

Deliverable D3.4

Framework for Tool Kits, Best Practice Models and Future Network Activities

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| Task Leader | <i>HUJI</i> |
| Main Author(s) | <i>HUJI (Tobias Ebbrecht-Hartmann, Noga Stiassny, Lital Henig)</i> |
| Contributor(s) | <i>TUW (Sebastian Hofstätter) OFM (Michael Loebenstein) LBI (Sema Colpan)</i> |
| Reviewer(s) | <i>LBI (Sema Colpan, Ingo Zechner) OFM (Michael Loebenstein)</i> |
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1. Introduction

With an eye to the future, the VHH-MMSI's and the other results of the VHH project have the potential to reinforce new forms of engagement with the visual history of the Holocaust, which will go beyond those specified in deliverable D3.1 Definition of Engagement Levels, Usage Modes, and User Types (M12). Moreover, given that many images associated with this visual history and functioning as memory cues, i.e., as placeholders for other events (see deliverables D2.4 Database of Films, Artworks, and other Visual Culture Products, M24 and D2.5 Report on Digital Curation of Popular Culture Content, M24), the VHH-MMSI can also enhance new forms of engagement with the other visual histories. These new forms of engagement can be applied by the project's team members and external stakeholders on regional and transnational levels, and can be divided into three categories:

- New forms of engagement based on Tool Kits and Best Practice Models developed by the VHH project
- New forms of engagement based on the use of the VHH-MMSI
- New forms of engagement based on the software solutions developed by the VHH project

The project results in all three categories are continuously identified in Work Package 8 Communication, Dissemination, Exploitation and will be detailed in the deliverables D8.9 Exploitation Options and Business Models (M30) and D8.8 Detailed Exploitation Plan, Business Model and Business Plan (M48). This deliverable provides the curatorial framework for the dissemination and exploitation strategies with respect to results, which we could already identify in a variety of segments of our previous interdisciplinary work.

Based on our experiences with the technological and conceptual solutions developed up to date, we explore potential use cases of our Tool Kits, Best Practice Models, the VHH-MMSI and software solutions. These use cases provide engagement scenarios that have model character for various possibilities of applying the results of the VHH project. We built the engagement scenarios around personas that represent a selection of our project's user groups and stakeholders which are identified and presented in deliverable D8.1 Report on the Analysis of 'Stakeholders' and Users' Needs in VHH (M3/24) in more detail. Personas assist in the "precise description of a user's characteristics and what he/she wants to accomplish."¹ They are based on potential user groups and assist to illustrate and to communicate our technological as well as curatorial concepts and developments within and beyond the VHH project. We successfully developed the concept of engagement scenarios based on persona descriptions in deliverable D3.1 Definition of Engagement Levels, Usage Modes, and User Types (M12).

¹ Yen-ning Chang, Youn-kyung Lim, and Erik Stolterman (2008) Personas: From Theory to Practices. Proceedings: NordiCHI 2008, 439-442. Here: 439.

The research conducted by each of the project's teams and team members, and the knowledge that has already been gained (and continues to grow) while developing solutions responding to the aims and scopes of our project, will contribute to future preservation and accessibility of as well as the engagement with the audiovisual heritage of the Holocaust. With our curatorial, technological and methodological solutions, however, we also address a broad variety of scholars, researchers, developers and other external stakeholders that deal with questions related to audiovisual heritage and visual memory as well as with the exploration and analysis of audiovisual records with digital means.

The intense work in our project certainly also contributes to the personal development of the team members as well as to the growth of a young generation of researchers. Exposure to new areas of interest and historical materials enriches the quality of the research, while participation in a collaborative research project supported by the European Union's Horizon 2020 research and innovation programme confers a significant prestige that may increase the chances of winning additional grants and funding for future studies. This might not only result in financial support but also take the form of invitations to present our work at conferences, workshops, round tables, and other events within and beyond academic networks, thus engaging in a new face-to-face interaction, whether as part of discussion about the VHH project or as part of our related personal research.

The combination of different fields of knowledge and the extensive metadata we have collected, organized and interlinked, allows the VHH Team members a greater exposure to new (and sometimes hidden) information and perspectives concerning the visual history of the Holocaust that will also affect our future research. In this context, new university courses and educational programs dealing with the visual history of the Holocaust—some of which are already being taught based on the preliminary research results—can also be considered as new forms of engagement that are the direct result of participating in the project, alongside (forthcoming) publications written on the basis of preliminary research results, alone or in collaboration with other scholars.

Establishing a relational and responsive connection to past events, with the help of the platform, artists, creators, educators, historians, and others can imagine and learn about the visual history of the Holocaust in a new way that provides a multidirectional engagement with that past. The stimulation of the historical imagination might even engage its users—practitioners, researchers, and laymen alike—in folding silenced or hidden histories (or images) that were unknown or were not recognized so far. In this context it is worth noting that, unlike scientific studies conducted in laboratories, studies conducted under the umbrella of the social sciences and humanities are usually characterized by solitary workspace. Acknowledging the importance of transdisciplinary and transnational collaboration to visual history research, the VHH project can promote a positive change that challenges the current model of engaging with historical inquiries. This has the potential to add new values to the Holocaust's visual history and might even call newly socially-engaged communities to action. The VHH project's ability to connect past stories with present experiences within a broad multidirectional and transnational

context that does not necessarily follow a chronological trajectory might also influence the visuality of future digital projects and digital platforms, especially those engaged with visual history and cultural heritage.

This deliverable refers to several other deliverables:

- D2.1 Advanced Digitization Tool Kit (M12)
- D2.4 Database of Films, Artworks, and other Visual Culture Products (M24)
- D2.5 Report on Digital Curation of Popular Culture Content (M24)
- D3.1 Definition of Engagement Levels, Usage Modes, and User Types (M12)
- D3.2 Mindmap Visualizing Multimodal Curating (M12)
- D3.3 Ethics Guideline (M12)
- D3.5 Concept VHH-iDocs (M24)
- D4.1 Controlled Vocabularies Specification (M14)
- D6.1 Link Creation Prototype of Concepts in Text Documents (M18)
- D8.1 Report on the Analysis of ‘Stakeholders’ and Users’ Needs in VHH (M3/24)
- D8.9 Exploitation Options and Business Models (M30)
- D8.8 Detailed Exploitation Plan, Business Model and Business Plan (M48)

2. New forms of engagement based on Tool Kits and Best Practice Models developed by the VHH project

As part of the growing interest in digital humanities, the research methods developed within the VHH project can be used as a model to engage with in future research projects within this growing discipline.

For engaging with the visual history and heritage of the Holocaust using digital means we developed a variety of **Tool Kits** that assist in preparing, managing, annotating and analyzing the media assets and metadata used in our project. These Tool Kits include the *Advanced Digitization Tool Kit*, which informs the digitization of film materials, photographs, and text documents in film heritage institutions, archives, and libraries (see deliverable D2.1 Advanced Digitization Tool Kit, M12), the *Controlled Vocabularies* and related methodologies for describing a diversity of historical and cultural data used in the VHH project (see deliverable D4.1 Controlled Vocabularies Specification, M14), and the *Taxonomy of Relations*, which identifies and organizes relations between images and their modification and transformation (see deliverable D2.5 Report on Digital Curation of Popular Culture Content, M24). The *Taxonomy of Relations*, for instance, can also be used as a theoretical tool for other kinds of visual analysis that engage with visual source materials and the study of image relations.

The practices for curation and data management developed by the project serve as **Best Practice Models** available to stakeholders. This includes an *Ethics framework* applicable for other projects seeking to engage with sensitive issues from exhibition venues and educational programs to new online platforms (see deliverable D3.3 Ethics Guideline, M12). In addition, the VHH project developed Best Practice Models for organizing and enriching research data, such as the modification of the Citavi bibliography software to include and annotate visual data (e.g., annotations of graphic novels), the collection and organization of metadata related to the visual history of the Holocaust, and the time-, location-, and relations-based annotation models deployed in the VHH-MMSI.

2.1. Engagement scenario: Advanced digitization of audiovisual assets

Digitization of cultural heritage materials as a task affects other sectors of society and the economy than the cultural sector and academia alone. However, a plethora of standards, recommendations, services, and commercial applications exist for a diverse range of use cases. This means that subject matter expertise and conservation skills acquired for one medium – e.g., paper, photography, audio recordings – are not necessarily static nor simply transferrable at implementation level to other fields of conservation and preservation.

Advanced digitization is a bundle of practices and processes to ensure that digital heritage materials used for user access is authentic, is suitable for re-use, conforms to open standards and offers sustainable preservation pathways to ensure its ongoing accessibility.

To be fit for re-use, a digitized object must be of high quality and sufficient size, with good-quality descriptive metadata in an open-standard format and usage conditions that allow transformative use.

The Advanced Digitization Tool Kit (ADTK) created in the course of the VHH project is a comprehensive and tested set of best practice documents intended to inform the digitization of film materials as well as related non-filmic archival materials in film heritage institutions (FHIs), other collecting institutions, or academic institutions. A “living document”, it was published in a modular form as deliverable D2.1 (M12), tailored to specific formats and particular needs & pains of stakeholders.

In VHH it serves as a collection of guidelines and checklists for the archival and research institutions involved to undertake digitization of heritage materials to be used in the project. However, in application the ADTK proved to be a potential exploitable result for related sectors, with potential applications for SMEs and industry, the wider GLAM sector and academia, and for civil society and the not-for-profit sector at large.

