

Workshops

Computing Art: A Summer School for Digital Art History

Peter Bell
Heidelberg Collaboratory for Image
Processing (HCI)

The summer school for digital art history¹ in 2015 was organized by the Computer Vision Group of the Interdisciplinary Center for Scientific Computing (IWR) in Heidelberg with generous support by the HGS MathComp, the Heidelberg Academy of Science and Humanities and German working group “Digital Art History”.²

Digital art history lies at the intersection of art history and the digital humanities and benefits from digital methods, thus requiring a truly interdisciplinary approach. In short, this means using digital infrastructures and tools, but also critically reflecting upon their usage and understanding the technical background (quoted from “Memorandum zur digitalen Kunstgeschichte in der Lehre”).³ Digital art history has to mediate its research practice between the original objects and increasingly mimetic digital representations. It also has to embed these representations in the semantic and stylistic contexts of the artwork. In order to overcome

these challenges, immediate access to the visual information of the digital representation is required, as well as access to virtual research environments that will help to depict semantic relations.

Starting with the digital representation of an artwork, the summer school demonstrated ways of processing the artwork visually, iconographically and contextually. The presentations focused on new methods of annotation and image analysis. Up until now nearly all steps of digital image investigation were left up to various experts: content processing was the task of highly qualified art historians supported by student assistants, whereas the creation of new digital records only concerned IT specialists or ambitious, self-educated scholars. New research strategies, such as crowd sourcing, machine learning and computer vision, provide the specialist and the layperson with algorithms/artificial intelligence that enables effective mass processing of image data. In addition, new collaborations and interdisciplinary links are forming between the classical scientific fields. The digital image is not only described, but also analyzed in terms of content and compared with others,

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utilizing computational support. These processes must be further developed and critically monitored. The aim of the summer school was to introduce young scholars (master's students and PhD candidates) to the field of digital art history, in its full breadth, as represented by experts from computer science and art history. There was time for detailed talks, live demonstrations and extensive discussions.

After an introduction by the event's hosts, Georg Schelbert (Berlin), a representative of the working group "Digital Art History", presented the group and its aims and gave a short introduction of the topic. First, Björn Ommer and Peter Bell (Heidelberg) introduced various strategies of automatic image understanding and showed several approaches to computer vision for image analysis and image comparison. This included a theoretical overview in the shared methodical framework, e.g. Gestalt theory, and a practical introduction to their newly developed prototype for image search, where specific objects in different Sachsenspiegel-manuscripts were retrieved.

The second day began with a discussion of the obstacle of image rights. The many different modes of image usage has lead to great insecurity regarding permissions, which often hinders the development of digital humanity projects in art history. Consequently, Lisa Dieckmann (Cologne) who made the introduction and Maria Effinger (Heidelberg), as well as the lawyer

Felix M. Michl (Heidelberg), led an open discussion image rights versus open content. Dieckmann and Michl discussed, for example, the pending cases of the Prometheus Bildarchiv⁴ and the Reiß Engelhorn Museums. The conclusion of this session was that art historians should organize a change of copyrights to encourage the research and publication of art.

Clemens Schefels (Munich) and Daniel Kondermann (Heidelberg) went on to discuss the potentials and limits of crowd sourcing and presented applications for the segmentation and indexing of large records. Schefels showed that the project Artigo⁵ is still exploring new ideas in the analysis of data and new gamification instruments. Kondermann showed how spam and incorrect annotation can be reduced by crowd driven quality management inside the Pallas Ludens system. Both talks explored a variety of options to the traditional workflow. Critical remarks in the discussion showed that art historians still need time before they can trust crowdsourcing.

Independent of the method used for capturing image information, a user-friendly, innovative, semantically highly cross-linked and sufficiently standardized database is necessary. Thorsten Wübbena (Frankfurt a. M./Paris) and Thomas Hänslı (Zürich) gave a report on current developments and delivered some insight into some of their own projects like the Swiss database of the Archives of CIAM powered by the ConedaKOR system

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from Frankfurt. A very vivid discussion arose afterwards on the topic of standardization. The speakers believe in the use of identification-numbers for artworks like the GND-standard, whereas some participants criticize this as a positivistic fallback.

The subsequent workshops gave participants the opportunity to explore subject areas in greater detail: Piotr Kuroczyński (Darmstadt/Marburg) and Jan-Eric Lutteroth (München) from the digital 3D reconstruction research group introduced the topic of 3D reconstruction, which is especially relevant for architectural history. In the context of the digital image in art history, 3D reconstruction was only briefly mentioned, however this was already appreciated by many of the young scholars as a welcome point of orientation.

At the same time, Holger Simon (Cologne) presented occupational areas and job markets, which focus on expertise in digital art history. Museums and other cultural institutions are in increasing need of digital applications and virtual/augmented reality. Simon described new concepts and underlined these with examples from social media, websites and merchandizing of international museums. Jens-Martin Loebel (Bayreuth) and Heinz-Günter Kuper (Berlin) presented options for image annotation and image cross-linking with multimedia research environments using their own application HyperImage and simple XML-examples. This talk was

extended by Matthias Arnold and Violetta Jantzen (Heidelberg) from the Cluster Asia and Europe in a Global Context, who presented HyperImage results in the form of huge Japanese picture scrolls, in which every object is segmented and annotated.

At the end of the event, participants gathered for a final discussion, which was followed up by a meeting of the research group digital art history. It is important to note that the summer school was not just centered on the invited talks. A core component was also the questions and contributions of students who were highly motivated enriched the discussions with their own experience in digital art history and even some voluntary posters. We hope that the *Computing Art Summer School* can be a pilot for a sequence of following, more specialized events and that it helps to connect the growing community of digital art history.

Notes

1 https://hci.iwr.uni-heidelberg.de/CompVis_Summerschool2015

2 <http://www.digitale-kunstgeschichte.de/wiki/Hauptseite>

3 http://www.digitale-kunstgeschichte.de/wiki/Erkl%C3%A4rung_zur_Digitalen_Kunstgeschichte_in_der_Lehre

4 <http://prometheus-bildarchiv.de/>

5 <http://www.artigo.org/>