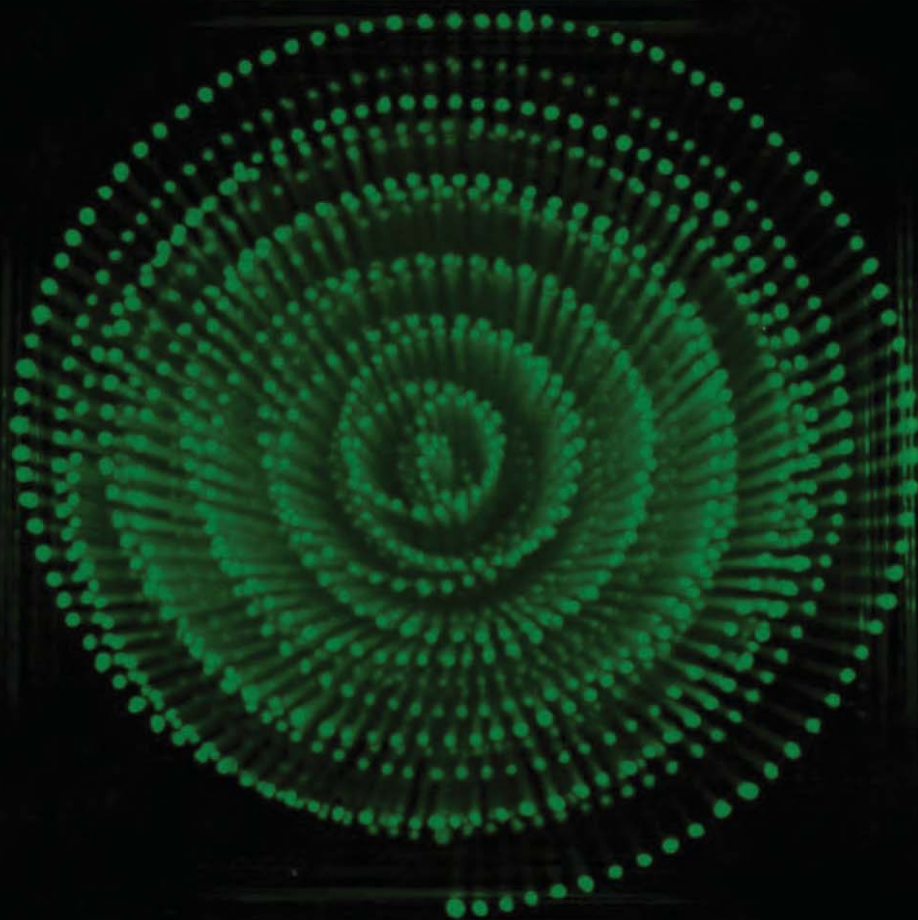


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Documenting Media Art

An Archive and Bridging Thesaurus for MediaArtHistories

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ABSTRACT

While Media Art has evolved into a critical field at the intersection of art, science and technology, a significant loss threatens this art form due to rapid technological obsolescence and static documentation strategies. Addressing these challenges, the Interactive Archive and Meta-Thesaurus for Media Art Research was developed to advance an Archive of Digital Art. Through an innovative strategy of “collaborative archiving,” social Web 2.0 features foster the engagement of the international media art community and a “bridging thesaurus” linking the extended documentation of the Archive with other databases of “traditional” art history facilitates interdisciplinary and transhistorical comparative analyses.

As an innovative solution to challenges in the documentation, indexing and research of media art, the Interactive Archive and Meta-Thesaurus for Media Art Research (AT.MAR) has been developed as a strategy for “collaborative archiving” [1]. Supported by the Austrian Science Fund (FWF) and conducted at the Department of Image Science at Danube University, AT.MAR is an advanced conception of the Archive of Digital Art (ADA) [2]. Formerly called the Database of Virtual Art (DVA), this pioneering and longest-running archive for works at the intersection of art, science and technology celebrated its 15th anniversary in 2015 [3]. ADA was established as a collective project in cooperation with renowned international media artists, researchers and institutions for the integration of a sustainable exchange between artists, experts and users. Comprehensive and open access, ADA is a cost-free and financially independent database. To