Natasha Sacharow has a degree in library science and manages a company archive in a family-run retail industry business in Graz, Austria.

User Groups (Stakeholders):

- GLAM sector professionals: curators, librarians, archivists and organizational decision makers tasked with a collection
- organizational decision makers / project managers in SMEs / NPOs / NGOs holding a company archive of various media and formats
- organizational decision makers / project managers in academic and/or educational organizations holding a company archive of various media and formats

Device(s):

- any device

User Objective(s):

- inform themselves on state-of-the-art concepts and approaches to digitizing audiovisual documents (film)
- inform themselves of the scope of a digitization project and its potential long-term effects and cost factors
- have tools at hand to create a list of requirements for commercial providers of digitization services in a tender process
- have tools at hand to assess the technical parameters and suitability of the tender proposals received

Toolkit Objective(s):

- inform the selection of the most suitable technical elements for digitization
- guide the selection of the most appropriate digitization workflow
- guide the creation of appropriate documentation

Natasha is the manager responsible for the company archive at an SME, a retail industry business in Graz, Austria, family-run in the third generation. The family business had been active since the 1910s in the field of food and dry-goods manufacturing and retail, shifting to prime location retail store operations and ceasing their own manufacture in the early 1990s.

The company archive was set up by the current Chairman who—after having retired from the executive position at the helm of the company—has been devoting himself to the family history and the company records. It soon had become apparent that they needed a staff person to look after the records: business documents, correspondence, an art collection, photographs, media and press clippings, and a collection of video tapes and film spools Natasha discovered after spending months sorting through the unordered storage room.

Natasha has a degree in library science and a good grasp of published materials, clipping collections and albums, and of “ego-documents” such as letters, postcards etc. She however is at a loss when it comes to the various audiovisual materials she has located. Most of it appears to be celluloid film, on spools and in boxes: the labeling indicates a mix of company advertising films, educational and training films, and what she thinks are amateur movies shot on the small and “retro” film stock her parents had used.

She googles online resources such as the FAQs by public institutions like the Library of Congress (<https://www.loc.gov/preservation/about/faqs/audio.html>), the International Federation of Film Archives (<http://www.fiafnet.org>) or the European Tape Online Project (<http://www.tape-online.net/>). She acquires an understanding that in addition to identification, suitable storage and cataloging—which she learns about through these free resources—digitization is the only viable means to view, appraise and perhaps store these records.

However: how do you approach digitization? Natasha has neither the technical knowledge to estimate the effort, cost and risks of such an effort, nor does she want to delegate everything to a commercial supplier. Some of the records might be historically relevant; some of it might be of a sensitive nature as it looks private and personal. And she knows too well from family members that they were disappointed seeing their parents’ photo and transparencies collections end up digitized to CD-ROMs in ghastly colors, without care and appreciation.

One of the resources she consults leads her to the “Advanced Digitization Tool Kit”: an online resource set up by the Austrian Film Museum in the course of a research project on Holocaust and film. While unrelated thematically their website is very useful. It guides the user through all questions they have about tackling a film digitization project: from the

initial decision what to digitize, to determining a preferred method and workflow, then to basics of quality control and documentation.

Natasha likes that the guide avoids technical jargon. It however provides her with a good “back-pocket brief” on digitization standards and has a great section of “Do’s and Don’ts”. From working with the Film Digitization Guideline Natasha gathers that outsourcing digitization is a must in her case; she now compiles a list of questions—taken straight from Tool #6: Checklist Film Digitization—which she can use to procure quotes from commercial suppliers, and to compare their proposals.

Browsing the toolkit further she is pleasantly surprised to discover a set of tools (Nr. 8 & 9) devoted to imaging of flat file records. Until then Natasha had assumed that she would have to buy two different models of flatbed scanners; she realizes that with a small investment in a digital camera and peripherals, she can now digitize a range of 2D as well as 3D records (such as key artifacts from the collection), needing not more than the help of an intern and portable equipment. She finds the quality assurance guidelines presented, including the “FADGI” scale, very reassuring: even the pros need to weigh off effort against outcome!

Natasha is grateful to the developers of the guide and contacts them, which leads to the Austrian Film Museum offering their digitization services to her. That was unsuspected: Natasha wasn’t aware that a public museum institution would take an interest in an idiosyncratic collection such as the company’s one. A pleasant side effect of the conversation with the preservation manager is their reference to another tool developed by the “Visual History of the Holocaust” team and linked from their site: a web-based application to translate scanned documents into text files.

2.2. Engagement scenario: Archival research with the Advanced Digitization Toolkit

The following scenario illustrates the use of “Tool #2 Checklist: Archival Research” and “Tool #10 Guideline: Citavi”. Both tools are part of the Advanced Digitization Tool Kit (ADTK). The scenario explores how the tools are also suitable for preparing scholarly publications and organizing and conducting on-site archival research, independent of their context of origin in the VHH Project.

Marta Eisenhuber is a bachelor student of sociology at the University of Vienna who is about to start working on her thesis. Since she has chosen a historical topic for her thesis, she is first confronted with on-site archive research.

User Groups (Stakeholders):

- students and researchers in the field of Humanities and Social Sciences

- educators and faculty who teach introductory courses in research
- citizens interested in history who would like to get involved in citizen science projects

Device(s):

- desktop/laptop
- for Citavi: device with Windows operating system

User Objective(s):

- learn about preparation steps for archive research
- organize and document archive research
- document digitization that has taken place
- inform themselves on reference management for scientific publications

Toolkit Objective(s):

- guide the creation of appropriate documentation

Marta is a young bachelor student of sociology at the University of Vienna who is about to start working on her thesis. She is very interested in the history and political impact of Civil Service in the late Habsburg Empire and thinks about a small prosopographical study of the first women who entered bureaucracy since the 1870s. Her supervisor has pointed out to her that her overall research question is good and exciting, but—when looking for women in that time period—that a quantitative approach might be challenging as little has been published on them. Marta still wants to give it a try. In the available secondary literature, she finds a reference to various archival documents in the Austrian State Archives that might be useful for achieving her aims.

Marta has little experience in archival research, as she had managed mostly without archival sources for her previous seminar papers. On the archives' website she enters the reference into the full text search of the archives online catalogue, but the number of returned results is around 1500. She tries to apply the so-called Archivplansuche (archive plan search) but is overwhelmed with the hierarchical tree structure. As the archive does not offer the possibility of direct pre-ordering of archival documents, she decides to personally visit the premises. There she turns to the “initial consultation” and learns in which archival departments the holdings relevant for her project are kept, but she is told that the information in the literature is too vague for her to order archival materials. She browses through the finding aid provided to her in the reading room (which, however, raises more questions for her than it answers), takes pictures of relevant pages with her smartphone and (a bit on the off chance) she orders a box by filling in the corresponding order forms available in the reading room. Since this will be ready in two days at the earliest, she leaves the archive without having achieved much.

Through a friend she learns that there is a set of recommendations for archival research that was mentioned to her in a university seminar. Her friend had never checked this out

by herself but had kept in mind that it was something about the Holocaust and digitization. Through a quick Google search, Marta immediately finds the website of the VHH project offering an Advanced Digitization Tool Kit which indeed includes a tool for organizing archival research. Even though Marta's research question has nothing to do with the Holocaust and yet less to do with its visual history, she is delighted by the instructions provided, she is thrilled with the step-by-step guides and—after discovering another tool about how to use reference management software for archival research—she decides to switch from EndNote to Citavi for her thesis. As suggested, Marta sets up a cloud-based file storage system and creates an OCR version of the finding aid pictures. She revises her reference database (until now it only included bibliographical entries) by adding archival references. Why hadn't she thought about that before? On the archives website she reads that in case of “interdepartmental research” such as hers, she will have to fill out a separate form (the so called *Forscherbogen*) for each archives department and very likely will also have to get in touch with different archivists who are responsible for the relevant holdings in the respective department.

Contacting the archivists proved very fruitful, as one of them explained to her how to search the hierarchical structure of the archive catalogue for information on officials, organized by ministry. After consulting with her supervisor, Marta decides to narrow her research question to one ministry (Ministry of Commerce).

She studies the holdings related to the ministry, adds them to the reference database and creates a List of Holdings and orders the relevant boxes. She returns to the archive and works through the first box. As references to female civil servants only appear sporadically and it thus becomes clear that Marta has to go through a large number of boxes, she decides to digitize the files in order to study them at home. For this process, the List of Holdings again is very helpful to her: It enables her to maintain a precise overview of the current status of what she has ordered and what she has digitized. It takes quite some time to come up with the list of female civil servants. But now Marta feels well equipped to take further steps of categorization and analysis, and to embed the status of women civil servants into the larger sociological context.

3. New forms of engagement based on the VHH-MMSI

The vast quantity of digital assets uploaded to the VHH-MMSI and their advanced digitization make the VHH-MMSI an appealing platform that can be used in educational programs at schools, universities and memorial sites. Moreover, the accessible interface allows the project team and external stakeholders to engage students and other users in working with the VHH-MMSI, not only by preparing and uploading their own presentations, annotations, clips, Audiovisual Essays, etc. (as already specified in deliverable D3.1 Definition of Engagement Levels, Usage Modes, and User Types, M12); but also by using the VHH-MMSI ‘live’ in class or during other presentations through immediately screening the findings.

