

A Participatory Interface for a Photo Archives

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Abstract

GLAM institutions have continuously digitised their analogue material since the beginning of the 21st century. Also, the number of digital repositories has grown, and the pressure for open or FAIR data has increased. However, most digital assets need more visibility and usage. This is particularly problematic because storage and continuous migration are cumbersome and expensive tasks. To improve this situation, we design a participatory web platform with tools to make annotating, contextualising, and organising images and their meta information easier. The project "Participatory Knowledge Practices in Analogue and Digital Image Archives" is developed in cooperation with the photo archives of the Swiss Folklore Society (SSFS, Basel, Switzerland). The Swiss National Science Foundation funds it from 2021 to 2025, and here, we present an intermediate project status. The interdisciplinary research team consists of scholars from the Bern Academy of the Arts, the Cultural Studies and European Ethnology, and the Digital Humanities Lab of the University of Basel. The PLA team (Participatory Image Archives) aims to make the platform available to researchers and the general public to conduct Citizen Science research.

Motivation

Since digital repro-photographic workflows have been streamlined, archives have steadily digitised their materials. A key argument in favour of digitisation is the expectation of an increased level of access. However, the digital availability of photographs and collections alone does not automatically lead to the broader use of the material [1]. For more intense use, it is necessary to develop methods and tools that enable all interested parties to conduct research with the materials on an easy-to-access infrastructure like the World Wide Web. Today giving access to data means an open interface, an API (Application Programming Interface) that allows communication with the database system. To work with such open digital assets, a high level of knowledge in digital technologies is necessary. Data must be acquired, analysed, visualised, disseminated and enriched. A more intuitive form of communication is required to give access to a broader public. Beyond a web interface for searching, exploring and editing content, a sophisticated back end that offers the necessary technology is required to exchange data with the functional front end. In addition, the user experience must be designed to be intuitive and coherent. To this end, we have conducted a series of workshops with humanities scholars who are planning Citizen Science projects. The conceptual, technical and design knowledge we have developed is transferable and helpful for the future development of participatory archives.

Participation, in general, is vital for most digital archives of historic photo material. In many cases, the depth of meta-information is limited. Indexing requires a profound knowledge of the photographs and experts that know the content are not easy to find. An open archive can help in this situation significantly. A lack of metadata also means limited searchability - a circular dilemma. Although modern machine learning approaches, which are used and further developed in our project, allow the indexing of image content automatically, the general quality of such an automated process is limited. Today there is a particular lack of appropriate training sets for historical image content to be used with machine learning. Simple facts, like black-and-white photos, interfere with the typical image training sets. Therefore, opening historical image archives to the public for comment and discussion is even more important because they are an essential asset for any machine-learning approach.

The photo archives of the Swiss Folklore Society are an essential part of the cultural heritage of Switzerland; it contains images organised according to such themes as tradition, identity, lifestyles, and everyday life. With the research project, we would like to make it possible to preserve what is most endangered: the personal accounts of 20th-century witnesses. Without this personal, contextual knowledge, most images will be difficult to understand in the future due to a lack of metadata.

Problem

The amount of digital images registered in databases is enormous and steadily growing. To generate historical digital images, a repro-photographic workflow is required. Today's systems allow the digitisation of large amounts of photographic originals. An optimised setup allows scanning multiple 100 images per day. Besides the image data, technical metadata about the capturing process is automatically generated and stored as EXIF data, not metadata about the image content. Finding the content is often impossible due to lacking the necessary meta information. A database system requires text-based metadata for any process, like searching or indexing. Especially image databases are a symbiosis of meta-data and the linked image files stored on a file server. If the content is searched, it usually refers to the metadata that describes the parts of the image of interest. Even if photographic archival assets are open access, the potential to work with the material is limited if there is a lack of metadata. Image files are also significantly more easily created than the corresponding metadata. To gain content-based metadata, experts must catalogue and index the visual material. This is a time-consuming process that has a throughput that is much lower than pure repro-scanning. Due to that, we are also exploring the possibility of metadata enrichment (primarily through georeferencing and estimating dates or time periods) and how crowdsourcing can generate contextual knowledge. Rich metadata is vital in any digital application in

future Citizen Science projects. It allows for a more effective search and enables content-based structuring. In addition to designing the necessary tools for participation, we are also exploring how the general public can explore archival material and use it for their own Citizen Research.

Another problem is the somewhat limited use of images and metadata by scholars in the physical archive. To increase usage, we are investigating the potential of open archives in research that are open to collaboration between humanities scholars and the public.

Digital copies are only electronic images, and users have limited sensory experience in the interface. To provide an experience of material aspects, we explore archival practices such as restoration, indexing, the process of repro-photography, ordering and contextualising the photographs. To some extent, these practices are also transferred and transformed into tools of the digital platform. On the frontend side, finding a substitute for physical space is challenging. In the workshops, we learned that working with archival photographs requires much space. It is a fundamental question of how such space can be simulated on smaller devices like tablets or mobile phones. A digital and participatory archive can ideally complement the possibilities of the physical archive. It increasingly provides a publication and communication function for the archived material [2]. Thus, the focus is also on the constant renewal of information and the processual development of knowledge.