advance the mission of ADA, the AT.MAR project was followed through in two stages: First, the implementation of social Web 2.0 features is to foster the engagement of both the artists and scholars of the ADA community, as well as to facilitate the comparative analysis of media artworks there archived. Second, the instituting of a “bridging thesaurus” with a hierarchical structure of semantic connections will function as a linguistic representation for the extensive knowledge domain of media art. For research into contemporary MediaArtHistories as well as historical predecessors, the controlled vocabulary of this thesaurus indexes individual works of “new” media on ADA with those of “traditional” art history on other databases, such as the artworks in the Graphic Collection of Göttweig Abbey (GSSG).

HARD HUMANITIES: MEDIA ART HISTORIES AND IMAGE SCIENCE

Over the last five decades, Media Art has evolved into a significant contemporary field at the intersection of art, science and technology. It encompasses art forms produced, modified or transmitted by means of the very digital technologies that are fundamentally revolutionizing our world—as well as how we perceive and interact with images—through globalization, the Internet, social networks, Web 2.0 and 3.0, and so on. Unlike with painting or sculpture, graphic printing or even photography, media artists make use of emerging technologies that not only originate from a scientific, military or industrial context as their media, or image-carrier, but have this technology as their explicit image-subject as well [4]. Thus, media art can take highly disparate forms and includes such genres as bio/genetic, database, digital animation, game, glitch, installations, nanotechnology, net art, telepresence and virtual reality.

Image science (Bildwissenschaft in the German tradition), and its sister discipline, visual studies (or visual culture, as it is called in the Anglo-Saxon tradition), encourages a “reading” of artistic images that is interdisciplinary, as is essential with media art. This approach presupposes that scientific work with images must include their definition, archiving and a familiarity with a large quantity of images. Although there

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have been a number of historic forerunners to the image science method, Aby Warburg is most frequently cited as the discipline's "father." Famously intending to develop art history into a "laboratory of the cultural studies of image history" that would widen the field to "images . . . in the broadest sense" (German original: "*Bilder . . . im weitesten Sinn*"), by including many forms of images in his iconic Mnemosyne image atlas of 1929, Warburg redefined art history as medial bridge building [5]. Yet, definitions of the image such as those by Gottfried Böhm, James Elkins, Klaus Sachs-Hombach and W.J.T Mitchell [6] have become problematic in the context of the interactive, immersive, telematic and generative digital image. These challenges have fueled interdisciplinary debate as to the status of the image and its function in media art, with protagonists such as Andreas Broeckmann, Oliver Grau, Jens Hauser, Erkki Huhtamo, Martin Kemp, Gunalan Nadarajan, Lev Manovich and Barbara Stafford [7].

Through the innovation of methodologies in media art, the study of MediaArtHistories, and its social evaluation as art, discourses of media art investigate the most immediate sociocultural questions of our time: from body futures, information society and media (r)evolution to environmental interference, finance virtualization and surveillance culture. While the critical lexicons of classical art history are relatively fixed, the classifying language of media art is defined with dynamic terminologies that are continually in flux, or so-called floating signifiers. Thus, the forums and catalysts for media art rhetoric take place in a vibrant knowledge ecosystem reported in collaborative projects for database documentation supported by institutional and social agencies, international festivals with peer-reviewed awards and globally publicized interviews, and new literatures published by leading scientific and university presses [8].

Yet, despite such worldwide recognition, programs for documenting the "art of our times" continue to be met with serious challenges within the memory institutions of our societies. This is due first and foremost to the essential form of media art itself. As media artworks frequently have functionalities across variable media substrates, and these constituted by the latest technologies as well as characterized by rapid obsolescence, the work of media artists complicates both object-oriented preservation methods as well as static indexing strategies. Consequently, artworks originating even 10 years ago can often no longer be exhibited. As debated since the 1990s, museums rarely include media art in their collections, and those that do struggle to sustain finance, expertise and technology for the preservation of artworks through strategies such as migration, emulation and reinterpretation [9]. Further, that media artists engage the most contemporary digital technologies leads to the production of artworks that are necessarily "processual," ephemeral, interactive, multimedia-based and fundamentally context dependent [10]. The software that serves as a support for a media artwork based on digital technology by definition exists in a multiplied state,

