Preface to the proceedings of the 1st Italian Workshop on Artificial Intelligence for Cultural Heritage (AI4CH22)

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Abstract
In 2022, the AI*IA Steering Board approved the establishment of a Working Group on "Artificial Intelligence for Cultural Heritage." This workshop represented the first opportunity to gather interested researchers and practitioners and form the working group's initial core. This workshop intends to become a yearly event where the group members will meet to exchange ideas, foster cooperation, and get in touch with the other stakeholders. In this first edition, twelve contributions were presented from different research groups in the Italian territory.

Keywords
Artificial Intelligence, Cultural Heritage,

1. Preface

There is a growing need for advanced technological solutions for the preservation, restoration, valorization, and fruition of Cultural Heritage (CH). Artificial Intelligence (AI) has traditionally provided successful solutions to CH practices and is likely to contribute even more in the future, taking on an increasingly relevant role. On the other hand, CH challenges in the digital era may provide relevant application domains and tasks to AI research.

In the last two decades, the advent of digital technologies on a large scale has paved the way for applying AI technologies to the study, preservation, and accessibility of cultural heritage. On the one side, the availability of digital data can push forward the study of heritage, improving our understanding of the past and our capability to preserve and transmit it to new generations; on

the other side, it can reduce the gap between heritage and its audiences, leading heritage to the role of engine of cultural and societal progress envisaged by the FARO Convention since 2005. In cultural heritage, the development of applications usually requires the involvement of an interdisciplinary team and is often constrained to standard formats and frameworks elaborated by national and international institutions. This multidisciplinary approach represents, at the same time, a challenge and an opportunity for AI since it calls for the development and formalization of original models, the refinement of existing tools and technologies, and the creation of novel ones.

The AI*IA workshop on Artificial Intelligence for Cultural Heritage (IA4CH22) brought together researchers, policymakers, professionals, and practitioners to explore the main issues concerning the application of AI to cultural heritage. In particular, this first workshop aimed at fostering interdisciplinary and multi-disciplinary research on tangible and intangible CH, promoting the use of AI models, methodologies, and tools for the study, research, preservation, and dissemination of CH content.

The workshop emphasized the exchange of experiences and transfer of good practices within the vast and varied community revolving around CH computing and AI to extend the results achieved by projects, case studies, and applications at the national and international levels. At the same time, the workshop encouraged discussion on the ethical aspects and sustainability issues involved in the management, delivery, and conservation of cultural heritage, with a specific focus on the involvement of all kinds of stakeholders to represent the different perspectives and communities involved in CH practices. An effort is made to create synergies with other relevant events in the field, such as TPDL (Theory and Practice of Digital Libraries) and IRCDL (The conference on Information and Research science Connecting to Digital and Library science, formerly the Italian Research Conference on Digital Libraries).

The topics of interest for AI4CH22 were:

- Intelligent Management systems in CH
- Cultural landscapes and cultural tourism
- Acquisition, conservation, and restoration
- Visualization Techniques and Extended Reality
- Multimedia and Multilingual Data Management
- Gamification and Storytelling in CH
- Museum and Exhibition Applications
- Libraries and Archives in CH
- Preservation and long-term accessibility
- Tools for Education, Documentation, and Training
- Learning and Reasoning on CH data
- DRM and Legal Issues
- Societal, Professional, and Ethical Guidelines
- Intangible Heritage Representation and Processing
- Cultural Heritage Ontologies and Vocabularies
- Linked Data and Knowledge Graphs for Cultural Heritage
- Language Technologies for Cultural heritage

- Semantic Social Networks in Heritage data
- Document processing
- Accessibility and inclusion in CH
- Mining and indexing of CH contents
- Workflow management in Cultural Heritage

AI4CH 2022 accepted full papers (8-10 pages), Short papers (6 pages) suitable for presenting work in progress, software prototypes or extended abstracts of doctoral theses, and project papers (6 pages) for the general overviews of research projects. At least two program committee members reviewed all twelve accepted papers.

2. Organization and committees

The organizers and program chairs of the workshop were:

- Rossana Damiano, University of Turin, Italy
- Stefano Ferilli, University of Bari, Italy
- Manuel Striani, University of Turin and University of Eastern Piedmont, Italy
- Gianmaria Silvello, University of Padua, Italy

The program committee members were:

- Alessia Amelio, University of Chieti, Italy
- Valentina Bartalesi, CNR, italy
- Sergio Canazza, University of Padova, Italy
- Giovanna Castellano, University of Bari, italy
- Enrico Daga, Open University, UK
- Giorgio Maria Di Nunzio, University of Padova, Italy
- Donatella Firmani, University of Roma Tre, Italy
- Antonio Lieto, University of Torino, Italy
- Stefano Marchesin, University of Padova, Italy
- Anna Maria Marras, University of Torino, Italy
- Barbara McGillivray, King's College London and Alan Turin Institute, UK
- Francesca Naretto, University of Pisa-SNS, Italy
- Antonella Poggi, University of Roma "La Sapienza", Italy
- Antonio Rodà, University of Padova, Italy
- Beatrice Portelli, University of Udine, Italy
- Alberto Pretto, University of Padova, Italy
- Salvatore Sorce, University of Palermo, Italy
- Ilaria Torre, University of Genova, Italy
- Gennaro Vessio, University of Bari, Italy