Newly prepared and curated audiovisual content within the VHH-MMSI, such as Playlists, Audiovisual Essays, Guided Tours, Online Exhibitions, can result in greater attention from listeners, and at the same time assist in reinforcing the argument. Such visual content can also be presented in conferences, workshops, lectures, and other forms of knowledge exchange. Existing and newly produced content can also be used as a departure point for other creative works, even being edited into documentary and feature films, or integrated into exhibitions, video artworks and other artistic formats. The promotion of visual research and the possibility of interlinking various digitized media objects based on annotations (including relations based on the *Taxonomy of Relations*, see deliverable D2.5 Report on Digital Curation of Popular Culture Content, M24), add an experiential dimension to the past that can serve as a fertile ground for establishing new genres of communication and artistic creations that interactively engage users. The possibility of working in Shared Workspaces within the VHH-MMSI can also lead to new (transnational) research collaborations and pedagogical inquiries, as well as to the discovery of unknown family histories, the multi-layered nature of contested landscapes, and the travels of some (migrating) images and objects (as opposed to others).

3.1. Engagement scenario: Historical Audiovisual Essays

One of the suggested practice models for interactive research in the VHH-MMSI is the creation of Audiovisual Essays (AVEs), and in particular those exploring historical materials, their migration in visual culture, and later manifestations. Media scholars Cristina Álvarez López and Arian Martin define AVEs as “not a strict genre or a delimited form”; but as “a burgeoning field of inquiry, research, and experimentation within academia and also beyond it; the expression of critical, analytical and theoretical work using the resources of audiovisuality – images and sounds in montage”.² AVEs also benefit from the fundamental changes made in accessing archival sources in the digital age. Álvarez López and Martin emphasize that “computers offer relatively simple but highly

² Adrian Martin and Cristina Álvarez López (2014) “Introduction to the Audiovisual Essay: A Child of Two Mothers.” *NECSUS. European Journal of Media Studies* 3 (2) 81–87. Here: 84.

effective technologies of digital production” and “the raw materials – the images and sounds of preexisting films, television and media items – are available to acquire and manipulate via digital channels in a way that is historically unprecedented”.³ This especially affects the use of audiovisual historical materials.

In this scenario we will offer a model for a Historical Audiovisual Essay (HAVE) composed from materials accessible through the VHH-MMSI. We define HAVE as a digital practice of exploring and interacting with those materials, a practice that turns users into co-creators and allows them to explore the VHH-MMSI’s rich content not only by searching historical materials and sources, but also by creating new content. The HAVE can be considered as a Best Practice Model for the VHH-MMSI since it offers a unique tool for users to combine images, texts and sound that makes creative and reflexive use of visual histories, and results in “empowerment through ‘archive fever’”.⁴ The HAVES situate visual history in the heart of a visual inquiry, examining history through the genealogy of its visual records, relations with other visual histories and materials, and later manifestations.

Dr. Yael Zamir, is a postdoctoral fellow in the Department of Communication and Journalism at the Hebrew University of Jerusalem. She develops a HAVE on the Auschwitz I “Arbeit macht Frei” entrance gate sign for the peer-reviewed journal NECSUS.

User Groups (Stakeholders):

- university lecturers
- educators
- teachers
- students

Location(s):

- campus and home office

Device(s):

- a desktop computer at the Hebrew University campus
- laptops connected via Cisco (or any other similar VPN or secure connecting mobility client) to the VHH-MMSI at the Hebrew University library network

³ Martin and Álvarez López (2014) Introduction to the Audiovisual Essay, 82.

⁴ Janet Bergstrom (2019) “Empowerment: creating analytical, archivally based audiovisual essays.” Screen 60 (3): 475–482. Here: 475.

Content:

- all content, including full Premium Content, in a “certified location” with VHH Access Point, installed on-premises

User Role(s):

- Premium User

Usage Mode(s):

- Viewing Mode
- Annotation Mode

Engagement Level(s):

- Advanced Engagement Level

Workspace(s):

- Private Workspace
- Shared Workspace

User Objective(s):

- detect liberation footage of the Auschwitz “Arbeit Macht Frei” sign, as well as other related cinematic and audiovisual representations of it in popular culture
- use, analyze, and appropriate Premium Content
- segment historical visual materials into clips and shots in order to compose from them a HAVE
- compare between various clips of original footage and popular culture representations (for example, by presenting them during the HAVE in split screen)
- add notes to the clips, which will also be a part of the HAVE
- share notes with other users
- save clips in a Private Workspace and share all/some of the saved materials with other users
- utilize Automated Analysis Tools to detect footage and associated documentation based on a set of user-defined criteria such as specific objects and similarities (the ‘Arbeit Macht Frei’ entrance gate sign)
- save and retrieve search results
- create, present and manage HAVES
- work privately as well as collaboratively, and share Search Results as well as Playlists with other Premium Content users in a Shared Workspace, in a “certified location” as well as at home with an online connection to the “certified location”

Platform Objective(s):

- allow for the use of highly advanced tools to manually and automatically search, analyze, annotate and relate films and other artworks and documents that present

the Auschwitz I “Arbeit Macht Frei” entrance gate sign (including Premium Content)

- share, collaborate and present the processes of a scholarly research as well as its final outcomes.
- enable a collaborative work on the platform in a way that is coherent, well-connected and adjusted to the presence of other users

Interaction Options:

- search for specific digital assets by using the advanced functionalities of Quick Search or by using Advanced Search and Filters
- use of Automated Analysis Tools to detect objects or similarities

Collaborative Processes:

- sharing annotations, playlists and findings with other Advanced Engagement Level users

Yael is a postdoctoral fellow at Department of Communication and Journalism of the Hebrew University of Jerusalem. A year ago, she gained her PhD in Media Studies from the London School of Economics. Her PhD dissertation was on distant suffering in the digital era. Nowadays, she is a member of the “Digital and Analogue: Historical Tropes in The Digital Era” research team.

As an expert in digital media studies, Yael knows very well various online platforms and archives that deal with historical atrocities. As such, she is a savvy user of the VHH platform, as she worked with it quite a lot during her PhD, including a discussion on the VHH-MMSI in her dissertation chapter on digital archives and archival interfaces.

One of the goals of her research team is to publish various articles in peer reviewed journals during their joint work. For that, Yael suggested to create a HAVE on a dominant historical trope and to submit it to the peer-reviewed online-journal NECSUS. Since she is already very familiar with the HAVE model, and worked collaboratively with Dr. Anna Weiss on a HAVE exploring the Auschwitz Number Tattoo in the “Filming Injustices: European Cinema and Human Rights” research group, where she was a visiting fellow. Yael had a generally great experience with this model, and also had some HAVES she could present to her team. Since both LSE and The Hebrew University of Jerusalem are authorized premium content Access Points for the VHH platform, she knows it will be very easy to get her team members on board, and easily create HAVES. Luckily, VHH also has an official publication agreement with various journals, including NECSUS, which grant access to the VHHs Premium Content to those also subscribed to the selected journals. And so, there won’t be a problem to publish the HAVE composed exclusively from the VHH-MMSI in NECSUS, since those who will subscribe to it will be able to fully explore their future HAVE. Those who will not have full access, will be able either to subscribe to the VHH Premium Content offer, and then explore the entire HAVE, or to not subscribe to it, and be granted with access to 15% of the HAVE, as well as to the full textual depictions and bibliographical information related to it.

As a first step, Yael introduced to the team members hers and Anna's Auschwitz HAVE, which is available in the Shared Workspace of both in the VHH platform. Since nowadays the team is working from home, due to the pandemic, Yael easily shared the HAVE with the rest of the team members in their own shared folder in the VHH platform. After viewing the HAVE, she suggested creating something similar on the Auschwitz I "Arbeit Macht Frei" sign. Her team leader, Dr. Ben Zuzowsky, has shared with the team his thoughts on Nazi concentration camp gates as a liminal historical trope, and wants to write an article on this subject, and define his concept of liminal historical tropes. Yael suggests creating this HAVE as a complementary project to the planned article, which will explore the migration of the famous entrance gate sign, its symbolic and iconic use in popular culture, and the reasons this trope becoming such a popular object of visual history; not only in Holocaust related media representations, but also in the visualization and symbolization of other atrocities and genocides.

After watching the number tattoo HAVE, the team members want to also create such a thought provoking and rich HAVE, and like the idea of editing such an essay on entrance gates as a complementary audiovisual contribution to Ben's article. They start collecting relevant audiovisual materials in the VHH-MMSI, which is quite an easy task, thanks to the VHH-MMSI's great Automated Analysis Tools that offer additional suggestions for related images. While choosing relevant images, the team members crop scenes and sequences, saving all chosen images in a shared folder Yael assigned for the image selection; "AMF sign - Images". Since it was exceptionally easy to find an abundance of relevant images, the team discusses the rich inventory and decides to create a HAVE composed of five short, 2 minute long HAVES, all focused on the "Arbeit Macht Frei" sign and its various cultural manifestations in artworks, films, audiovisual testimonies, graphic novels, video games and internet memes. In a first step, they compose from the various audiovisual materials five playlists that correspond the future shot list of the short audiovisual essays. Then they download the already selected edited sequences and other visual materials including related metadata information. Using the free video editing software DaVinci Resolve, Ben does all the editing, while Yael Raz, Tessa and Sebastian (PhD and MA students) write short textual descriptions for each image or sequence. They describe their relations to the original photographs of the "Arbeit Macht Frei" entrance gate sign, elucidate the cultural context, and explain—based on the metadata information—from where these manifestations were taken, including a hyperlink to the original source material, which is also available in the VHH-MMSI. In this manner, the team regards the HAVE from a structuralist perspective, as suggested by Dirk de Bruyn; creating interest not for what the images "show", but for what they "show for"⁵, revealing a network of visual relations that exist between various uses of the original and the historical images, thereby offering new options for curating these relations by digital means. For that, they also augmented the HAVE with related literature, and historical information.

