# Workshop on Personalized Access to Cultural Heritage: PATCH'20

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## ABSTRACT

ACM PATCH 2020, organized in conjunction with the 28th International Conference on User Modeling, Adaptation and Personalization, is the latest event of the PATCH series, started in 2007 and held within the UMAP and IUI Conference series. We summarize the main ideas addressed in the papers accepted for publication in the workshop proceedings and for presentation at the event.

## CCS CONCEPTS

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

## KEYWORDS

Cultural Heritage; Personalization; User Modeling.

## 1 INTRODUCTION

Following the successful series of PATCH workshops, started in 2007, PATCH 2020 is organized as the meeting point between state of the art cultural heritage and personalization research to enhance user experience in digital and physical Cultural Heritage sites. As PATCH organizers, we are proud to say that, while previous editions were more focused on the personalization aspect, this year edition is particularly significant because it includes a balance of contributions that are representative of both areas, thus promising fruitful discussion and exchanges during the workshop.

## 2 CULTURAL HERITAGE AND PERSONALIZATION RESEARCH

Cultural heritage (CH) has traditionally been a privileged area for personalization research, as highlighted by the many H2020 calls on this topic. Visitors come to cultural heritage sites willing to experience and learn new things, usually without a clear idea of what to expect. CH sites are typically rich in objects and information; much more than the visitor can absorb during the limited time of a visit. As discussed by Falk in [4], visitors to CH sites differ and their visit experience involves a combination of the physical, the personal, and the socio-cultural context and identity-related aspects. Hence, they may benefit from individualized support that takes into account contextual and personal attributes. However, personalization is challenged by several issues to be addressed, from the frequent anonymous interaction of users with CH applications, which makes it impossible to acquire rich user profiles, to the need to engage users in a lifelong interaction with applications, in order to support exploration before, during and even after a visit to a CH site.

Various techniques can be studied to face these challenges. The personalization topics addressed in the PATCH workshops are broad and range from information filtering and exploration support to information presentation and user assistance in place, in order to enrich people's visit to cultural heritage virtual and physical sites. 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 can also be related to collaboration in the preservation, enrichment and access to Cultural Heritage by considering crowd-sourcing techniques, based on active involvement of people to enhance the management of information. Moreover, a key ingredient is to address many classes of ambience: tourist routes, cities, parks, archaeological sites, ancient buildings and museums, as well as spontaneous sources of artwork such as street art.

## 3 PATCH 2020 PAPERS

This edition of the workshop covers complementary topics, all related to the personalization of the interaction with the visitor, or of the visit experience, during CH exploration. Topics range from supporting personalized CH visits with diverse recommendation tools to the use of crowdsourcing for digitalizing CH content; from supporting personalized educational CH experiences to the design of personalized guides for a wide range of user types, such as people on the autism spectrum and elderly people. Specifically:

- Cena et al. [1] present a personalized tourist guide for people on the Autism Spectrum by taking into consideration diverse characteristics that can provide meaningful and comfortable experiences with the use of interactive urban maps.
- Cesta et al. [2] present a recommendation system for Wikipedia pages based on learning paths, which can be used in informal educational environments within CH contexts. The system includes personalization features that help both visitors to have greater engagement and satisfaction and educators to build adaptive educational paths.
- Díaz-Rodríguez and Pisoni [3] discuss challenges, research questions and opportunities that are involved in the introduction of the latest explainable Artificial Intelligence techniques in the CH domain to increase the accessibility of Cultural Heritage.
- Karatas and Lombardo [5] examine the contribution of digital curation in the CH field by reviewing the component curatorial tasks and tools implemented throughout the digital curation workflow. The results provide a basis for sharing best practices.
- Mauro et al. [6] present a faceted exploration model that supports dynamic map projection to help the analysis of heterogeneous geographic information, by projecting maps on specific data categories and/or according to items attributes.
- Mezzini et al. [7] present a tracking system based on deep learning technologies to monitor the spatial and temporal movements and behavior of visitors in CH contexts, which can be used to provide adaptive CH visits.
- Seixas et al. [8] present a ubiquitous learning application that supports CH education experiences, enabling citizens to create and share collective memories about historical places, and receive personalized CH content according to their location, personal interests and preferences.
- Vinella et al. [9] present an overview of the technologies, crowdsourcing methods and tools, motivational principles, and personalization factors to protect Intangible Cultural Heritage (ICH) and make recommendations that can be used to design location-based ICH mobile applications.
- Wecker et al. [10] present insights for personalizing crowdsourcing frameworks focused on the transcription of handwritten textual content, combining automatic text recognition with the manual transcription of handwritten manuscripts.
- Wecker et al. [11] review the application of persuasion and digital nudging principles to the CH domain.