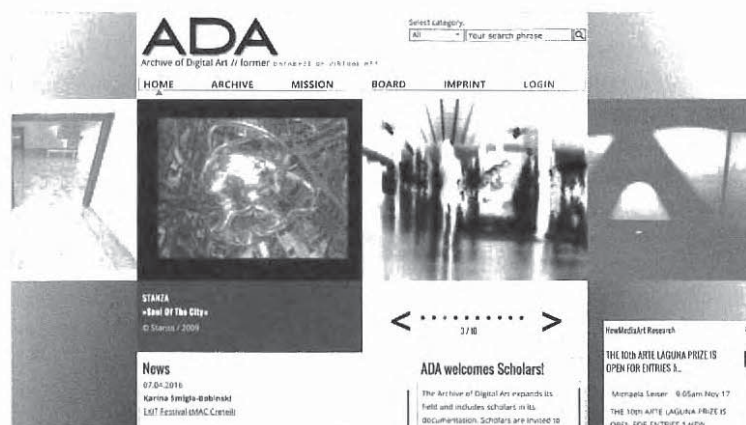


Fig. 1. Archive of Digital Art, screenshot [detail, home, 4 May 2016]: www.digitalartarchive.at/nc/home.html © Department for Image Science, Danube University Krems

a condition intensified by the potentially many iterations of a work generated through the interactive platforms for and interventions of users. As such, to document individual media artworks to academic standards necessitates the "recording" of various aspects, including specific appearances, production processes, exhibitions, distribution, institutional contexts, observer response, publications and research.

Since the turn of the third millennium, there has certainly been evident promotion of conferences, lexicons and platforms in the endeavor to document media art. This is specifically the subject of the MediaArtHistories conference series, which with its premiere in 2005 represented and addressed the many disciplines involved in the then-emerging field [11]. A number of preservation projects have also been established. While many continue to exist online, each has lost key researchers, has had funding expire, or has been eventually terminated [12]. And as recently expressed in an international declaration [13], signed as of 2018 by more than 500 scholars and leading artists from 40 countries, there is an urgent need to create a stable international platform of interoperable archives. Yet, even with such progress in the study of media art, programs for documenting this "art of our times" continue to be met with serious challenges within the memory institutions of our societies. Indeed, it is no exaggeration to state that, as a postindustrial information society in the digital age, we continue to be threatened with a significant loss of this critical art form, both in the archives of art history and for the accessibility of future scholarship.

MEDIA ART (R)EVOLUTION AND THE ARCHIVE OF DIGITAL ART

Before the Archive of Digital Art (ADA), no concerted and sustainable strategy either governmental or institutional existed for the documentation of media art. Since the year 2000, ADA has been one of the most complex research-oriented resources available online as a platform for both scientific information and social communication. Hundreds of leading media artists are represented by several thousand documents, with more than 3,500 articles and a survey of 750 institutions of media art also listed. Besides the artists, there are also more than 250 theorists and media art historians involved in making ADA a collective archiving project (Fig. 1).

Media Art Research Thesaurus



Fig. 2. Media Art Research Thesaurus, screenshot [detail, home, 4 May 2016]: www.mediaartresearch.org. © Department for Image Science, Danube University Krems. Individual media objects © their individual artists and used with permission.)

Because of the singular structure of the art form, a defining strategy for ADA is that of an “expanded concept of documentation” [14]. The documents on ADA that represent the artists there archived include: biographical and bibliographic information about the artist, their inventions, awards and statements; lists of events, exhibitions and publications (including title, date, location, funding); graphic images of the installation of the artwork; digital images of individual artworks (exhibited, in process and in all varying iterations); information on the software used and hardware configuration (technical data); technical instructions (schematics); type of interface and display; video documentation (interviews, presentations, symposia); references and literature about the artists; information about the technical staff; institutions; and copyright.

