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14th International Workshop on Personalized Access to Cultural Heritage (PATCH 2023)

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ABSTRACT

Following the successful series of PATCH workshops, PATCH 2023 will again be the meeting point between state-of-the-art cultural heritage (CH) research and personalization research, focused on those using different types of technology, with emphasis on ubiquitous and adaptive scenarios, to enhance the personal experience in CH sites. The workshop is aimed at bringing together researchers and practitioners who are working on various aspects of cultural heritage and are interested in exploring the potential of state-of-the-art mobile and personalized technology (onsite as well as online) to enhance the CH visiting experience. The expected result of the workshop is a multidisciplinary research agenda that will inform future research directions and, hopefully, forge some research collaborations. This summary provides an overview of the papers that have been accepted for presentation at the workshop and for publication in its proceedings.

CCS CONCEPTS

• **Information systems** → *Recommender systems; Personalization; Search interfaces*; • **Human-centered computing** → *Visualization; User Models; Human computer interaction (HCI); Empirical studies in HCI; Mobile devices; Accessibility systems and tools*.

KEYWORDS

Cultural Heritage; Personalization; User Modeling.

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1 INTRODUCTION

ACM PATCH 2023, the 14th International Workshop on Personalized Access to Cultural Heritage, is organized in conjunction with UMAP 2023, the 31st International Conference on User Modeling, Adaptation and Personalization.

Cultural heritage (CH) has traditionally been a primary area for personalization research. Visitors come to CH sites willing to experience and learn new things, with expectations but possibly without a clear idea of what they will find there. Falk and Dierking [3] argue that the visitor's experience is constructed by the intertwining of the personal, the social, and the physical context. The experience begins before the visit, when one starts to think about it and lasts well after leaving the building. Indeed cultural heritage is rich in objects and information and offers much more than the visitor can absorb during their limited time in situ. Hence, visitors may benefit from individualized support that takes into account contextual and personal attributes.

The PATCH workshops started in 2007 and are intended to be a meeting point between researchers and practitioners working on personalization to improve the promotion, fruition, and preservation of cultural heritage. They are typically held in conjunction with UMAP, IUI, and recently AVI Conference series. Specifically, PATCH 2023 is aimed at bringing together researchers and practitioners who are working on various aspects of cultural heritage and are interested in exploring the potential of mobile technology (onsite as well as online) to enhance the visitor experience. In this paper, we provide an overview of the papers that have been accepted for presentation at the workshop and for publication in its proceedings.

2 CHALLENGES AND RESEARCH PERSPECTIVES

There are several challenges to the personalization of the cultural heritage experience, which make it a research field in continuous expansion. The first one is the fact that, in most cases, personalization has to be applied to first-time and anonymous visitors, considering that many people access cultural sites only once, or they interact with digital services anonymously. However, when possible, life-long, ubiquitous user modeling can be applied to support the provision of an engaging experience for the 'digital', 'mobile', and 'traditional' CH visitors before, during, and after a visit. Further,

an interesting problem to explore is whether this kind of support can be a basis for maintaining a lifelong chain of personalized CH experiences.

Different user modeling and recommendation techniques can be applied to face these challenges. For instance, mining general user behavior can help the development of session-based personalization techniques which can be applied to first-time visitors. Moreover, the evolution and convergence of technologies for managing and integrating open and linked data, and for delivering mobile services, open new opportunities to improve the presentation of information, the exploration of content, and the discovery of events interesting for the specific user/group, the collaboration among users having similar interests, as well as the adaptation to heterogeneous user contexts and devices.

Personalization also concerns the collaboration in the preservation, enrichment, and access to cultural heritage by considering crowdsourcing techniques, based on the active involvement of people to enhance the management of CH. This is also related to the representation of touristic routes, archaeological sites, ancient buildings, and museums, as well as spontaneous sources of artwork such as street art. In that context, personalization can extend the users' perception level, their learning abilities, or their productivity transforming visitors from information consumers to producers. For example, citizens can flag points of historical-artistic interest, their state of repair, and any problems to provide tourists with promotional information and public administration bodies with monitoring information.

Moreover, personalization might be applied to enhance the active engagement of people in online communities to contribute to the publishing process and partake in the dynamic creation and conceptualization of cultural resources. For instance, several organizations invite people to engage with their collections online (e.g., Tate Modern, Powerhouse Museum), or reach out via Social Web platforms, (e.g., Flickr the Commons, Brooklyn Museum on Facebook, augmented reality browser of Netherlands Architecture Institute with Layar).

Furthermore, the interest in IoT as a means to track user behavior and propose new interaction experiences, possibly combined with the enrichment of the CH experience through Virtual and Augmented Reality, has become central in the research about personalization in CH exploration, to enhance the visitor's experience online and in situ.

