PREFACE

In recent years, the research community has demonstrated considerable interest in *Digital Culture* (DC) and its online presentation, accessibility, exploitation, preservation and reuse through new tools and services to model, analyse and visualize vast amounts of DC data. The focus is on the search of innovations especially in areas/subareas relevant to data management and processing—innovative and creative tools for approaching cultural assets, applications and services for better access to and exploiting of the rich and diverse digital cultural heritage in a sustainable way, intelligent curation, creative use/re-use and remix, reinterpretation, study, understanding, analysis, personalization, adaptation, semantics, protection, restoration, preservation, etc. The research community deals with important issues of handling data directly, affecting the economy (represented by the creative and re-creative industry), the public sector (cultural institutions—museums, libraries, galleries, etc.), education, and society as a whole.

This special issue of *Serdica Journal of Computing* aims to contribute to a deeper understanding of DC. It highlights case studies, practices, innovative results, research projects and applications in the field of digitization, documentation, archiving, representation and preventive conservation of global and national tangible and intangible cultural heritage. In particular, the main goal of this issue is to gather interdisciplinary and inter-professional research on DC in order to make DC content accessible. Topics of interests include, but are not limited to:

- Leading-edge digital applications: galleries, libraries, culture sites, museums and historical tours, exhibitions and encyclopedias, interactive systems in cultural and creative industries.

- Usability, effectiveness, increased and generalized visitor experience in digital culture platforms.

- Multimedia, multilingua, data management and archiving.

- Visualization techniques (Desktop, Virtual and Augmented Reality, 2D/3D, etc.).

- Protection, restoration, and preservation of tangible and intangible cultural objects.

- Virtual reconstructions and interactive multimedia solutions for museums, culture monuments and objects, theatres, etc.

- Acceleration and facilitation of the sharing and exchange of digital culture data, e-Infrastructure networks and applications in the field of digital culture. Open access to digitized cultural heritage.

- Semantic processing of digital cultural knowledge. Techniques for extracting digital data and knowledge.

- Educational DC applications—e-learning/e-training in DC, transmedia storytelling, applied games/gamification, computer animation/simulations for DC and virtual heritage.

- Innovative solutions for cultural landscapes, taking into account the promotion of (and protection from) cultural tourism and quality of life.

The special issue features interdisciplinary studies about the complex phenomenon that takes place during the involvement of a human observer in the perception of Cultural Heritage and Art mediated by different forms of information and multimedia technologies. The objective is to create a snapshot of the current state of the art surrounding transdisciplinary methodological approaches. This issue explores when and how these new technologies add significant value and allow a viewer to enter into a closer relationship with the artwork, artefact, or site, when enhanced with digital technologies.

The Editorial Board chose Desislava Paneva-Marinova, a specialist in digital presentation and preservation of cultural heritage, as editor-in-charge of this issue. Authors and reviewers were invited whose areas of interest and competence are related to various aspects of digital culture. The selected articles deal with new visions of implementation of digital technologies for innovative presentation, study and promoting of cultural heritage.

Zs. L. Márkus, G. Kaposi, G. Szántó, T. Szkaliczki, M. Veres, Zs. Weisz, D. Luchev, D. Paneva-Marinova, R. Pavlov, and L. Pavlova's paper describes the joint research and development work of the Institute of Mathematics and Informatics at the Bulgarian Academy of Sciences and the Institute for Computer Science and Control of Hungarian Academy of Sciences towards creating an ecosystem of digital libraries and mobile applications for presenting Bulgarian scientific and cultural assets (the latter including cultural sights, icons and bells). The work involves integration of resources and creation of interactive multimedia components and applications which enable users to get personalised information through their mobile devices at any time and any place, even offline. In this way a broader audience can be reached.

The paper by E. Pavlovska presents a project for the creation of digital and facsimile copies of a unique monument of the Russian book culture – The Illuminated Chronicle Code of the 16th century – produced by order of Tsar Ivan the Terrible. The Illuminated Code contains 10,000 handwritten sheets and more than 17,000 colourful miniatures created by the best Russian scribes and icon painters of that period. The Code contains a presentation of world and local history from Biblical ages until the time of writing. The history of

the creation and preservation of the Code, the contents of its volumes, and the problems scholars face when developing the project are briefly described.

B. Bontchev's paper discusses some modern trends in the automatic generation of content for video games, making a comparative analysis of approaches proposed in last five years. The author offers a new typology of use of procedurally generated game content comprising categories structured in three groups: content nature, generation process, and game dependence. Together with two other taxonomies – of content type and of methods for content generation – this typology is used for comparing and discussing specific approaches to procedural content generation in three promising research directions based on applying personalization and adaptation, descriptive languages, and semantic specifications.

The paper by P. Arapi presents a solution for pedagogy-driven personalized learning experiences on top of cultural digital libraries. It includes a framework and an architecture for taking advantage of existing cultural digital materials residing in cultural heritage institutions to support the creation and provision of effective learning experiences not only in the context of cultural heritage held in these institutions, but also to serve other learning contexts and scenarios. Specifically, to support (a) such institutions in opening their collections to the learning community and offering formal and informal learning applications; (b) teachers in accessing digital cultural content from the institutions' collections and developing pedagogically sound learning experiences to meet the needs of learners; and (c) learners with different needs and preferences in accessing cultural material in a personalized way.

Apart from the authors, several others helped make this special issue what it is. A great part of the content profited in various manners from Ivan Derzhanski's attention for detail and sharp feeling for language and style. Radoslav Pavlov made numerous useful comments on the papers. Olena Siruk corresponded with the authors and reviewers and took care that the procedures and standards of the journal be kept. The final formatting and typesetting were done by Ivan Derzhanski.

Peter Stanchev
Editor-in-Chief