A system of online community membership for ADA allows artists and scholars to upload their own information, with a gatekeeping policy that the ADA advisory board reviews applicant qualifications and makes member selections. The criteria for determining whether artists are qualified to become members is the number of their exhibitions, publications, awards and public presentations, with high importance also ascribed to artistic inventions like innovative interfaces, displays or software. The system offers a tool for artists and specialists to individually upload information about works, people, literature, exhibits, technologies and inventions [15]. Over the last 15 years some 5,000 artists were evaluated, of which 500 fulfilled the criteria to become a member of the ADA. From the beginning, the long-term goal of the project was not simply the documentation of festivals, awards or similar events, but a scientific overview with the respective standards of quality. Members have to qualify with at least five exhibitions or articles about their work or, alternatively, can be suggested by the board.

DOCUMENTING MEDIA ART: THE IMPLEMENTATION OF SOCIAL WEB 2.0 FEATURES

For ADA, the first online collective archive that is both scholarly and social in either art history or media studies, documentation and access are understood not as static concepts but as a process that integrates a continuous exchange between users, scholars and artists. With an open access policy that provides users with an active role and supports accessibility, ADA is more likely to continue to be an up-to-date as well as lasting resource. An essential aspect of its Interactive Archive and Meta-Thesaurus for Media Art Research (AT.MAR) was thus to transfer ADA into a Web 2.0 environment and open it up on the retrieval side by making the data available and easier to share for users, and on the archivist side by allowing contributions of diverse individuals in order to facilitate a collaborative and more balanced preservation practice (Fig. 2).

Where community participation in small-scale preservation projects can be motivated by so-called coorientation, expert contribution to a larger documentation effort such as ADA requires a much stronger commitment from its community members—most especially a personal but shared need for a database with easy access to research as well as the ready opportunity for the storage, transmission and retrieval of documents. High contribution quantity and data quality not only directly impacts site usability but can also motivate archive community members to maintain this standard.

Newly innovated ADA features support this group engagement and foster motivation. A messaging system and News section allow archive community members to interact with peers and announce upcoming events. Contribution monitoring and a function for colleague “following” provide updates on the research and activities of other archive members. Collaborative processes of peer reviewing and content curation integrate the member community’s decision-making and agenda setting into ADA itself.

Contributions can be seen in the Works section of every scholar and artist on ADA, where the archive features enable members to collect descriptions and essays about their artworks, as well as information on technology, literature and exhibitions, and events. A process of peer review performed by the ADA member community guarantees the quality of these contributions, with all the “Latest ADA Updates” visible to members on the homepage after login. Individual contributions, once peer reviewed, are automatically referenced and made accessible to all users, whether ADA community member or online visitor to the archive. Contribution visibility is not only measured in web links, page hits and citation statistics but also exemplified by the above described peer assessments internal to the ADA, in a disciplinary as well as interdisciplinary networking that builds the standing of archive members within their international professional community.

Members also engage in selecting a monthly featured artist or scholar, a profile of whom is published on the ADA homepage and social media and through web newsletters. This featured artist or scholar introduces ADA visitors to

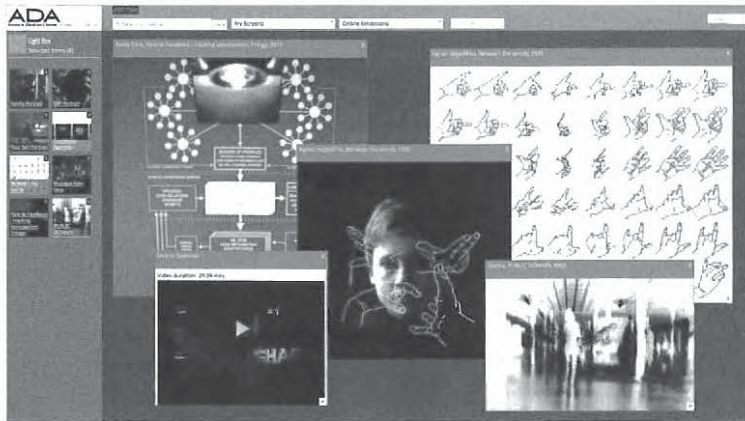


Fig. 3. Archive of Digital Art, screenshot [detail, Community Light Box, 4 May 2016]: www.digitalartarchive.at/nc/home.html. (© Department for Image Science, Danube University Krems)

artists and scholars distinguished by their peers, allows archive members to commemorate achievement within the discipline or recognition within the community, and supports active participation in content direction.