⁵ Dirk de Bruyn (2020) "Lost and found: an avant-garde trajectory into the audiovisual essay." *Media Practice and Education*, DOI: 10.1080/25741136.2021.1832769. Here: 6.

Upon completion, the team creates an interactive composition of the five short HAVES; the user can click on each one of the essays, pause whenever he or she wants to, click on the suggested hyperlinks, and explore not only the symbolic and iconic relations of the various images and scenes; but also their specific contexts. They upload the final HAVE and the related materials to their Shared Workspace in the VHH-MMSI. Allowing access to the folder for other colleagues, they discuss and review the HAVE with them, before submitting it to NECSUS, which offers a direct link for submission from the shared folder in the VHH platform. This way, the team members do not need to deal with copyright issues, and with the size and resolution of the final HAVE, as both journal and the VHH platform are well adapted for this kind of submission. Now, all they have to do is wait for the decision of the editors. Exciting indeed.

3.2. Engagement scenario: Interactive Research Article

This scenario proposes the Interactive Research Article as an innovative way to formulate an argument in respect to image migration, based on the possibilities of the VHH-MMSI. An Interactive Research Article can be constructed out of various products: texts, still images, moving images and sequences, archival sources, Audiovisual Essays, recorded Walkthroughs, clips, and so on. The Interactive Research Article is therefore, as a collection of analytical products, a multi-layered *essayistic* product: it can have an image track, a soundtrack (music, film soundtrack, voice-over, etc), written text (PDFs, subtitles, headings, or intertitles, annotations, etc).⁶ Thus, with the aid of digital technology and basic editing tools offered by the VHH-MMSI, the user can create an Interactive Research Article that will present a set of intertwining relations by interlinking diverse sources, annotate images, and digitally curate them in such a way that not only explains the argument concerning an image/shot/sequence/etc. but can also expose its ‘trail’ of migration – even several trails simultaneously – from one place to the other. The user, who is now also author, editor, curator and producer, can also decide to ‘zoom in’ on a specific detail, inscribe texts and markers on the image, photoshop the image, or use additional markers and other rhetorical strategies to refine the argument.

David S. Birdsell and Leo Groarke argue that a *visual argument* can provide “a better account of the relationship between images and the contexts in which they occur”.⁷ Thus, the possibilities of the VHH-MMSI to provide a complex ‘collage’ of storytelling techniques can help the user to present contradictions and/or paradoxes simultaneously, and thus deliver complex levels of meaning rich “with metaphors of relationality” that encourage critical thinking.⁸ Analyzing images with and through other images (and texts)

⁶ Cf. Nora M. Alter (2007) “Translating the Essay into Film and Installation”. *Journal of Visual Culture* 6 (1) pp. 44-57. Here: p. 48.

⁷ David S. Birdsell and Leo Groarke (2017). “Outlines of a Theory of Visual Argument”. *Argumentation and Advocacy*, Vol. 43, Issue 3-4: 103-113. Here: 104. See also: David Birdsell and Leo Groarke (1996). “Toward a Theory of Visual Argument”. *Argumentation and Advocacy* Vol. 33: 1-10.

⁸ Alter (2007) “Translating the Essay into Film and Installation”. p. 48.

does not undermine a thesis-driven written paper but rather supports it as a piece of communication,⁹ and explains the link between the historical origin and its later recreations to the viewer, who not only learns but also *sees* and *hears* the process. The involvement of various senses adds an explorative and joyful dimension to the learning experience and demands the viewer's awareness.¹⁰ In turn the viewer is galvanized "into the role of a full-fledged participant in the construction of meaning [...] in a medium [i.e. the essay] that in its mass manifestations has been traditionally associated with passivity".¹¹ Furthermore, using visual methods to explore images supplies the article with self-reflexivity, in that it is participating in the migration of images, and can therefore be used as "film criticism and commentary on the Internet".¹²

Dr. Anna Weiss is an Assistant Professor of Film Studies at the Freie Universität Berlin, who develops an Interactive Research Article for the international conference 'Digital Humanities and the Memory of the Holocaust'

User Groups (Stakeholders):

- university lecturers
- educators
- teachers
- students

Location(s):

- home office
- seminar room

Device(s):

- laptop
- a desktop computer in a university seminar room

Content:

- all content, including full Premium Content, in a "certified location" with a VHH Access Point, installed on-premises

⁹ Cf. Ashley Hinck (2013) "Framing the Video Essay as Argument". *Cinema Journal Teaching Dossier*, Vol. 1(2), Spring/Summer. <http://www.teachingmedia.org/framing-the-video-essay-as-argument/> (1.12.2020)

¹⁰ Cf. Matthias Stork and Janet Bergstorm (2010). "Film Studies with High Production Value: An Interview with Janet Bergstorm on Making and Teaching Audiovisual Essays". *Frames Cinema Journal*. See: <http://framescinemajournal.com/article/film-studies-with-high-production-values/> (1.12.2020)

¹¹ Alter (2007) "Translating the Essay", p, 48.

¹² Stork and Bergstorm (2010). "Film Studies with High Production Value".

User Role(s):

- Premium User

Usage Mode(s):

- Viewing Mode
- Annotation Mode

Engagement Level(s):

- Advanced Engagement Level

Workspace(s):

- Private Workspace
- Shared Workspace

User Objective(s):

- find footage of Nazi atrocities and the Holocaust that depicts a specific object/image
- use Premium Content that depicts a specific object/image
- review this footage using complex playback operations
- segment footage (clipping)
- make notes and to attach these notes to the clips
- compare various clips with each other
- save clips in a Private Workspace
- access contextual materials (documents and photos)
- return at any later point to resume work
- let an AI choose footage and associated documentation based on a set of user-defined criteria
- display the relations between individual assets side-by-side
- save and retrieve the outcome of search and compare operations
- curate the results
- add voice-over narration to the curated material
- create and share Playlists
- create Interactive Research Article
- present and to manipulate Playlists in realtime, in a presentation context

Platform Objective(s):

- allow for the use of highly advanced tools to search for, analyze, annotate and relate films and other media objects that have been used to visualize the topic (the Holocaust)
- share, collaborate and present research outcomes and processes

Interaction Option(s):

- search for specific digital assets by using the advanced functionalities of Quick Search or by using Advanced Search and Filters
- use Automated Analysis Tools to identify relations
- quantify and visualize statistics
- create your own segmentation of films
- create your own annotations
- create your own relations between films and other media objects
- create your own vocabularies
- create your own Playlists of digital assets

Collaborative Processes:

- share Playlists of digital assets with/from others
- share annotations with/from others
- share relations between films and other media objects with/from others
- share vocabularies with/from others

Anna is an Assistant Professor in the Film Studies department at the Freie Universität Berlin. She was appointed to the position immediately upon completion of her two years training as a postdoctoral fellow in the department's research group "Filming Injustices: European Cinema and Human Rights" at the department. She was happy to return to Germany after four years in the United States, where she studied in the Human Rights Program at Yale University.

Last week Anna was invited by the head of the department to present the outcomes of the group's two years of research in the upcoming international conference "Digital Humanities and Human Rights". This year the conference will be held in Berlin. She is very excited because it will be her first time presenting at a conference as an "Assistant Professor", and therefore she very much wants to prove to the department head that she is worthy of the position. She decides to be creative and to prepare her presentation in the form of an Interactive Research Article, which she may later submit to the 2021 Human Rights Film Festival Berlin.

For the past two years, Anna has used the VHH platform a lot, almost every time her supervisor asked her to find footage depicting the liberation of the Nazi concentration camps and other related materials. Anna is very familiar with the VHH platform and she is confident in her ability to create an innovative Interactive Research Article for the conference based on the possibilities offered by the VHH-MMSI. The university she is affiliated with is one of the many certified VHH Access Point locations worldwide and that is a great advantage because she has access to IPR-protected material. She can use her Private Workspace, where she has already prepared a lot of Playlists for her new students, as well as the material she and her research fellows have already annotated as part of the group research. Since she represents the department, Anna will ask her colleagues for their permission to use the HAVE (see scenario above) they already have prepared and

published. These combined Private and Shared Workspaces will give her privacy on the one hand, and will save time on the other. She might even ask her former supervisor for feedback on the final draft. Although her former supervisor is not in Berlin at the moment, Anna can move the final draft to the Shared Workspace and the professor can connect to the VHH-MMSI via remote access. At the conference, to avoid confusion with other presentations, Anna will present her Interactive Research Article from her Private Workspace.

Anna intends to show the audience how the footage and pictures captured by the Allies' cameramen during the liberation of the camp shaped international law regarding human rights violations on the one hand, and European cinema on the other. She considers framing the visual argumentation in a way that will problematize the chronological timeline narrative typical of scholarly articles published in academic journals and often presented at such conferences. She is sure that an Interactive Research Article is a great way to accomplish a scholarly presentation that follows both a chronological and non-chronological narrative trajectory, and which engages the viewers with both the human rights violations captured when the camps were liberated as well as how the Allies' visual archive has influenced the postwar global debate on human rights. However, as a representative of the Film Studies department, she is also interested in showing how these visual records are used in European Cinema, especially in films dealing with the legal process of human rights violations.

