Lecture Notes in Computer Science **10754**

Commenced Publication in 1973
Founding and Former Series Editors:
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Advances in Digital Cultural Heritage

International Workshop
Funchal, Madeira, Portugal, June 28, 2017
Revised Selected Papers

Springer

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ISSN 0302-9743 ISSN 1611-3349 (electronic)
Lecture Notes in Computer Science
ISBN 978-3-319-75788-9 ISBN 978-3-319-75789-6 (eBook)
https://doi.org/10.1007/978-3-319-75789-6

Library of Congress Control Number: 2018934320

LNCS Sublibrary: SL3 – Information Systems and Applications, incl. Internet/Web, and HCI

Cover illustration: Historical image and the resulting 3D model of the City Hall of Calw. Created by Anastasios Doulamis et al., 4D Modelling in Cultural Heritage. LNCS 10754, p. 190. Used with permission.

Printed on acid-free paper

This Springer imprint is published by the registered company Springer International Publishing AG part of Springer Nature
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Preface

The rich cultural heritage of Europe permanently challenges researchers and professionals to be active in its preservation and integration in contemporary life. The knowledge gained from research and preventive conservation activities is a basis for sustainable use of heritage assets which significantly contributes to the European economy and well-being of its citizens. European knowledge about heritage management has global value because it can be well applied in other, non-European cultural environments.

The fast development of IT technologies in recent decades offers new tools, protocols, and procedures. They rapidly change traditional approaches to heritage preservation bringing high precision and cost-effective documentation methodologies, efficient preventive conservation techniques, and new tools for partial or full reconstruction of assets. This is of particular importance when heritage is exposed to man-made, technological, and/or environmental hazards.

European countries and the European Commission invest a large amount of research funds in the cultural heritage domain because it bears historic evidence of cultural development of regions and nations and fosters sustainable economic growth. In the current EU research program Horizon 2020, one of the important research topics addresses resilience of cultural heritage assets because cultural heritage is under continuous pressure of change, deterioration, and destruction. Research outcomes should contribute to a more accurate identification and risk monitoring along with the development of appropriate measures to increase cultural heritage resilience. Activities toward the establishment of a European system of data collection and its application in the field of preventive conservation are an on-going process where the issue of risks and resilience is well addressed. The European Commission and its member states are fully aware of the importance of developing IT technologies and the possibilities that they are offering to researchers engaged in heritage preservation.

A good example is COST Action TD 1406 entitled "Innovation in Intelligent Management of Heritage Buildings (i2MHB)." The objective of this Action is to create a pan-European open network, to promote synergies between heritage science specialists, industrial stakeholders, and research/education players, so as to achieve a unified common understanding and operation in the heritage buildings domain, integrating multidisciplinary expertise, technology, and know-how through a novel and independent global framework.

Researchers taking part in this Action organized the "Workshop on Advances in Digital Cultural Heritage" as a multidisciplinary, interdisciplinary, and intersectorial event during the IEEE International Conference on Engineering, Technology, and Innovation, held during June 27–29, 2017, on Madeira, Portugal. The workshop was organized in cooperation with the Digital Research Infrastructure for the Arts and Humanities (DARIAH-CY, EU DARIAH-EU) and key EU-financed projects: FP7 Marie Curie ITN-DCH, FP7 Marie-Curie 4D-CH-WORLD, H2020 INCEPTION, H2020 ViMM, and INTERREG V SUDOE SHCity.

The main objective of the workshop was to present recent developments and applications of IT technologies for cultural heritage preservation, namely:

- Demonstration of the advantages of new-generation equipment for mapping, digital survey, and documentation of heritage assets and sites
- Presentation of technologies for digitalization, optimal documentation, and information sharing on cultural heritage
- Tools and procedures for social interaction enhancing, fostering awareness, and participation
- Rising of the knowledge level in the domain of IT applications for cultural heritage preservation
- Usage of virtual reality for better understanding and learning on cultural heritage

The aim of this book is to contribute to the knowledge concerning the usage of IT technologies in cultural heritage preservation and management, through proper documentation as well in fostering citizens' engagement. The book is a valuable state-of-the art source for future studies, empowering further research and professional activities, supported by the presented digital cultural heritage experiences of the contributing authors.

A final word of appreciation to the ICE/IEEE ITMC Conference organizers and Madeira's Regional Government for their strong support that contributed to the success of the Workshop on Advances in Digital Cultural Heritage.

June 2017

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Acknowledgments and Disclaimer. The Workshop on Advances on Digital Heritage was part of the activities of the EU COST Action TD1406 supported by the EU COST Programme. The event was in cooperation with the EU projects FP7 PEOPLE ITN2013 ITN-DCH and IAPP2012 4D-CH-WORLD, the DARIAH-EU ERIC, the EU DARIAH-CY, the EU H2020 INCEPTION, the EU H2020 CSA ViMM, the CIP ICT-PSP Europeana-Space, and the CIP ICT-PSP LoCloud.

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Contents