Additionally, ADA's "Light Box" (Fig. 3) feature is both scholarly and social. Promoting the comparative analysis of media artworks on the archive, this tool permits community members to assemble individual arrangements from the extended documentation of images, texts and videos on ADA. These selected items can then be enlarged and overlapped so that relevant image details can be compared and analyzed. Textual notes can be added and "Exhibitions" saved on a visual pin board, "My Screens," for further research. These light box-based exhibitions of ADA content by community members are then publishable as an "Online Exhibition" visible to all users and accessible for a wide variety of applications from scientific or art-based research to science, education and public outreach.

ADA promises many potential affordances as an online collaborative archive, including expanding data beyond that which any single institution or even cross-institutional research team could compile; increasing the quality of data that originates directly with artists and scholars in the field of media art; cultivating the various viewpoints of the global community that contributes to the archive; and developing this scholarship through a system of checks and balances by Archive community members. Features such as "Works" contribution and peer review, "Featured Artist/Scholar" of the month, and "Light Box" peer review all enhance the interpersonal relationships of ADA community members and foster exchange between colleagues.

Further, the data on media art that is collaboratively documented, indexed and researched on ADA has the potential to grow quickly through these contributinal processes and to maintain its contemporaneity through constant updates. A global community of ADA members can achieve an archive well beyond the limitations of smaller teams of archivists affiliated with a certain institution or university or more restricted approaches and research interests. Based on collaborative archival practices, ADA can cover a variety of disciplinary viewpoints and therefore maintain more balanced data such

that any absent documents or discrepant information can be easily identified and updated by members. With these features, ADA will serve as a representative database for qualitative as well as quantitative research on developments in the field of media art as well as an important resource for interdisciplinary research into the histories of art, science and technology.

INDEXING MEDIA ART: THE INSTITUTION OF A BRIDGING THESAURUS

Keywording is bridge building! And for the "bridging thesaurus" of the AT.MAR project, the intent to establish a linguistic framework that allows for the classification of the aesthetics, subjects and technologies of artworks directs

the process of individual concept and term selection. To achieve a comprehensive overview of the knowledge domain of media art, but also a manageable one, this vocabulary is kept limited to around 400 terms. This constraint increases the usability of vocabulary terms and ensures an accuracy for indexing practice, which is particularly crucial with ADA as it is the community members themselves who carry out a significant part of the indexing. Such a degree of collaborative archiving and community participation establishes an innovative approach not only to the documentation of media art but in art history and media studies as well.

Central to the construction of the ADA controlled vocabulary is the logical concept of terminology structure based on a classification strategy that will allow users to index various levels of meaning relevant to the media art knowledge domain. In relation to other vocabularies, ADA keywords have a unique hierarchical schema based on a categorical triad: aesthetics, subject and technology. This top-down distinction of categories allows for the contextual specification of vocabulary as well as for the conceptual analysis of these levels by users:

Aesthetics: In accordance with the dominant understanding of media art in the scholarly literature, and "relatives" of this field such as digital or electronic art, the "aesthetics" category encompasses a broad scope of terms ranging from phenomenological observations such as *immaterial* and *process-based*, to ontological qualities such as *site-specific* and *object-oriented*.

Subject: The "subject" category encompasses iconographic terms established in art history and media art histories, as well as concepts that enable both descriptive and interpretative approaches to the subject of works. In regard to determining quantity, this category is the most comprehensive. In accordance with the guidelines of the "Categories for the Description of Works of Art" (CDWA), the AT.MAR vocabulary defines "subject" as "the narrative, iconic, or nonobjective meaning conveyed by an abstract or a figurative composition. It is what is depicted in and

by a work of art” [16]. The “subject” category includes 13 subcategories: *arts and visual culture, body and human, entertainment and popular culture, history and memory, magic and phantastic, media and communication, nature and environment, technology and innovation, power and politics, psychology and emotion, religion and mythology, science and knowledge, and society and culture.*