To make her presentation interesting, Anna decides to open the Interactive Research Article with a short screening of *Judgment at Nuremberg* (1961). The VHH platform allows her to segment the specific shot in which the actor-judge watches the original footage. To this shot, she can then add a recorded testimony of a survivor as a voice-over narration while she will edit original footage and pictures captured by the Allied cameramen. This multisensory experience will undoubtedly assist her in gaining the audience's attention. Their attention is needed, because at this moment she plans to take a break from the interactive article and read the legal wording of the Universal Declaration of Human Rights from 1948. In support she uploads to the VHH platform an animated slide in which the text will appear, and integrates it into the Playlist that provides the basis for the Interactive Research Article. That way it will be easier for everyone to follow her words.

After that, Anna can screen the HAVE prepared and annotated by the research group members. This HAVE focuses on a specific film sequence that shows children presenting their number tattoo, shot by a Soviet cameraman shortly after the liberation of the Auschwitz concentration camp. Using digital aids proposed by the VHH-MMSI, the HAVE explains why this sequence has become an iconic visual information – not only for international law but also for European human rights cinema. As it is only 8 minutes long, Anna will screen the HAVE in its entirety; though she must not forget to edit the HAVE in her Private Workspace first, because she would like to add a slide crediting all the members of the group.

Focusing again on her topic after the HAVE, Anna thinks that it might be a good idea to cite a paragraph from the Convention on the Rights of the Child. She may even use the VHH-MMSI searching tools to find more pictures of children captured by the Allies. She can then upload images she has collected from other atrocities and curate them according to specific motifs or shooting techniques. The recorded reading of the Convention on the Rights of the Child against the background of the images of starving children will give immediate meaning into the ‘dry’ legal language and will inspire empathy. This will allow a ‘smooth’ transition to the latest film dealing with the legal rights of refugee children who came to Germany in 2015. Shot in Berlin, the film’s producer is the keynote speaker at the conference. Anna is happy! What a great presentation she is going to give!

3.3. Engagement scenario: Interactive Walkthrough

The following scenario explores the manners in which the VHH-MMSI can be used as a useful tool for planning and curating an exhibition. The discussion about these images will demonstrate how, given the innovative curatorial approach offered by the VHH-MMSI, in particular its access to Premium Content, a curator can plan an exhibition based on an Interactive Walkthrough that is both artistic and historical in nature.

Dr. Jakub Andrejewski is a freelancer art curator, who develops an Interactive Walkthrough for an exhibition (“The Gas Chambers and the Artist’s Gaze”) he would like to propose to the MOCAK Museum’s board members (Krakow)

User Groups (Stakeholders):

- artists and curators
- exhibition visitors
- educators
- students

Location(s):

- home office
- seminar room

Device(s):

- laptop
- a desktop computer in a university seminar room

Content:

- all content, including full Premium Content, in a “certified location” with a VHH Access Point, installed on-premises

User Role(s):

- Premium User

Usage Mode(s):

- Viewing Mode
- Annotation Mode

Engagement Level(s):

- Advanced Engagement Level

Workspace(s):

- Private Workspace

User Objective(s):

- find footage of Nazi atrocities and the Holocaust that depicts a specific object/image
- use Premium Content that depicts a specific object/image
- review this footage using complex playback operations
- segment footage (clipping)
- make notes and to attach these notes to the clips
- compare various clips with each other
- save clips in a Private Workspace
- access contextual materials (documents and photos)
- return at any later point to resume work
- let an AI choose footage and associated documentation based on a set of user-defined criteria
- display the relations between individual assets side-by-side
- save and retrieve the outcome of search and compare operations
- curate the results
- add voice-over narration to the curated material
- create and share Playlists
- create Interactive Walkthrough
- present and to manipulate Playlists in realtime, in a presentation context

Platform Objective(s):

- allow for the use of highly advanced tools to search for, analyze, annotate and relate films and other media objects that have been used to visualize the topic (the Holocaust)
- share, collaborate and present research outcomes and processes

Interaction Options:

- search for specific digital assets by using the advanced functionalities of Quick Search or by using Advanced Search and Filters

- use Automated Analysis Tools to identify relations
- quantify and visualize statistics
- create your own segmentation of films
- create your own annotations
- create your own relations between films and other media objects
- create your own vocabularies
- create your own Playlists of digital assets

Collaborative Processes:

- none

Jakub is a distinguished art curator with a background in history. His area of expertise is historical exhibitions, and among the recent exhibitions he has curated are: “Witnessing the horrors” (2012, The Museum of Warsaw), “Wandering and Wonder” (2015, Deutsches Historisches Museum, Berlin), and “Prisoners of Hate: Survivors Painting their Memories. 75th anniversary of the liberation of the prisoners of the concentration camp Sachsenhausen” (2020, Gedenkstätte und Museum Sachsenhausen).

For years, Jakub has aspired to curate an exhibition that engages with the Nazi gas chambers – not a ‘classic’ historical exhibition nor one that will only display works by survivors, as has been the case so far, but rather one that will juxtapose the historical evidence with artistic creations. As much as Jakub admires the survivors for not losing their joy in creation, despite having experienced the worst, he seeks to curate an exhibition that will also feature ‘star’ artists. Secretly, in his heart of hearts Jakub always dreamed of being an artist, but what he is doing today is also a work of art! If only people knew how much creativity and imagination one needs to be a good curator; people tend to think that all a curator does is to organize and hang works in a space. In fact, Jakub’s work begins much earlier, at the stage of formulating the idea. The exhibition he has in mind already has a name: “The Gas Chambers and the Artist’s Gaze”.

In two months, Jakub has a meeting at the MOCAM museum, and he wants to take this opportunity to persuade the museum’s board members to engage him as a freelancer curator. MOCAM’s proximity to the Oskar Schindlers Emaillefabrik museum makes it an ideal place for such an exhibition. Luckily, Jakub has the talent to imagine how the exhibition will look even at this stage, but not everyone is like him. Sometimes it’s really hard to explain an exhibition to museum policymakers. Jakub decides to use the VHH-MMSI to prepare an Interactive Walkthrough that will make the idea behind the exhibition visually accessible to members of the board. He has worked with the platform in the past, and has added and annotated 10 artworks by his own. Jakub has three primary goals: he wants to find artworks that deal with the gas chambers; he wants to present these artworks alongside the original photographs and footage of the gas chambers; and last but not least, he wants to contextualize the exhibits both in the context of art history and of the historical evidence.

This kind of comparative and multimodal curatorship approach is important when presenting disturbing images. Jakub remembers the scandals that arose following previous exhibitions dealing with representations of the Holocaust. He believes that displaying artworks within a historical context not only reduces the chance of provocation, but also reveals how much the Holocaust continues to affect our culture. In his vision, artworks will simultaneously be viewed as ‘independent units’, as part of a one-to-one comparison, and as part of a continuous migration process of the visual history of the Holocaust. The combination of these three viewing experiences will enable visitors to the exhibition, as well as the board members to whom he wishes to present his idea, to juxtapose and examine common motifs and visual patterns among different kinds of representations of the gas chambers. Jakub thinks it might even be worthwhile to use the VHH platform as a sort of ‘experiment’ to discover images and connections that will help him to decide which artists to contact, how to curate the exhibition, how to acquire the copyrights, and even to evaluate how much the exhibition will eventually cost. The more organized he is when he comes to the meeting, the higher his chances of succeeding in convincing the board.

Jakub logs in to his Private Workspace. He decides to use the Quick Search tools to look for books from which to prepare a short text about the gas chambers that will appear on the museum wall as part of the introductory text. He finds Shlomo Venezia’s book *Inside the Gas Chambers: Eight Months in the Sonderkommando of Auschwitz* (2011).¹³ He reads the annotated section in which Venezia describes his experience as a Sonderkommando member. Venezia’s eye-witness account is fascinating! He would never have come to it on his own. Jakob cites two sentences on a slide he plans to use as an introduction for his Interactive Walkthrough. With the help of the VHH-MMSI, Jakub finds six further relevant books and writes their names on a note in his Private Workspace for future research.

Jakub wants to simulate a ‘black box’, where the visitor can see and hear historical evidence and testimonies on parallel screens. He knows the testimony of Marie Claude Vaillant-Couturier from 28th January 1946 at the Nuremberg Trials and decides to cut part of the video to create his own Playlist:

Those selected for the gas chamber, that is, the old people, mothers, and children, were escorted to a red-brick building. [...] They were taken to a red brick building, which bore the letters “Baden”, that is to say “Baths”. There, to begin with, they were made to undress and given a towel before they went into the so-called shower room. Later on, at the time of the large convoys from Hungary, they [the Nazis] had no more time left to play-act or to pretend; they [the inmates] were brutally undressed...¹⁴

¹³ Cf. Shlomo Venezia (2011). *Inside the Gas Chambers: Eight Months in the Sonderkommando of Auschwitz*. Cambridge: Polity Pres.

