THE VISUAL DIGITAL HUMANITIES – TOPICS, RESEARCHERS AND CULTURES
Sander Münster\textsuperscript{a}, Melissa Terras\textsuperscript{b}

\textsuperscript{a}Chair for Digital Humanities (Image/Objects), Friedrich Schiller University Jena, Germany, sander.muenster@uni-jena.de
\textsuperscript{b}College of Arts, Humanities and Social Sciences, University of Edinburgh, UK

Abstract. The data foci of digital humanities are texts, images and objects. While the use of digital methods in the text-oriented disciplines is currently widely established and standardized, a scope of digital methods related to images and other visual objects and basing on vision rather than close reading remains – despite various attempts – essentially undiscovered. Against this background, three areas of usage of visual oriented methods and approaches are of interest for our investigation: (a) Scholars working in visual digital humanities, (b) Fields of research, topics and methods used by these scholars, (c) Institutionalization & disciplinary culture of these scholars. Investigations were done via 15 expert interviews with researchers in London and 6 interviews in Los Angeles as well as via two surveys with more than 900 participants each. Key findings are about disciplinary backgrounds and about how scholars enter the digital humanities as well as topics and international collaborations and project funding.

Keywords: bibliometrics, survey, digital humanities, scholarly community

INTRODUCTION
The data foci of digital humanities are texts, images and objects. While the use of digital methods in the text-oriented disciplines is currently widely established and standardized (Bundesministerium für Bildung und Forschung, 2014, p. 10), a scope of digital methods related to images and other visual objects based on vision rather than close reading remains – despite various attempts (Bodenhamer et al., 2010, Bentkowska-Kafel et al., 2006, Arnold and Geser, 2008, Frischer and Dakouri-Hild, 2008, Ch'ng et al., 2013) – essentially uncharted. Possible reasons may be seen in the “diverse nature of the methods used” in disciplines focussing on these types of artefacts like art and architectural history, cultural heritage studies or museology (Long and Schonfeld, 2014, p. 48), but also in the heterogeneous level of establishment of digital research methods in those disciplines (Hicks, 2006). A common bond in visually oriented and digitally supported research in art and architectural history studies, museology, and archaeology, as well as Cultural Heritage may be their grounding in visual literacy (Avgerinou, 2001, p. 26). With regards to this approach a range of visual digital humanities includes the analysis of complex visual information, their collection and semantic enrichment, as well as the creation of imagery in context of

- image analysis (e.g. the pattern analysis of large-scale image collections, computational vision)
- perception based techniques (e.g. the visuospatial analysis of architectural objects)
- spatial modelling (e.g. 3D reconstruction of historical architecture, GIS modelling)
- visualization (e.g. sketching for visuospatial reasoning).

The main interest of our research is to examine what features the visual digital humanities have as a scientific field. This article is intended to inform about the study design, the implications and the key hypothesis. More detailed information on the analysis can be found in (Münster and Terras, 2019, Münster, 2017a).

RELATED WORK
How do you investigate the characteristics of a scholarly area? Several approaches focusing on historical, philosophical and sociological aspects (Becher, 1989, Krishnan, 2009), and various methods for the investigation of researchers and academic fields by empirical methods are provided by Science and Technology Studies (STS) (Cetina and Reichmann, 2015). According to this approach, scholarly fields are characterized to „(a) have a particular object of research […], (b) have a body of accumulated specialist knowledge […], (c) have theories and
concepts […], (d) use specific terminologies […], (e) have developed specific research methods […], and (f) must have some institutional manifestation in the form of subjects taught at universities or colleges […].” (Krishnan, 2009). On a more operational level, the community of practice approach originally introduced by Lave & Wenger (Lave and Wenger, 1991) defines that these communities are marked by mutual engagement, a joint enterprise as well as a shared repertoire of knowledge and culture (Wenger, 1998). Against this background, three areas are of interest for our investigation:

- Scholars working in visual digital humanities
- Fields of research, topics and methods used by these scholars
- Institutionalization & disciplinary culture of these scholars.

With regards to previous research, one approach is to analyze scientific publications. Scott performed various analysis for the DH conference submissions (Weingart, 2016) and Tang et al. (Tang et al., 2017) for journal articles in that field as well as Given and Willson in particular for textual oriented digital humanities (Given and Willson, 2018). A community identified by Terras’s analysis exclusively dealt with textual and – few – image sources. In contrast, digital heritage related aspects as visualization, geospatial analysis or VR/AR were present in Scott’s 2017’s TOP-50 keyword list. Similarly, Tang et al. found out topics as 3D or Visualization less frequent occurring as keywords of academic journals in the field of Digital Humanities than text mining. If visual content is only occasionally mentioned by a digital humanities community as defined by ADHO where does a discourse on visual digital heritage takes place instead? A very early bibliography specifically on images was compiled by Nowviskie in 2001 (Nowviskie, 2002). More recently, one of the authors of this article sketched a community and related topics as well as funding opportunities by employing bibliometrics (Münster, 2019). Much research on these topics is carried out by applying disciplines like archaeologies, museology or art and architectural history. With regards to that latter community, Drucker (Drucker, 2013) sketches a historical evolution as well as a current state of application of digital methods in art history. Complementary to this, Kohle defined fields of supplement by digital tools and practices in art history (Kohle, 2013). The scope of topics of relevance for digital museology was examined by the EU funded ViMM network (ViMM, 2017). Similarly, many texts describe a comprehensive state of the art as well as methodologies for digital archaeology (e.g. Evans and Daly, 2006, Kansa et al., 2011, Frischer and Dakouri-Hild, 2008).