Technology: As the interplay of “aesthetics” and “technology” is considered a key determinant in observer experience for media art—and cannot be overestimated in the critical assessment of media artworks—the AT.MAR controlled vocabulary incorporates both technical apparatuses and material aspects. The “Technology” category was adopted from that originally developed for the DVA and later enhanced by subcategorizations “interface” and “display,” as well as terms encompassing “traditional” image-carriers such as *painting, print or book.*

The resources of terms and concepts used in the development of AT.MAR and that define the very foundation of this controlled vocabulary include (1) “traditional” art history vocabularies as well as (2) media art databases, (3) festivals and (4) literatures:

1. The “traditional” art historical vocabularies cited were the most widely accepted scientific tools used for the description, linkage and retrieval of images in art history. These included Iconclass, an alphanumeric classification scheme designed for the iconography of art; the Art and Architecture Thesaurus (AAT), a structured thesaurus used for describing items of art, architecture and material culture that contains only generic terms; and the Warburg-Index, an index of iconographical terms.
2. Media art databases established since around the year 2000 then provided a field-specific expansion of these art historical terms and concepts. Databases most critical in the field of media art and to its history were selected for AT.MAR, including The Dictionnaire des Arts Médiatiques, GAMA keywords, the vocabulary of the Daniel Langlois Foundation and Netzspannung. Each of these vocabularies reflects the explicit practical affordances and implicit ideological assumptions of the institution that advanced it. Accordingly, that these vocabularies vary greatly in conception, and content often results in a mixture of technological and thematic terms. This is a concern addressed in the organization of the facets for AT.MAR.
3. Further, as festivals are central to the media art scene as forums and catalysts for the contemporary discourses and innovative technologies of media art, the project team took account of an international range of festival materials such as official publications and professional interviews. The festivals reviewed included, among others, Ars Electronica, Linz, Austria;

Dutch Electronic Art Festival (DEAF); European Media Art Festival (EMAF), Osnabrück, Germany; Festival Internacional de Linguagem Eletrônica (FILE), São Paulo, Brazil; Inter-Society for the Electronic Arts (ISEA), Brighton, U.K.; Microwave Festival, Hong Kong, China; and Transmediale, Berlin, Germany.

4. Finally, the project team incorporated the premier literature in the field of media art from its leading publishers, including Bloomsbury Academic, Intellect Books, MIT Press and its Leonardo book series, Wiley-Blackwell and ZKM Museum Press. This research literature was evaluated on the basis of its indexes, the headings of which represent keywords peer reviewed for these publications that “map” some of the most valued topics in the field of media art. Important innovations such as “interface” or “genetic art” were considered, along with keywords that play a role in traditional arts—such as *body or landscape*—and thus have a bridge-building function.

FUTURE MEDIA ART RESEARCH: THE GÖTTWEIG ABBEY GRAPHIC COLLECTION

To support the cross-cultural, interdisciplinary and transhistorical comparative analyses of the media artworks on ADA, the keywords of its “bridging thesaurus” are further applied to artworks from other social contexts and historical periods. Through AT.MAR, ADA is now linked with the Göttweig Abbey Graphic Collection (Fig. 4). Göttweig Abbey, founded in 1083, holds 30,000 prints as well as a library of 150,000 volumes in one of the most comprehensive private collections of mostly Renaissance and Baroque engravings in Austria. With acquisitions first recorded in 1621, the collection was systematically expanded during the abbotship (1714–1719) of



Fig. 4. Göttweig Monastery Graphic Art Collection Online, screenshot (4 May 2016): www.gssg.at/gssg/displayProfile.do. © Department for Image Science, Danube University Krems, in cooperation with the Göttweig Abbey)

