simeonova, Radovesta Stewart, and Ekaterina Gospodinova discusses the presentation of cultural heritage to visually impaired people and outlines a concept for hardware realization of graphic tactile display based on a technology using tactile actuators bi-stable, solenoids and PIC based control board.

Elena Zaharieva-Stoyanova's paper proposes an approach for the development of an application for digital representation of color stitches in cross stitch pattern and crochet software.

The paper by Galina Bogdanova, Todor Todorov, and Nikolay Noev services provided by some of the popular cultural heritage application programming interfaces and outlines the search and visualization tools used with these APIs.

Stefka Kovacheva and Ludmila Dimitrova's paper describes a web based application providing additional content on the UNESCO cultural and historical heritage sites in Bulgaria.

The paper by George Simeonov and Peter Stanchev presents a brief review of the Dspace software platform for long-term data storage and the experience of using and maintaining the platform for building BulDML and BGOOpenAIRE repositories.

The paper by Atanas Georgiev and Krassen Stefanov describes the development process of Bulgarian Open Science Digital Library.

The paper by Peter Stanchev and Krassen Stefanov presents the current state of building the Bulgarian Open Science Cloud (BOSC).

- *Project papers*

The paper by Jihong Liang, Dazhi Sun, Xiaoyu Wang, Kejing Lin, and Xinxin Wang presents a website describing the royal wedding of Guangxu emperor of the Qing dynasty.

The paper by Dongqi He, Qingtang Wang, Jia Fei, and Sitong Zhou describes the digitalization of Gongche notation for the Kunqu opera and the website, created by the project team.

The paper by Xiaoshuang Jia, Yue Tan, Qianyun Xiong, Yifang Li, and Wei Hai explores the development of a WeChat mini-program that uses Chinese royal architecture decorative patterns for educational purposes.

Alden Dochshanov and Michela Tramonti's paper introduces the G.A.STEM project aiming at improving STEM skills acquisition through the use of Arts and mini-games design and development.

Daniela Pavlova's paper explores the potential of mobile applications in the field of cultural heritage.

The paper by Yanyan Wang, Yuhang Zhou, Weiwen Liu, Huiru Chen, and Yifang Li presents an overview of the construction of a virtual online 3D-museum for Beijing old objects through digital storytelling.

Pavel Hristov and Emiliyan Petkov's paper presents solutions for objectives and presentation related to 3D technology exploration and web visualization for museum exhibits.

The paper by Guancan Yang, Huilin Zhang, Xiaomei Zhang, Yue Yu, and Jie Yang demonstrates an image database and identification model for classification of Pecking opera painted faces' characteristics.

The paper by Lichao Liu, Shushu Zheng, Li Niu, and Luolin Wang details the Anhui University Memory Project, a digital repository of institution photo archives, based on the Open Archival Information System Model.

Alexander Herschung and Martin Oelgeklaus' paper introduces a file format migration software suite, based on the Open Archive Information System reference model.

The paper by Maria Teresa Artese and Isabella Gagliardi presents an ongoing study on QueryLab, a system that queries different inventories simultaneously, providing a virtual collection that can be explored through intuitive search tools.

The paper by Xinyu An, Qi Zhou, Qianyun Xiong, and Jiaqi Wang describes the AOH Project, a serious game, based on the Animal Ornaments on House-ridges – traditional Chinese architectural decorations.

The paper by Neli Simeonova, Ivaylo Belovski, and Georgi Torlakov presents a design of digital security system for museum exhibits based on a microcontroller combined with sensors of different functions and principles of operation.

The paper by Xiaoshuang Jia, Yuan Liang, Kexin Wang, Shengnan Yao, Leiqian Han, and Xingzhuan Chai presents the preliminary investigation and game design process of the Beijing Nursery Rhyme Edutainment Game.

The paper by Mariya Monova-Zheleva, Yanislav Zhelev, and Radovesta Stewart presents their work, part of the Erasmus+ Project VAL.oR and proposes a new approach supporting and sustaining local and regional cultural heritage.

Ivan Krachanov's paper offers an overview of the history of National Library "Ivan Vazov" – Plovdiv and their current developments in the field of automation and digitization.

The paper by Dimitar Iliev, Elina Boeva, and Polina Yordanova discusses the creation of a TEI XML database of ancient Greek inscriptions from Bulgaria as part of the Telamom project.

The paper by Petros Alvanitopoulos et al presents the MindSpaces, a data analysis and design adaptation platform that provides solutions for creating functionally and emotionally appealing architectural designs in urban spaces.

- *Workshops and Demos*

Peter Stanchev, Karina Angelieva, Yanita Zherkova, Radoslav Pavlov, George Simonov present the current state of Bulgarian Open access activities and the discussed topics of the National Information Day: Open Access to Scientific Publications, Data and Data Science, Bulgarian Open Science Cloud.

The workshop on *Serious Games and their Educational Applications*, chaired by Radoslav Pavlov, Desislava Paneva-Marinova, Detelin Luchev, and Lubomir Zlatkov, presents outcomes of the *National Scientific Program “Cultural and Historical Heritage, National Memory and Social Development”*, funded by the Ministry of Education and Science (approved by DCM No 577 of 17 August 2018), and outlines some future trends for educational applications of serious games.

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