The PATCH 2023 workshop aims at investigating these topics to create synergies among researchers and practitioners and propose new enabling technologies to further enrich virtual and physical interaction with cultural heritage.

3 PATCH 2022 PROGRAM

We are honoured to host the invited lecture by Daniela Petrelli, Professor at Sheffield Hallam University, UK, who entered the group of PATCH organisers in this workshop edition. She will discuss her ongoing research on decolonising historical audio-visual archives recorded during colonial times. Historical colonial archives capture a time and a view of the world that is different from contemporary sensitivity: content and metadata hold colonial terms that are now disused and communicate a view of the world of expected

subservience and racial pretend superiority that is deprecated now. In her research, Daniela aims to understand how to close the gap between the content in the archive and the post-colonial contemporary audience that may or may not be aware of the highly sensitive content in the archive, the distressing history of their country, the different terminology and the different values in society. In essence, she wants to understand how to personalise the past to the present, how we could do that and if technology could help us in this endeavour.

Regarding the PATCH '23 program, 10 papers were accepted for publication in the proceedings and presentation at the workshop. They cover a wide range of topics on personalized access to Cultural Heritage. A brief description of them follows:

- Ardissono et al. [1] present a framework for the creation of mobile tourist guides that support the design of plans suitable for cultural/scientific tourism. The framework integrates scheduling and adaptation techniques to support a mixed-initiative approach to the incremental design of the itineraries.
- Cena et al. [2] propose an inclusive guide helping people with autism plan a tourist trip by personalizing the suggestion of tourist places and itineraries, considering their interests and cognitive skills. The user interface of the proposed interactive system adapts to users' capabilities to deliver cultural information using appropriate visualization modalities to reduce the users' stress and anxiety.
- Kadastik et al. [4] study methods and tools for citizen curation in cultural heritage, focusing on narrative-based methods for eliciting meaningful stories from citizens. The findings provide insights into the potential of such methods and aim to support the development of digital tools for supporting reflection processes, enabling more inclusive and dynamic representations of citizens and citizen groups in the cultural heritage domain.
- Mulholland et al. [5] present the use of citizen curation for creating cross-modal experiences in museums by allowing visitors to curate and share their own experiences by combining visual art with music. Their work introduces the Deep Viewpoints web application. It discusses how it was extended to support music and visual art curation and the potential use of technology for enhancing cross-modal museum experiences.
- Murtas et al. [6] present an application for virtual archaeology designed for general audiences and scholars. The application focuses on an excavation site in Japan. It employs a comprehensive database and pipeline of acquisition and visualization to support archaeological interpretation.
- Occhioni et al. [7] discuss research activities aimed at developing a recommender system for suggesting personalized itineraries to museum visitors. In particular, they describe the collection and use of eye-tracking data to understand correlations between visitors' gaze patterns and their degree of appreciation of artworks.
- Rikhtehgar et al. [8] report a study that explores how to provide customized access to cultural heritage in a Virtual Reality (VR) exhibition by investigating user preferences

for tailored descriptions, tracking viewing behaviour, and finding user-preferred ways of collecting information.

- Strousopoulos et al. [9] present SculptMate, a mobile application that uses advanced personalization features to enhance the appreciation and understanding of sculptures from various eras and artistic styles. Their work discusses the potential of the application, the use of fuzzy logic in personalizing the user experience, and the impact of the personalized experience on user engagement and satisfaction.
- Tsitseklis et al. [10] present a conversational agent that uses Natural Language Processing (NLP) to assist remote visitors in accessing a museum's collection. The agent includes a chatbot and a hybrid recommender system that combines content-based and collaborative-filtering components. The proposed architecture follows a knowledge graph approach to model the available data.
- Wecker et al. [11] suggest a societal approach for delivering recommender systems by examining their use for social recommendations, specifically for encouraging visitors to cultural heritage sites to explore the diversity of opinions and perspectives related to artefacts and events. The paper also proposes an interpretation-reflection loop and presents this approach's goals, methods, and evaluation.

We wish you a pleasant reading of these papers and we hope that they will be fruitful for your research activities.

4 ORGANIZATION

Workshop organizers

- Liliana Ardissono (University of Torino, Italy);
- Noemi Mauro (University of Torino, Italy);
- Daniela Petrelli (Sheffield Hallam University, UK);
- George E. Raptis (Human Opsi, Greece);
- Alan Wecker (The University of Haifa, Israel).

Program Committee

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- Keith Cheverst (Lancaster University, UK);
- Susan Hazan (Israel Museum, Israel);
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- Tsvi Kuflik (The University of Haifa, Israel);
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- Giuseppe Sansonetti (Roma Tre University, Italy);
- Giovanni Semeraro (University of Bari, Italy);
- Maria Vayanou (National and Kapodistrian University of Athens, Greece);
- Fabiana Vernero (University of Torino, Italy);
- Federica Vinella (Utrecht University, The Netherlands);

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