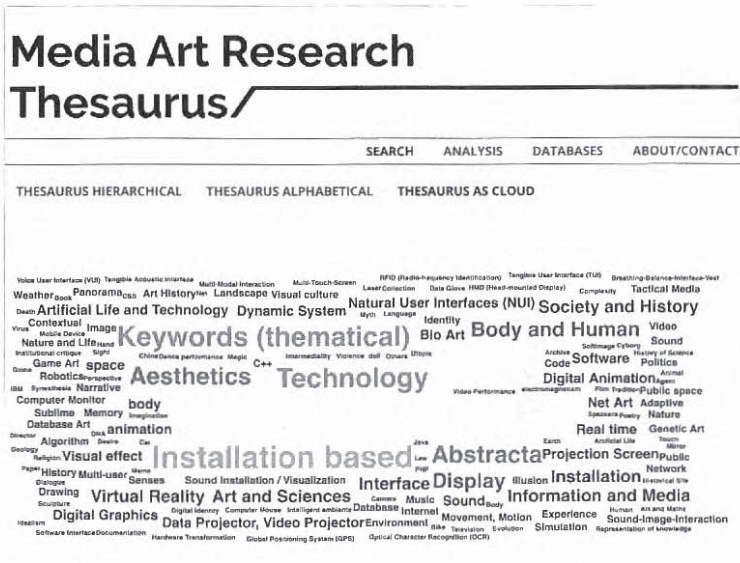


Fig. 5. Media Art Research Thesaurus, screenshot (detail, keywords as cloud): <https://mediaartresearch.org> (accessed 4 May 2016). (© Department for Image Science, Danube University Krems)



Fig. 6. Media Art Research Thesaurus, screenshot [detail, comparative analysis, 4 May 2016]. (© Department for Image Science, Danube University Krems. Individual media objects © their individual artists and used with permission.)

conservationist, diplomat and patron Johann Franz (Gottfried) Bessel. In cooperation with Göttweig, the Department of Image Science at Danube University also conducted the digitization of the collection in an earlier project [17].

The graphic and textual works of the online Göttweig collection document subjects from the *representation of knowledge* and *history of science* to *architecture* and *fashion*, *optics* and *panorama*. Thesaurus keywords navigable as

“Hierarchical,” “Alphabetical,” and “As Cloud” (Fig. 5) support and stimulate users to bridge the “traditional” artworks of Göttweig and the media art of ADA, providing complex image resources for a richer analysis of media art in the future (Fig. 6).

CONCLUSION

The innovative methodology developed through the AT.MAR project will foster and further the documentation, indexing and research of media art on the Archive of Digital Art (ADA) in a context of multiple histories of art, science and technology. Thesaurus categories in aesthetics, subject and technology bridging “traditional” art forms with media art support the tracing of hybrid qualities in these artworks, as well as historical correspondences and confusions. Through collaborative visual tools that include a Light Box and semantic links, a global community of artists and scholars may conduct research and perform clustering analysis or comparative study.

That the thesaurus connects media art with art history, and neither isolates these fields from one another nor includes only contemporary terminology, increases the usability of the Thesaurus for the humanities.

For the future of ADA, further goals are to document works within a context of complex information and, at the same time, allow users to find specific information readily. In coherence with an expanded documentation, information on media art should also include institutional affiliations, personal connections and funding sources so as to reveal influences, collaborations and interests between scholars and artists. Beyond analysis using the Bridging Thesaurus, which shows, for example, virtual and immersive art recalling its predecessors in the panorama and *laterna magica*, media art documentation should also include questions of gender, movement of technical staff from lab to lab, technical inventions pertaining to art, as well as public and private funds allocated to research. By advancing from a one-way deposit of key data to a proactive process of knowledge transfer, the archiving of media art becomes a resource that facilitates research on media artists and artwork for academics, experts and students.

With ADA, exciting developments and deployed experiments in social Web 2.0 and 3.0 afford new strategies of collective documentation and content management. ADA community members, expert artists and scholars play an important role in confronting the enormous challenges in documenting media art through archive content monitoring and contribution, peer interaction and review, light box-based comparisons and exhibitions, and keyword bridging. The greater the extent to which such community processes can be integrated into our archival practices, the more comprehensive and complex are our media art scholarship, practices and histories.

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The research project Interactive Archive and Meta-Thesaurus for Media Art Research (AT.MAR) (2013–2016) was supported by the Austrian Science Fund (FWF). The research team comprised research associates from the fields of art history, media studies and digital humanities. The project focused on combining media art research and archiving in order to contribute to a better understanding, wider accessibility and systematic integration of media art in our scientific discourses and cultural institutions with an interdisciplinary and comparative image science approach.