In summary, it is now possible to digitise large quantities of photographic originals without difficulty, thanks to improved reprographic workflows. However, their future value depends on being able to be reinterpreted and discussed in Citizen Science projects on our digital platform.

Approach

In a series of workshops and interviews with different target groups (e.g., archivists, database specialists, humanities scholars, and journalists), new requirements for digital tools for participation are being developed. The aim is an attractive, intuitive Web-interface for the presentation and participation of a more significant number of people, e.g. groups of experts or even the public. It was important not only to collect a list of functions but to consider the new participatory usable interface in its entirety and in light of its context. The methodological approach of the Activity-Centered Design Model [3] helped to create a holistic perspective. In an exchange with future users, we worked out their motivations for participation (why?), typical activities/scenarios (what?), tasks (how?) and the actions/operations (mechanics) (by what means?).

We also tried to bring in the various perspectives of different types of users. The needs of expert researchers vary from the needs and skills of the public. Both peer groups are important, and both need to be addressed in the front-end design. With different types of participation, such as adding metadata (place, time and names of people) or extensive digital surveys—“Calls for Images”—we want to address different groups in each case.

It is one of the advantages and challenges that we approach the questions from different perspectives: the digital humanities, cultural anthropology and design research. In the work process, we must engage with unfamiliar disciplines and strive for a cooperative implementation.

From a technical point of view, finding a sustainable implementation is essential. In the project, a running prototype is developed to match the following requirements:

- Data, back-end and front-end are strictly separated
- The communication with the backend is based on well-defined APIs
- The functional components of the front-end are modular
- The development of the user interface is fully Web-based
- For the storage of the metadata, a sophisticated yet easy-to-implement data model is used

Following these design boundaries, it is possible to migrate parts of the components to another infrastructure. This is specifically important because of the fixed end time of the project. Incredibly challenging is the migration of front-end components. Various technologies exist, and migration often means new coding.

Results

In our current prototype of the graphical user interface, users of the participatory platform can create their own collections from a selection of objects. Such a collection can be visualised differently: As a set of image files, as a cluster of images and metadata, or more contextually, as on a map. We enable crowdsourcing in the regular sense through moderated metadata enrichment. Still, we also go beyond this by allowing users to collaborate with other users by launching open “Calls for images”.

The “Call” includes uploading objects from the personal archive, sharing, contextualising, personal notification, and validation. The curation of the content should be done by the users, and there will also be moderation on the part of the Photo Archive.

Adding metadata supports increasing the quality of the assets. Also noteworthy is that results can be downloaded in various but standardised ways. A small tool converts the meta information into an IIIF manifest to be loaded for further use. Also, image recognition is implemented to give fundamental searchability of uncatalogued images. The component was developed at the University of Basel in the Computer Science Department.

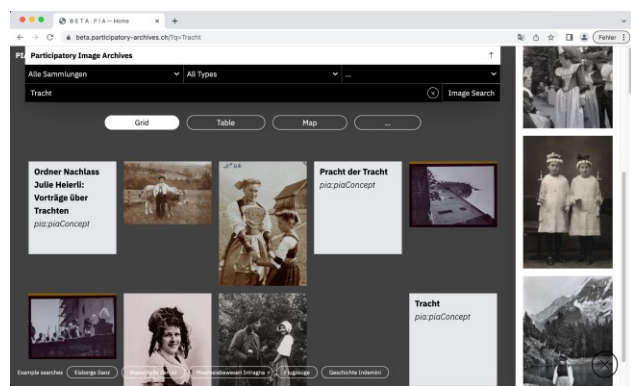


Figure 1. This is a screenshot of the current prototype of the graphical user interface, showing a search result for “Tracht” (eng. “traditional costume”). On the right, you can see selected objects for the collection.

Conclusion

While analogue archives are primarily concerned with the long-term preservation of the material, digital archives primarily serve communication with the public [1]. The ongoing interpretation and reinterpretation of image documents and their integration into various cultural, historical, and aesthetic contexts create a living form of knowledge [5]. This approach contributes to conserving that knowledge beyond just preserving physical documents. However, this does not mean it will make the physical archive unimportant, but rather that layers above the “archive” will be developed in dialogue with the users.

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Dr. phil. Vera Chiquet (vera.chiquet@unibas.ch) is currently deputy head of the Department Chair of Digital Humanities at the University of Basel. An art history and sociology scholar by training (PhD), she focuses on new methods in the humanities, mainly computational and experimental methods to explore visual and social practices, she initiated the DH CH Network and Event. Since her book publication "Fake Fotos", she has been doing visual studies with old and new research questions and supports a wide variety of digital research projects with her start-up Virtual Culture and as chairman of Freunde der Fondation Herzog (Laboratorium für Fotografie).

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