

IN THE FOREGROUND:
CONVERSATIONS ON ART & WRITING
A podcast from the Research and Academic Program (RAP)

**“DISTANCE AND CRITICALITY”:
THE DIGITAL HUMANITIES
& THE POTENTIAL FOR ART HISTORY SCHOLARSHIP
WITH HUBERTUS KOHLE AND EMILY PUGH**

Season 4, Episode 2
Recording date: November 7, 2021
Release date: March 22, 2022

Transcript

Caro Fowler

Welcome to *In the Foreground: Conversations on Art and Writing*. I am Caro Fowler, your host and director of the Research and Academic program at the Clark Art Institute in Williamstown, Massachusetts. In this series of conversations, I talk with art historians and artists about what it means to write history and make art, and the ways in which making informs how we create not only our world, but also ourselves.

Anne Helmreich

Hello, and welcome to this podcast series on Grand Challenges of Art History: Digital Methods and Social Art History. My name is Anne Helmreich, associate director of the Getty Foundation.

Paul Jaskot

And I am Paul Jaskot, Professor of Art History at Duke University.

Anne Helmreich

The contributors to these podcasts all responded to our invitation to address what we self-consciously described as a "grand challenge." This was organized under the auspices of the Research and Academic Program at the Clark, which generously sponsored our scholarly colloquia and ensuing public conversation and April 2019. The phrase "grand challenge" is one frequently adopted in the sciences to refer to the great unanswered questions that represent promising frontiers. For art history, we saw the conjoining of digital and computational methods and the social history of art as one of those grand challenges.

Paul Jaskot

Given that investigating society, in all its complexity, also seamlessly calls for the big data so central to computational methods, we asked the podcast participants how digital art history might help us explore the grand challenges of the social history of art's future. How are digital methods effective, or not, at analyzing large-scale structural issues important to art history and modes of visual expression? Our intent is to discuss the concerns central to contemporary practitioners of the social history of art, as well as those of digital humanists who claim an allegiance to these same questions. In doing so, we aimed to consider practical, rigorous, archival, and theoretical ways of addressing such a task with both computational and analog means. We hope that you enjoy the series.

Emily Pugh

My thinking about digital art history often takes me back to thinking about what art history is, because I think the question is both how to use digital technologies and what their influence might be: that means questioning what it means to do art history, and what I want to retain of art history regardless, and what might be, for example, something a computer could do, as opposed to an art historian.

Paul Jaskot

My name is Paul Jaskot. I'm a professor of art history at Duke University, and co-director of the Digital Art History and Visual Culture Research Lab. I'd like to welcome Hubertus Kohle and Emily Pugh. Hubertus is Professor of Art History at the University of Munich and interested in digital procedures in this subject for a long time already. Beyond that, he mostly works on problems of political iconography in 18th- to early 20th-century Western European art. Emily is the digital humanities specialist for the Getty Research Institute, where she focuses on integrating digital tools with art historical research and scholarship. In her own work, she concentrates specifically on German architecture and urban planning.

Our topic today is the digital humanities and the potential for art historical scholarship, to which I think these two people in particular are really going to lead us through a wonderful conversation. We're going to be looking at several questions. For example, how might digital and computational approaches advance art historical scholarship? Where might the intervention have the most profound effect, considering the full lifecycle, from access to primary sources, to publishing? Or does the back-end of the digital--such as constructing a database--coincide in any significant way with our other question, which is the social art history project? Digital art history is a relatively new phenomenon for most of us.

As leaders in this scholarly direction, could you give us a little sense of how you went from being an art historian to being a "digital art historian?" How did you get to your own focus in digital methods? Hubertus, perhaps you could start us off?

Hubertus Kohle

Well, this question almost causes nostalgic feelings. Because I began a very, very long time ago with that. And I don't say that just for personal reasons. But I say that for something very obvious in these times: things are changing. When I remember the beginnings of this--I have to say even in a relatively short time of 25 years--the world has changed in such a massive manner, as it never did before. And I think, our specialists who say that the 21st century will be coined by even more profound changes, which will cause massive anthropological problems...but I can give two answers to the question.