RESEARCH DESIGN

The described research followed a multistage design:

1. Stage: As a starting point, a series of paper based surveys asking for participant’s field of research as well as for standards, methods and important publications in that field was carried out on three international meetings in the fields of archaeology, HCI and architecture in 2016. In total, 44 researchers participated.

2. Stage: To investigate research topics and methods, researchers and a scholarly culture in the field of visual digital humanities in more detail, 15 researchers were interviewed at various universities in London between September and November 2016, using a three cohort “pragmatic” theoretical sampling (Strauss and Corbin, 1996) approach. Interviews were carried out as guideline based expert interviews (Mieg and Näf, 2005, Gläser and Laudel, 2009) and lasted between 10 and 60 minutes each. Data analysis was undertaken using approaches of qualitative content analysis (Mayring, 2008) to (1) inductively gain an initial category scheme and (2) deduce it to further materials.

3. Stage: Since the focus on England was one of the flaws of the previous stage, an adjacent investigation was carried out in a research institution in Los Angeles in 2019, involving 6 researchers and adopting the method described for the previous stage. The evaluation is currently still in progress, but some preliminary findings were already included in the findings.

4. Stage: Two online surveys were carried out in 2017 and 2019. The first investigation was sent to 3148 authors which has contributed to conferences in the field of digital cultural heritage. It contained questions on disciplines, topics, methods used by the participants as well as queries about their opinion on leading projects and publication bodies. 988 people participated and 602 completed the survey. The investigation in 2019 was sent to the same community - 968 people participated and 406 completed the survey. This was contrasted with the ADHO
DH conference related findings by Scott et al. as well as the DARIAH-DIMPO survey (Digital Methods and Practices Observatory Working Group DARIAH-EU European Research Infrastructure Consortium, 2016).

KEY FINDINGS

Fig. 1. Disciplinary background (Online Survey 2017, n=782)

What are main findings concerning visual digital humanities? As there is an established scholarly community of researchers who work on a broad scope of topics, there are numerous established conference series and journals dealing with topics of visual digital humanities in particular with focus on digital cultural heritage (Münster, 2017b). Furthermore, there are specific funding programs around topics of digital heritage and digital humanities, some first obstacles for further institutionalization have already been mastered. During our investigation we examined numerous hypotheses:

- Visual digital humanities scholars’ academic backgrounds are primarily in technical disciplines or humanities.
- Especially for humanities scholars in the UK, the motivation to enter the digital humanities is largely interest-driven. Conversely, US scholars cited professional requirements as main reason for immersing themselves in the visual digital humanities.
- As important skills for visual digital humanities math and coding are mentioned.
- Humanists frequently mention to have to acquire additional skills when entering the field of visual digital humanities. This does rarely apply for engineers and computing scholars entering the domain.
- The current generation of visual digital humanities scholars in the UK have seldom originally graduated in digital humanities, but did acquire complementary competences primarily via self-studies. In contrast, in the US some of the interviewees mentioned to have completed specific cross-disciplinary master programs to acquire digital skills.
- Visual digital humanities subsume various smaller scientific communities. Amongst those communities, especially surveying, image analysis, visualization and GIS are prominent. Since the latter both communities can be found for digital humanities and digital heritage, surveying is related to digital heritage as well as image analysis specific for digital humanities.
- Scholars in visual digital humanities are internationally well linked. Especially the most publishing researchers mostly have a strong international network, have been involved in academic discourse for many years and often play key roles in the community in other ways as for instance by organizing conferences or heading scholarly associations.
- Standards in visual digital humanities are primarily defined by publication bodies, technologies, projects and repositories. Technological trends like Artificial Intelligence or Virtual Reality are prominent – with some delay – becoming prominent and shaping topics in all researched communities.
- For the community of digital cultural heritage studies, cross-national co-authorships are promoted by cultural and spatial closeness. In case of European contributors also EU-membership is a facilitator for joint research – this is probably due to funding policy.

CONCLUSION

With regards to a possible relevance for the Digital Humanities conference, the sketched research may provide clues for shaping educational programs in the field of digital humanities. Since we are specifically have taken neighbor disciplines dealing with cultural heritage as well as from information into concern, we expect learning about the coverage as well as blind spots in the field of Digital Humanities. This latter point refers also to an important finding. Despite some overlap in topics, disciplines and technologies especially the communities of digital humanities and digital cultural heritage studies are attracting different groups of researchers.
REFERENCES


DIGITAL METHODS AND PRACTICES OBSERVATORY WORKING GROUP DARIAH-EU EUROPEAN RESEARCH INFRASTRUCTURE CONSORTIUM 2016. European survey on scholarly practices and digital needs in the arts and humanities.