¹⁴ The Avalon Project “Documents in Law, History and Diplomacy” – Yale Law School: Nuremberg Trial Proceedings Vol. 6, FORTY-FOURTH DAY Monday, 28 January 1946, Morning Session: <https://avalon.law.yale.edu/imt/01-28-46.asp> (22.11.2020)

Jakub searches for other testimonies in the VHH-MMSI Advanced Search tools and encounters none other than Auschwitz commandant Rudolf Höss:

The ‘final solution’ of the Jewish question meant the complete extermination of all Jews in Europe. I was ordered to establish extermination facilities at Auschwitz in June 1941. [...] I visited Treblinka to find out how they carried out their exterminations. The Camp Commandant at Treblinka told me that he has liquidated 80,000 in the course of one-half year. He was principally concerned with liquidating all the Jews from the Warsaw Ghetto. He used monoxide gas and I did not think his method was very efficient. So when I set up the extermination building at Auschwitz I, I used Cyclon B [aka “Zyklon B”], which was crystallized Prussic Acid we dropped into the death chamber from a small opening. It took from 3 to 15 minutes to kill the people in the death chamber depending upon climatic conditions. We knew when the people were dead because their screaming stopped. We usually waited about one-half hour before we opened the doors and removed the bodies. After the bodies were removed our special commandos took off the rings and extracted the gold from the teeth of the corpses.¹⁵

Jakub is not sure if he wants to give the perpetrators a voice in his exhibition. Despite the confession given above, and in contradiction of the historical evidence, including the Allies’ visual records, forensic investigations, maps, and oral testimonies, the existence of the gas chambers continues to fuel the conspiracy theories of Holocaust deniers, perhaps because acknowledging their existence means acknowledging the Nazi regime’s deliberate intent to commit mass murder of Jews in an extraterritorial site, without the benefit of juristic oversight.¹⁶ Nonetheless, Jakub decides to save a clip in his folder, just in case. What Jakub knows for sure is that he would like to screen photographs and footage from the liberation. He types the combination “gas chamber”, “gas chambers”, “Zyklon B” (also in English: “Cyclon B”), and some other related terms, such as “Baden”, “piles of”, “heaps of” etc. and collects all the relevant data in his Private Workspace. He does not want to present everything (and obviously doesn’t intend to glamorize the murders) but it is important for him to show what the Allied liberating units were facing. Jakub creates a new folder in his Private Workspace and saves the images – he needs to think about it a bit. One of the good things about the VHH platform is that he can always return to his Private Workspace and edit his Interactive Walkthrough.

Jakub knows that the Allies’ detail-rich documentation influenced many works created after 1945 that made direct or indirect use of the same images. Polish himself, he immediately thinks about Artur Żmijewski’s video artwork *Game of Tag* (1999).¹⁷ This very challenging piece, which evokes a controversy wherever it is displayed, shows a group of naked white people of a variety of ages, genders, and body types playing tag together, in a small, claustrophobic room with peeling walls and paint residue on them. The video opens with the camera lingering on the door through which the participants enter the

¹⁵ Rudolf Höss’ testimony at the Nuremberg Trials as presented by Robert Jan van Pelt in *The Case for Auschwitz: Evidence from the Irving Trial*. See: Robert Jan van Pelt (2002). *The Case for Auschwitz: Evidence from the Irving Trial*, Bloomington and Indianapolis: Indiana University Press, p. 4.

¹⁶ This issue was at the heart of the famous lawsuit filed by Holocaust denier David Irving against Deborah Lipstadt in 1996. For further reading see: *Ibid*.

¹⁷ To view several images from this video: Institute of Modern Art, “Artur Żmijewski, The Game of Tag”: <https://ima.org.au/exhibitions/artur-zmijewski-the-game-of-tag/> (24.11.2020).

room, one after another. At first, they look hesitant and ashamed, covering their genitals, but soon the game develops, and the members of the group seem amused, more and more devoted to the playful game. The video ends with an announcement that the realm Żmijewski created was filmed in two shooting locations: a private basement and a former gas chamber. Jakub remembers that recently a confession – immediately accompanied by a rejection of responsibility (“Nowadays, such [a] disgraceful video could not be made...”) – published by the Museum Stutthof put an end to the mystery of where the sequence was shot. Żmijewski’s work suggests that it might be a good idea to search for historical visual records of the camp’s gas chamber, as captured by Soviet cameramen.¹⁸ Using a split-screen mode, Jakub compares the site as it was in 1945 and as it looks decades later.

One of the photographs of the gas chamber proffered by the VHH-MMSI’s ‘related images’ function shows a great resemblance to the work *Stutthof* (2011), a hyperrealist painting by Mexican-Jewish artist Yishai Jusidman, created as part of his ongoing project ‘Prussian Blue’.¹⁹ Jakub is not familiar with Jusidman’s work. He clicks on the annotation and discovers more works created by Jusidman – many of them would be great for the exhibition. Jakub listens to an ‘expert interview’ with a German art historian and learns more about how Jusidman’s works deal with the relevance of painting to the memory of the Holocaust, not only through its content – a mimetic representation of the gas chamber – but also through the material and colours used. On the one hand, Prussian blue – the colour tone with which this painting was painted, and which gives the entire project its title – evokes the past as it reminds viewers of nineteenth century photography. On the other hand, the colour also references the compound ferrocyanide – a by-product of the Zyklon B gas used in the chambers, stains from which are still partially visible in several memorial sites.

With this information, Jakub turns to examine one of the most famous works to attempt to deal with the (in)ability of this medium to represent the Holocaust: Luc Tuymans’ 1986 work *Gaskamer*. He places the two artworks side-by-side and adds the titles and all the relevant information. He also adds side notes to himself: “despite figurative elements, Tuymans’ painting does not offer mimicry and hyper-realism. On the contrary – this small-scale painting of the gas chamber in Dachau is painted with trembling lines that might remind some viewers of children’s drawings”.

Jakub now chooses to focus on a specific object in the chamber space, examining it in more detail. He specifically searches “Dachau + gas chamber” in the Advanced Search Tool. The VHH-MMSI offers a photograph of the chamber’s open door, above which the German word “Brausebad” (Shower) is inscribed.²⁰ Jakub zooms in to examine the entrance door to Dachau’s gas chamber as it was documented in April 1945. The cynicism

¹⁸ For the image, please see: United States Holocaust Memorial Museum: “A postwar view of the gas chambers at Stutthof”: <https://collections.ushmm.org/search/catalog/pa1047073> (24.11.2020)

¹⁹ For the image of Jusidman’s work, see: <http://www.yishaijusidman.com/prussian-blue/> (24.11.2020)

²⁰ For the image, please see: United States Holocaust Memorial Museum. “View of the door to the gas chamber in the Dachau concentration camp. A sign above it which reads ‘Brausebad’ identifies it as a shower”: <https://collections.ushmm.org/search/catalog/pa1158576> (24.11.2020)

inherent in this tension gives his arms goose bumps. He adds this photograph to his Interactive Walkthrough.

Jakub waits to see what the VHH-MMSI will offer next. Natalie Arnoldi's painting of the open chamber door of Dachau (part of her series "This happened Here") (2016) appears down the screen as a suggestion Jakub might be interested in.²¹ Wonderful! He knew Arnoldi's work – he had even thought of it already, but he did not know that it was based on this original photograph. Now that he knows, he must present the two on the same wall in the exhibition venue, but also include both in his Interactive Walkthrough for the board management. The presentation of Arnoldi's painting of the open door next to the historical photograph will encourage the viewer to examine the relations formed between these two images: Why does Arnoldi choose to represent an image that already exists? Is there a contribution made by the painting to the way we remember the Holocaust, and if so, what is that contribution? Why does a young artist, who is not Jewish and has no biographical connection to the Holocaust, choose to copy an image? Is this really a direct copy of the Allies' records? Is this the only artwork into which the Dachau gas chamber's open door has migrated?

The VHH-MMSI offers Jakub the option of accessing the online audiovisual virtual tool 'The Liberation' ('Die Befreiung') offered by the Dachau Concentration Camp Memorial Site. Jakub finds the tour very informative; it tells the story of how Dachau concentration camp was liberated by American troops on April 29th, 1945, while comparing the site as it looks today and original liberation photographs.²² He saves the link in his Private Workspace; he has a colleague at the Dachau Memorial he can ask if it might be possible to prepare something similar to be shown at the exhibition.

The VHH-MMSI also suggests several films to Jakub, such as Alain Resnais' 1955 film essay *Nuit et Brouillard* (*Night and Fog*), Samuel Fuller's American drama war film *Verboten!* (1959). It would be great to incorporate excerpts from films as well; Jakub definitely intends to extract the relevant parts and save them in his Private Workspace, but that's too much for one day. It is already really late – he will have to continue tomorrow. Oh, what a great exhibition it is going to be!

²¹ For the image of Arnoldi's work, see: https://issuu.com/cjifapress/docs/na-this_happened_here1?e=9967846/59021436 (24.11.2020)

²² The Dachau Concentration Camp Memorial Site's audiovisual virtual tool 'The Liberation' ('Die Befreiung') <https://diebefreiung.br.de/en/> (24.11.2020)

4. New forms of engagement based on software solutions developed by the VHH project

The software solutions developed by the VHH project can be used as a departure point for other digital projects, for future research proposals, projects, proposals for historical exhibitions, artistic activities and projects, and others. The research and technological infrastructure will save such initiatives time and money, while providing a validated research ground that has already proved its value. More specifically, the VHH project's computational modelling of machine learning and its problem-solving practices can assist others to engage with similar image/text analysis and to customize their metadata and the technology to their needs.