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

## 4 ORGANIZATION

Workshop organizers:

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- Noemi Mauro (University of Torino, Italy);
- George E. Raptis (University of Patras, Greece);
- Alan Wecker (The University of Haifa, Israel).

Program Committee:

- Angeliki Antoniou (University of Peloponnese, Greece);
- George Caridakis (University of the Aegean, Greece);
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- Rossana Damiano (University of Torino, Italy);
- Susan Hazan (Israel Museum, Israel);
- Christina Katsini (University of Patras, Greece);
- Joel Lanir (The University of Haifa, Israel);
- Vincenzo Lombardo (University of Torino, Italy);
- Pasquale Lops (University of Bari, Italy);
- Elena Not (FBK-irst, Italy);
- Giuseppe Sansonetti (Roma Tre University, Italy);
- Giovanni Semeraro (University of Bari, Italy);
- Christos Sintoris (University of Patras, Greece);
- Oliviero Stock (FBK-irst, Italy);
- Maria Vayanou (University of Athens, Greece);
- Manolis Wallace (University of Peloponnese, Greece).

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## REFERENCES

[1] Federica Cena, Noemi Mauro, Liliana Ardissono, Claudio Mattutino, Amon Rapp, Stefano Cocomazzi, Stefania Brighenti, and Roberto Keller. 2020. Personalized Tourist Guide for People with Autism. In *Adj. Proc. of the 28th Conf. on User Modeling, Adaptation and Personalization*. ACM.

[2] Amedeo Cesta, Gabriella Cortellessa, Riccardo De Benedictis, Carlo De Medio, Carla Limongelli, Filippo Sciarrone, Giulia Tassarotti, and Augusto Palombini. 2020. Personalizing Technology-Enhanced Learning for Cultural Visits. In *Adj. Proc. of the 28th Conf. on User Modeling, Adaptation and Personalization*. ACM.

[3] Natalia Díaz-Rodríguez and Galena Pisoni. 2020. Accessible cultural heritage through Explainable Artificial Intelligence. In *Adj. Proc. of the 28th Conf. on User Modeling, Adaptation and Personalization*. ACM.

[4] John H. Falk. 2009. *Identity and the Museum Visit Experience.* Left Coast Press.

[5] Tugce Karatas and Vincenzo Lombardo. 2020. A Multiple Perspective Account of Digital Curation for Cultural Heritage: Tasks, Disciplines and Institutions. In *Adj. Proc. of the 28th Conf. on User Modeling, Adaptation and Personalization*. ACM.

[6] Noemi Mauro, Gianmarco Izzi, Marco Pellegrino, Liliana Ardissono, Claudio Grandi, Maurizio Lucenteforte, and Marino Segnan. 2020. Faceted Exploration of Cultural Heritage. In *Adj. Proc. of the 28th Conf. on User Modeling, Adaptation and Personalization*. ACM.

[7] Mauro Mezzini, Carla Limongelli, Giuseppe Sansonetti, and Carlo De Medio. 2020. Tracking Museum Visitors through Convolutional Object Detectors. In *Adj. Proc. of the 28th Conf. on User Modeling, Adaptation and Personalization*. ACM.

[8] Luma Seixas, Ivanildo José Melo Filho, Alex Sandro Gomes, and Rosane Maria Alencar Da Silva. 2020. Heritage Education Experience: Creating and Sharing Collective Memories. In *Adj. Proc. of the 28th Conf. on User Modeling, Adaptation and Personalization*. ACM.

[9] Federica Vinella, Ioanna Lykourentzou, and Konstantinos Papangelis. 2020. Motivational Principles and Personalisation Needs for Crowdsourcing ICH Applications. In *Adj. Proc. of the 28th Conf. on User Modeling, Adaptation and Personalization*. ACM.

[10] Alan Wecker, Tsvi Kuflik, Moshe Lavee, Daniel Stoekl, Vered Raziel-Kretzmer, Uri Schor, and Dror Elovits. 2020. Opportunities for Personalization for Crowdsourcing in Handwritten Text Recognition. In *Adj. Proc. of the 28th Conf. on User Modeling, Adaptation and Personalization*. ACM.

[11] Alan Wecker, Tsvi Kuflik, and Oliviero Stock. 2020. Reflections on Persuasive and Digital Nudging Methods for Cultural Heritage. In *Adj. Proc. of the 28th Conf. on User Modeling, Adaptation and Personalization*. ACM.