GCH 2019

Eurographics Workshop
on
Graphics and Cultural Heritage

Sarajevo, Bosnia and Herzegovina
November 6 – 9, 2019

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Preface

As the Cultural Heritage (CH) sector seeks more sustainable models for the preservation and conservation of artefacts, environments and intangible representations of heritage, the focus is shifting towards more sustainable methods for the digital documentation and access to this material. As a result, research is becoming increasingly interdisciplinary and multidisciplinary in the search for new models of engagement, methods and technologies which support taking advantage of digital technologies and digital datasets to address the pressing needs of heritage institutions and of their communities across the world.

The Graphics and Cultural Heritage research community has vast experience in interdisciplinary research and in seeking technical innovation which has a societal application. As such, in this 17th edition of the Workshop on Graphics and Cultural Heritage (GCH 2019) we placed special attention on the role of this research community for proposing novel research which underpins the safeguarding of Cultural Heritage in the digital age while addressing the social, environmental and economic challenges. Taking place at the heart of the Balkans, in the city of Sarajevo, this year's event explores the role of computer graphics and other digital technologies in the preservation and provision of access to cultural heritage which might be vulnerable from natural and man-made threats such as climate change, economic hardship, violence and neglect.

The programme includes a variety of research contributions that address these pressing needs. Novel methods for the digitisation of artefacts are presented, including open and end-to-end processes for 3D documentation and re-productions, capturing complex materials, introducing multispectral imaging processes and finding compression methods for images resulting from digitisation processes. The analysis and classification of cultural heritage material is also presented, including methods for the analysis of historical films, analysis of cracks on painted surfaces, classification of clay statuettes, retrieval of painted pottery and the exploration methods for annotated datasets. Engagement with virtual environments is presented through research conducted on virtual museums, and Augmented Reality (AR) to engage the public and Virtual Reality (VR) environments to enable them to experience seismic simulations. 3D design research includes the design of ancient garments and the extraction of 3D scenes from bas-reliefs. Community engagement with cultural heritage is proposed through storytelling mechanisms using technologies such as AR, VR and 3D printed replicas.

We hope that attendees to the workshop and readers of these proceedings will find useful insights into these technologies and ideas which can be transferred into practice to document, monitor, study, conserve/preserve and provide access to both tangible and intangible Cultural Heritage. In doing so, we are confident of demonstrating the relevance and uniqueness of this research community in terms of its interdisciplinarity, collaborative and user-inspired approach, as well as the societal impact of their research.

Karina Rodriguez Echavarria, University of Brighton
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Keynote

Etienne Tellier

Biographical Sketch

Etienne Tellier is the COO of Iconem which specialises in the 3D digitisation of endangered cultural heritage sites. After graduating from HEC School of Management, he worked as an analyst in publishing groups and as a journalist and Head of Content in magazines and media agencies before joining Iconem, where he is in charge of overseeing the company's operations along with several exhibition projects.

Keynote

Paulo B. Lourenço

Biographical Sketch

Paulo B. Lourenço is Full Professor at the Department of Civil Engineering, University of Minho, Guimarães, Portugal since 2006. He received his degree in Civil Engineering at University of Porto, Portugal in 1990 and his PhD in Civil Engineering at Delft University of Technology, the Netherlands in 1996. He has been the Co-Head of the Institute in Sustainability and Innovation in Structural Engineering since 2007 and the Co-Head of the Institute for Bio-Sustainability since 2013. He is experienced in the fields of non-destructive testing, advanced experimental and numerical techniques, innovative repair and strengthening techniques, and earthquake engineering. He is specialist in structural conservation and forensic engineering, with work on more than one hundred monuments and existing buildings, including 7 UNESCO World Heritage sites. He is also a structural masonry expert, responsible for R&D projects with the clay brick, concrete block and lightweight concrete block masonry and mortar industry. He has been a consultant on innovative masonry structures using confined and reinforced masonry, and on masonry infills. He has been the leader of the Project Team responsible for the revision of Part 1 of the European code for masonry (EN 1996-1-1). He is the coordinator of the Advanced Masters on Structural Analysis of Monuments and Historical Constructions (SAHC) since 2007, with alumni from 70 countries and Europa Nostra Award in 2017. He is co-editor of the International Journal of Architectural Heritage and co-advisor of the Conference Series on Structural Analysis of Historical Constructions. He has supervised more than 50 PhD theses and coordinate multiple national and international research projects. He has been just awarded an Advanced ERC Grant of 3.0 M € to develop an integrated seismic assessment approach for heritage buildings.