Automated Film Analysis Tools are a core solution developed by the VHH project.²³ These tools are split into five areas:

- (a) Shot Boundary Detection, the identification of abrupt or gradual transition between the last and the first frames of two consecutive shots
- (b) Shot Type Detection, based on information retrieved from the distance to an object
- (c) Camera Movement Detection, which identifies for instance panning and traveling shots
- (d) Object Detection that focuses on the identification of particular objects within a frame and their transition between frames
- (e) Relation Detection, which detects similarities between frames and shots and thereby identifies relations between disparate media objects

All these tools assist the process of making images machine parsable.

A second area of analytical tools based on machine learning that provide innovative solutions for the retrieval of historical sources is automated text analysis makes texts machine parsable.

4.1. Engagement scenario: Audiovisual Digital Humanities

Through digitization, annotation and the automated analysis of moving images, film as a formerly “unattainable text” (Raymond Bellour) became attainable.²⁴ Annotation tools and software solutions offer new ways of retrieving films as audiovisual data that can be searched, enriched and analyzed in automatic or semi-automatic ways. This also had an impact on the emerging field of Digital Humanities, which—with their focus on textual

²³ Cf. Daniel Helm and Martin Kampel (2019). Video Shot Analysis for Digital Curation and Preservation of Historical Films. EUROGRAPHICS Workshop on Graphics and Cultural Heritage, 26. DOI: 10.2312/gch.20191344.

²⁴ Cf. Liliana Melgar Estrada et al. (2017). Film Analysis as Annotation: Exploring Current Tools. *The Moving Image* 17:2, 40-70. Here: 42.

analysis—was for a long time considered to be “largely ‘deaf and blind’ in their capacity to search, discover, and study AV materials.”²⁵ The new discipline of Audiovisual Digital Humanities deals with a variety of aspects related to film aesthetics and film history. Digital tools, annotation and editing software are used to analyze and compare films, to study specific techniques or features in large and often heterogeneous corpuses, and to visualize findings.²⁶ The aim of these computational processes of film analysis is “to explore, compare, or analyze these collections with new research questions—or revisit old ones in new ways.”²⁷

The exploration of large factual, archival film collections, however, is still a desideratum within the field of Audiovisual Digital Humanities. The reason for that is manifold. One aspect is the dispersed nature of filmic records in a variety of archives. Another is the availability of digitized copies. Finally, many factual archive films lack the formal homogeneity of most feature film productions. Automated analysis of archival films faces additional challenges, such as often defective conditions of the digitized material.²⁸

Following previous digital history projects such as I Media Cities (<http://www.imediacities.eu>) and the Ephemeral Films Project (<http://efilms.ushmm.org/>), the VHH-project aims to introduce new solutions for researching and analyzing historical film footage with the help of automated tools. Thereby, it offers innovative links for research in the field of Audiovisual Digital Humanities.

Maaika de Vries is a researcher of audiovisual cultural heritage in the Graduate School of Humanities at the University of Amsterdam. She is currently doing research for her doctoral thesis, in which she explores digital methods for analyzing archive footage.

User Groups (Stakeholders):

- university lecturers
- students
- film archivists

²⁵ Andreas Fickers, Pelle Snickars, and Mark J. Williams (2018). Audiovisual Data in Digital Humanities. *VIEW—Journal of European Television History and Culture* 7:14, 1-4. Here: 1. Online: <https://www.viewjournal.eu/articles/10.18146/2213-0969.2018.jethc149/>

²⁶ Cf. Julia Noordegraaf (2016). Computational research in media studies: Methodological implications. *KWALON* 21, 52-59.

²⁷ Susan Aasman et al. (2018). Tales of a Tool Encounter: Exploring Video Annotation for Doing Media History. *VIEW—Journal of European Television History and Culture* 7:14, 1-10. Here: 1. Online: <https://www.viewjournal.eu/articles/10.18146/2213-0969.2018.jethc154/>

²⁸ Cf. Helm and Kampel (2019). Video Shot Analysis for Digital Curation and Preservation of Historical Films, 25.

Location(s):

- home office
- seminar room

Device(s):

- laptop
- a desktop computer in a university seminar room

Content:

- all content, including full Premium Content, in a “certified location” with a VHH Access Point, installed on-premises

User Role(s):

- Premium User

Usage Mode(s):

- Viewing Mode
- Annotation Mode

Engagement Level(s):

- Advanced Engagement Level

Workspace(s):

- Private Workspace

User Objective(s):

- identify footage of Nazi atrocities and the Holocaust that depicts a specific visual trope
- use Premium Content that depicts a specific visual trope
- segment footage (clipping)
- compare various clips with each other
- extract frames
- save clips and frames in a Private Workspace
- return at any later point to resume work
- let an AI choose footage and associated documentation based on a set of user-defined criteria
- display the relations between individual assets side-by-side
- save and retrieve the outcome of search and compare operations
- curate the results
- create and share Playlists

Platform Objective(s):

- allow for the use of highly advanced tools to manually and automatically search, analyze, annotate and relate films and other artworks that includes a specific visual trope (including Premium Content)

Interaction Options:

- search for specific digital assets by using the advanced functionalities of Quick Search or by using Advanced Search and Filters
- use of Automated Analysis Tools to detect objects or similarities
- use of the download function

Maaika is currently conducting research for her doctoral thesis, which focuses on digital methods for the analysis of archive footage. Already during her MA studies in Heritage Studies, Maaika was mainly interested in audiovisual cultural heritage and especially in ways of studying ephemeral and factual films related to the European history of the 20th century.

She had learned about the VHH project in a course about digital search infrastructures for moving image collections. Since then, she has been working with the VHH-MMSI, which she can fully access, because her university provides a certified VHH Access Point. For her research on digital methodologies, she wants to explore the iconization process of archive footage through a qualitative analysis of visual tropes of atrocity. Therefore, she examines the original footage recorded by Allied camera teams in the liberated concentration camps in Germany and Eastern Europe in the VHH repository. In order to be able to trace the iconic status of certain tropes, she focuses on films that were composed from atrocity footage and publicly shown in 1945/1946. For her study she selects *Welt im Film*²⁹, a report on concentration camp atrocities that includes footage from Eisenhower's visit to the Ohrdruf concentration camp, from smaller camps in Ziegenheim, Kaunitz and Holzen, from other atrocity sites, liberated POW camps and an euthanasia facility, *Nazi Concentration Camps*³⁰, which was screened on November 29, 1945 at the Nuremberg trials as evidence, the *Soviet film of atrocities shown at the Nuremberg Trials*³¹ with famous shots from the Auschwitz and Majdanek extermination camps, and the film *Death Mills*³², which showed the German and Austrian public the visual evidence, which the Allies had depicted in liberated concentration and extermination camps. All these films are accessible to her as they are in the public domain.

²⁹ USHMM, 1995.146.1, RG-60-2597, FV1000. Online:
<https://collections.ushmm.org/search/catalog/irn1002089>. (14.12.2020)

³⁰ USHMM, 2004.712.1, RG-60-4325, FV2797. Online:
<https://collections.ushmm.org/search/catalog/irn1003778> (14.12.2020)

³¹ USHMM, 2019.401, RG-60.6951, FV4275, FV4276, FV4277, FV4278, FV4280, FV4281. Online:
<https://collections.ushmm.org/search/catalog/irn616417> (14.12.2020)

³² USHMM, 1998.191.1, RG-60.2418, FV0068. Online:
<https://collections.ushmm.org/search/catalog/irn1001577> (14.12.2020)

For her analysis of visual tropes in atrocity and liberation footage she analyzes all four films on the level of annotated shots. As a case study she chooses to identify and analyze shots that depicted people standing behind barbed wire fences. This motif became a significant trope of liberation through constant variation and repetition. In spite of the exceptional circumstances of this situation, this particular setting transformed into a representative visualization of previous states of the camps.

The annotation-based identification process—searching for “barbed wire” and “fence”—lead to a variety of versions of the visual trope. During the search process, Maaika recognizes the importance of the automated *Shot Boundary Detection* (SBD), which identifies the start and end points of a particular shot, as well as the *Shot Type Classification* (STC) and especially the *Camera Movement Detection* (CMD), which is instrumental for her study, because the visual trope of people standing behind barbed wire fences is often closely related to traveling and panning shots. In contrast, *Object Detection* (OD) did not succeed in clearly identifying barbed wire, especially when people are standing in front or behind the fences. Here, the search for related annotations was much more helpful. An exciting discovery is the possibility of *Relation Detection* (RD). This is very useful for Maaika’s attempt to identify and compare similar visual compositions.

From all sequences that she could identify, Maaika extracts frames that signify the trope. If the same footage was used in different documentary films, it is also be documented multiple times. Such use of specific shots or sequences in more than one compilation already indicates that this footage bears certain iconic qualities. Shots with people behind barbed wire fences appeared in three of the four films, with the only exception of *Nazi Concentration Camps*.

Maaika organizes the respective shots in a Playlist and saves the frames in her Private Workspace. She downloads the frames and uses simple tools for sampling images. The sampling offers specific image clusters. While there is a variety of versions of this visual trope, even in the same films, only a few of them, however, became iconic. Most significant in this context is the traveling shot along prisoners standing behind barbed wire in Auschwitz and the children walking between barbed wire fences, shots that were also taken by Soviet camera teams in Auschwitz. The clustering enables Maaika to recognize that although the Soviet film contains a similar traveling shot from Majdanek, this depiction did not gain the same iconic status.

