15th International Workshop on Personalized Access to Cultural Heritage (PATCH 2024)

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ABSTRACT

Following the successful series of PATCH workshops, PATCH 2024 will be again the meeting point between state-of-the-art cultural heritage research and personalization – using any technology, while focusing on ubiquitous and adaptive scenarios, to enhance the personal experience in Natural and Cultural Heritage sites. The workshop aims to bring together researchers and practitioners interested in exploring the potential of ICT technology (onsite and online) to enhance the visit experience. The expected result of the workshop is sharing and discussing novel ideas and creating a multidisciplinary research agenda that will inform future research directions and hopefully, forge some research collaborations. This summary provides an overview of the papers accepted for presentation at the workshop and 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

Technology for Cultural Heritage, Personalization in Cultural Heritage, Visitors Guides, Virtual Museum.

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1 INTRODUCTION

ACM PATCH 2024, the 15th International Workshop on Personalized Access to Cultural Heritage, is organized in conjunction with UMAP 2024, the 32nd 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 [4] argue that the visitor's experience is constructed by intertwining 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, CH is rich in objects and information and offers much more than visitors can absorb during their limited time in situ. Hence, they may benefit from individualized support that considers contextual and personal attributes.

The PATCH (and similar) workshops series started in 2007 and they are intended to be a meeting point between researchers and practitioners working on personalization to improve promotion, fruition, and preservation of CH. They are typically held in conjunction with UMAP, IUI, and recently AVI Conference series. PATCH 2024 aims to bring together researchers and practitioners working on various aspects of CH and are interested in exploring the potential of mobile technology (onsite and online) to enhance the visitor experience. This paper provides an overview of the papers accepted for presentation at the workshop and publication in its proceedings.

2 CHALLENGES AND RESEARCH PERSPECTIVES

There are several challenges to personalizing the CH experience, which make it a research field in continuous expansion. The first one is that, in many cases, personalization is applied to first-time and anonymous visitors, considering that many people access CH sites only once or interact with digital services anonymously. However, life-long, ubiquitous user modeling can support the provision of an engaging experience for 'digital', 'mobile', and 'traditional' CH visitors before, during, and after a visit. Further, an interesting problem to explore is whether this 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, like mining user behavior and session-based personalization. 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 information presentation, content exploration, 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 collaboration in preserving, enriching, and accessing CH by considering crowdsourcing techniques to actively involve people in managing CH. 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. Furthermore, the interest in Internet-of-Thins (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.

These challenges led to the specification of the following themes of interest for the call for proposals of the PATCH 2024 workshop:

- Navigation and personalized browsing in digital and physical CH collections;
- Recommendation strategies for Natual Heritage (NH) and CH;
- Adaptation strategies for text and non-verbal content in CH/NH;
- NLG techniques for mobile user modeling in natural and CH sites;
- Integration of virtual and physical collections;
- Immersive cultural and natural heritage;
- Mobile museum guides and personal museum assistants;
- Context-aware information presentation in natural and CH;
- Adaptive navigation and browsing in CH/NH sites;
- Intelligent user interfaces for natural and CH applications;
- Personalization for visitors groups to natural and CH sites;
- Personalization for collective CH information authoring and management;
- Creativity and collaboration support in CH;
- Personalization across the whole of a person's digital ecosystem;
- Long-term personalization; IoT and CH; Living lab in museum;
- Robots in museums;
- 3D, Augmented, and Virtual Reality for cultural and natural heritage;
- Gestural interfaces for CH applications;
- Analysis of behavior patterns to improve CH/NH recommendation;
- Conversational agents for cultural and natural heritage;
- The use of personality for guiding CH/NH experiences;
- Multiple viewpoints and perspectives for CH; Remote access to CH/NH;
- Intelligent agents to interact with CH/NH.

The PATCH 2024 workshop aims to investigate some of these topics and create synergies among researchers and practitioners, proposing new enabling technologies that further enrich virtual and physical interaction with CH.

3 PATCH 2024 PROGRAM

Five research papers and one demo paper were accepted for publication in the proceedings and presentation at the workshop. They cover a wide range of topics on personalized access to CH. A brief description of them follows:

- Ardissono et al. [1] present the Revisualizing Italian Silentscapes 1896-1922 (RevIS) project, which aims to enhance the exploration of a territory's history by inspecting the cinematographic production involving it. Moreover, they describe the RevIS app that supports the search for information about films and landscapes offering a rich snapshot of places in different time points through the multi-faceted inspection of movies' data.
- Banerjee et al. [2] (demo paper) introduce the Green Destination Recommender (GDR), a web application to enhance societal fairness by promoting sustainable tourism choices. The application recommends environmentally friendly travel destinations based on user inputs such as starting location, travel month, and interests, focusing on less popular but appealing options to reduce ecological impact and distribute tourist traffic more evenly.
- Dror et al. [3] present the potential of using large language models to help curators in content creation, in order to enrich the visit experience to CH sites by providing a richer information space visitors may explore. As a future direction, personalization may be integrated into the information space exploration and furthermore, online content generation options may be consireded.
- Ferrato et al. [5] explore the challenges and innovative methods of artwork segmentation in eye-tracking experiments, focusing on automating identifying areas of interest in diverse artistic styles. Their hybrid segmentation approach combines multiple techniques to enhance accuracy and qualitatively analyzes segmentation models applied to public domain artworks.
- Mauro et al. [6] investigate the exploitation of digital nudges to promote sustainable tourism in personalized mobile guides for natural and cultural heritage exploration. They propose integrating the recommendation of Points of Interest that satisfy the user's interests with an explicit presentation of the environmental impact of traveling to such places, using digital nudges to drive the user toward selecting a sustainable tour management solution.
- Panos et al. [7] explore the identification of different visitor groups based on data captured while visitors move within a virtual museum and interact with its exhibits. Their machine learning approach identifies four well-defined and distinct clusters that describe different types of virtual museum visitors.

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

4 ORGANIZATION

Workshop organizers

- Liliana Ardissono (University of Torino, Italy);
- Tsvi Kuflik (The University of Haifa, Israel).
- Noemi Mauro (University of Torino, Italy);
- George E. Raptis (Human Opsis, Greece);
- Alan Wecker (The University of Haifa, Israel).

Program Committee

- Angeliki Antoniou (University of West Attica, Greece);
- Carmelo Ardito (LUM Giuseppe Degennaro University, Italy);
- George Caridakis (University of the Aegean, Greece);
- Keith Cheverst (Lancaster University, UK);
- Francesco Colace (Università degli Studi di Salerno, Italy);
- Rossana Damiano (University of Torino, Italy);
- Angelo Geninatti Cossatin (University of Torino, Italy);
- Susan Hazan (Israel Museum, Israel);
- Christina Katsini (Human Opsis, Greece);
- Joel Lanir (The University of Haifa, Israel);
- Vincenzo Lombardo (University of Torino, Italy);
- Moayad Mokarten (The University of Haifa, Israel);
- Elena Not (Fondazione Bruno Kessler, Italy);
- Daniela Petrelli (Politecnico di Milano, Italy);
- Giuseppe Sansonetti (Roma Tre University, Italy);
- Giovanni Semeraro (University of Bari, Italy);
- Christos Sintoris (University of Patras, Greece);
- Fabiana Vernero (University of Torino, Italy).

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