Through the clustering, Maaika establishes or better visualizes implicit visual relations that help her to interpret the appearance of the visual tropes in the historical films. Out of curiosity, Maaika uses the Relation Detection to search for similar compositions in the raw material preserved in the VHH repository as well as in films, photographs, graphic novels and artworks that are part of the Premium Content.

Maaika wishes that such Automated Analysis Tools may be available for research in other visual collections as well. She discovers that the software solutions developed by the VHH project are available open source in a Github repository and may be used for any other purposes. Moreover, she learns that her own University has already adopted these tools.

Thanks to Prof. Giovanna Fossati, who is a Professor of Film Heritage and Digital Film Culture at University of Amsterdam and an Advisory Board member at LBIDH, the VHH project's coordinator, the University has set up the necessary server infrastructure for automated film analysis, providing access to its faculty and students.

The Netherlands Institute for Sound and Vision (NISV) offers access for researchers to its digitized audiovisual collection. This collection contains a variety of factual films ranging from newsreels and documentary reports to private films. Maaika decides to research representations of the Dutch war in Indonesia between 1941 and 1945. Therefore, she identifies the relevant footage in the “News, information and current affairs” and the “Amateur and business productions” from the respective years. With the help of SBD and STC she organizes her material and selects the relevant shots. Then she identifies relations with the help of the RD. Thereby, she is able to identify certain recurring patterns. She then further analyzes these patterns by using CMD. As a result, she could identify how certain motives and patterns correspond to particular camera movements or shot types and how this differs in newsreel documentation and private films.

Maaika is very excited about her findings and decides to dedicate a whole chapter of her dissertation to the Automated Film Analysis Tools developed by the VHH project and their use for the audiovisual digital humanities in the field of audiovisual heritage studies.

4.2. Engagement Scenario: Batch OCR Webservice: BOW

This scenario showcases a useful software solution, designed to automatize an important, though often underestimated part in the process of digitizing archival text-based documents. A key step in processing digitized images that show text is the transformation of visual information into a machine-readable text format. This text may later be used for a variety of analysis, grouping and search functionalities in the VHH-MMSI or other platforms. BOW (Batch OCR Webservice) offers a scalable, web-based solution to convert images into selectable PDFs and other text output formats, while respecting naming conventions and facsimile displays. (For technical details see deliverable D6.1 Link Creation Prototype of Concepts in Text Documents, M18.)

Dr. Sebastian Vogel is a historian at the University of Vienna who creates facsimile photographs of documents for his research about the foreign policy of the former Austrian Chancellor Bruno Kreisky.

User Groups (Stakeholders):

- researchers

Devices:

- desktop/laptop only (operating system agnostic, only needs a modern browser)

User Objective(s):

- digitize a large number of archival documents (facsimile photographs, created with the help of the Advanced Digitization Toolkit) in multiple languages / character sets
- recognize type-written text in any rotation and image or document quality
- save time on pre-processing every individual image manually
- have an easy-to-use webservice, that handles pre-processing, OCR, and Facsimile-PDF and plaintext creation
- not worry about privacy or security of sensitive material

Software Objective(s):

- scalable and robust OCR service for multiple concurrent users
- packaged and ready to use on research institute infrastructure, without 3rd party services
- modular webservice allowing for further analysis steps of text documents

Sebastian is a historian who, as part of his current and other projects, physically visits archives and creates digital copies of documents of interest. He usually aims to create facsimile photographs that preserve both the full content and the physical characteristics of the original documents. Per session Sebastian may take thousands of photos. This takes already a lot of his valuable time. Previously he would need to spend more time for each photograph, to correct the image before he can manually load it into a commercial OCR service or program. For the service he needs to secure additional funding from his institutes budget, spending more time.

Sebastian wants to use the BOW service hosted on his group's infrastructure to correct and OCR the documents he created. The BOW service was created in the course of the VHH project to process textual documents to be included in the VHH-MMSI. However, the BOW service was also made available as a standalone software solution for other projects. The project decided on a specific naming scheme of files, that BOW respects and outputs again for the final files.

Sebastian uses a Wi-Fi connection in the archive to upload documents as he takes them, via his browser on his laptop. The BOW service automatically queues new documents until compute resources are available and notifies Sebastian on the webpage once a batch of documents has finished processing. For a quick check, Sebastian can use the UI of BOW to check the result of the OCR process, as well as a preview of the PDFs he is about to download and move to the project folder on his computer or shared with his colleagues. He is happy that he can now spend more time photographing and analyzing documents rather than conducting an image processing workflow.

4.3. Engagement Scenario: ArchAIVist

This scenario explores ArchAIVist, an experimental search and exploration software solution for textual facsimile documents. Created in the course of the VHH project for the processing of textual documents uploaded to the VHH-MMSI, ArchAIVist uses clever engineering and state of the art artificial intelligence search methods to search not only for word matches, but semantic word meanings derived from the context of both the search origin and all possible results. As a component of the VHH-MMSI and as a standalone solution, ArchAIVist offers new ways of interaction, that are made possible with a modern search backend. This scenario transfers a typical situation in archival research into the digital realm: A researcher finds relevant information in a specific passage of a document, walks up to the archivists and asks for similar information in other documents. The archivist can use his contextual knowledge about this and many other documents in the archive to make recommendations. Our ArchAIVist tries to accomplish this with AI automatically.

Sebastian Rudolf is a history student at Justus Liebig University Giessen. He has just started with his BA studies and has to cope with an assignment, for which he has to search, identify and analyze archival documents related to the postwar careers of scholars, scientists and researchers in the State of Hess that were actively supporting National Socialism.

User Groups (Stakeholders):

- researchers
- students
- everyone

Devices:

- desktop/laptop/tablet (operating system agnostic, only needs a modern browser)

User Objective(s):

- explore an archive of digitized documents (e.g., created with BOW) in multiple languages
- search for information in context, while reading a document
- filter search results based on mentioned dates (e.g., span-based, so we can filter all documents mentioning dates in a span of 2 months or days in a specific year)
- filter search results based on the language in the document

Software Objective(s):

- provide low latency full text search functionality using modern language model based retrieval models as well as traditional exact word matching models

- provide a visual-first interface showing facsimile documents and snippets throughout the application – to put the plain text into the visual context of the archival documents
- allowing for accelerated batch indexing using GPU support and online production using CPUs only (does not need to be the same server)
- provide a platform for AI researchers to experiment with new algorithms and presentation forms in rapid feedback cycles
- at the end of the day: create a great search engine!

Sebastian is a history student who gets the assignment to provide a timeline-based organization of biographic events. Sebastian is super happy that there is already a large collection of digitized documents and that he can use the new ArchAivist search engine. He wants to get started exploring different aspects of the topic that he was assigned. He starts off with a few keywords from the assignment and types them in the search box of the ArchAivist start page, that also gives him an introduction of what to expect once he hits the search button. He is presented a list of different documents that match his query – and there are a lot of returned results. Not knowing a lot about the topic yet, he clicks on a document which snippet shows a nicely typed report. Sebastian notices the visual quality of the document and decides to read this one first. ArchAivist puts now the full facsimile document front and center, and scrolls automatically to the page with the best results and highlights the passage for Sebastian.

After reading a page or two, Sebastian decides to explore more about a phrase he is not familiar with: He selects the text (invisible machine text overlaying the image) and clicks on the explore button. This context information allows ArchAivist to not only look for the selected characters, but the semantic meaning of those words as determined by their local context. ArchAivist searches in both the exact match and neural AI index for the best matches and returns side-by-side a new list of relevant document snippets, all snippets are cropped images with selectable text of the full facsimile documents. Sebastian doesn't speak Russian, so he can't read those documents. He decides to skip them for now by hiding those documents. He also wants to find documents talking about the same timeframe as his current one, so he adjusts the date slider to match only the exact month as his document. This narrows his search down considerably.

Sebastian is really motivated to read more documents, so he clicks on the top result and the document opens up as the main document. Thankfully, ArchAivist starts to locally keep track of Sebastian's searches and shows him a list of his read and search history – so he can go back and forth between documents as he increases his understanding of the historical situation. ArchAivist also makes it easy to download OCR'd PDF files or their plaintext (for quotations for example).

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Additional links

The Avalon Project “Documents in Law, History and Diplomacy” – Yale Law School:
Nuremberg Trial Proceedings Vol. 6, FORTY-FOURTH DAY Monday, 28 January 1946,
Morning Session: <https://avalon.law.yale.edu/imt/01-28-46.asp> (22.11.2020)

The Dachau Concentration Camp Memorial Site’s audiovisual virtual tool ‘The
Liberation’ (‘Die Befreiung’) <https://diebefreiung.br.de/en/> (24.11.2020)

Institute of Modern Art, “Artur Zmijewski, The Game of Tag”:
<https://ima.org.au/exhibitions/artur-zmijewski-the-game-of-tag/> (24.11.2020).

Natalie Arnoldi: [https://issuu.com/cjfapress/docs/na-
this_happened_here?e=9967846/59021436](https://issuu.com/cjfapress/docs/na-this_happened_here?e=9967846/59021436) (24.11.2020)

United States Holocaust Memorial Museum:

<https://collections.ushmm.org/search/catalog/pa1047073> (24.11.2020)

<https://collections.ushmm.org/search/catalog/pa1158576> (24.11.2020)

Yishai Jusidman: <http://www.yishaijusidman.com/prussian-blue/> (24.11.2020)