The first is anecdotal: in the mid 1990s, I was involved in a project organized by the German Documentation Center for Art History in Marburg, which is a small university town, close to Frankfurt am Main. This institute, under the direction of Lutz Heusinger, one of the heroes of very early electronic art history, had been interested in electronic documentation of artworks in Germany from early on--since the late 1970s. And he invited museums to catalog our holdings there, which by the way, was still done by sending floppy disks back and forth at the time. I don't know if you really remember floppy disks. At those times they existed! At a meeting in Marburg, Heusinger showed us color reproductions of artworks on a computer screen. And I immediately realized that this was going to be a game changer, something which is of course completely normal for us today. At that time, and as I say it was only 25 years ago, which is not so much. Back then, it was absolutely overwhelming as an effect. He also demonstrated online research in an electronic database, and the slow appearance of bibliographic information from RILA and the Getty BHA on the projector struck me as a revelation. This after all corresponds to widely reported, quasi-religious effects associated with a powerful, but invisible presence of electricity. There have been written whole books on that phenomenon.

The second is perhaps more substantial. I have always worked on unknown, perhaps artistically-less significant artists. So I was interested in the quantitative dimension as well as the qualitative one. It always seemed to me that one of the tasks of the historian is not to look only at the top achievements, which by the way, are not so easy to grasp as such, but to include the breadths. This is perhaps also what qualifies me as a social art historian. One does not get to these people so well by common publications, which take a point of departure from the canon, but very well via databases, which do not make any distinctions here from the outset, and often contain hundreds of thousands of works. Thus, also the museum repositories, etc.,

which one otherwise hardly gets to see. There are, of course, quite a few other reasons for including the digital in one's methods. But for me, this is how it started. And I want to add one other thing, which comes to my mind, now that I'm speaking about it. I do not only favor or defend the crowd artists--I mean, the artists who disappear a little bit in the crowd. But I also think this is very much digital procedure, I also favor crowdsourcing methods: that means including the crowd, whatever you think about what a crowd can be, into art historical research processes, which I think you can do...

Paul Jaskot

For me too, this question of scale was really the game changer--that is, the breadth of art history that you talk about. I think that's for me why it's also that the kind of combination of digital methods that can address that scale has become so fascinating to me in terms of a social art history project.

Emily, perhaps you could tell us how you came to where you currently are in your thinking?

Emily Pugh

My journey began in graduate school when I worked as a freelance web designer and developer, just for practical reasons to make money. But this skill of building websites at the time was considered a technical and impressive skill, which I'm not sure it is anymore. But in the early 2000s, it was, and eventually I ended up working with Petra Chu and Gabe Weisberg and Peter Trippi on *19th-Century Art Worldwide*. At the same time, I had a fellowship at the CUNY Graduate Center where I worked on instructional technology, so I worked a lot in digital publishing and in using technology for teaching.

And then as I advanced to PhD candidacy, I moved away from it and finished my pretty straightforward PhD on post-war German architecture. And then when I was looking about for work, when I finished my PhD, there were some opportunities in the digital realm. So I ended up at the Center for Advanced Study in the Visual Arts in a new position they had created to focus on digital projects, working with the deans there at CASVA. And then I ended up at the Getty, also in a new position.

My career has been in parallel with the development of digital art history, in that I've had two jobs, both of which I was the first to have. Working at the Getty these last seven years has really been a game changer for me. I was always interested in these issues, and what the reality of our own increasingly digital world would mean for art history. Working in a library and an archive really opened my eyes....what we were seeing as scholars was the ongoing changes that had already begun in the library and archival realm decades ago. And I think it's telling that for Hubertus, Marburg was his touch point as well--it's at that moment. And what I saw too was that it's at the moment that art historical information and sources--archival documents, books--are acquired and processed, cataloged, named, made accessible--that's really the moment where art history begins. As the digital technologies were changing, and are changing, how library and archives work both internally at a single repository, but also now, in an increasingly interconnected world, as collections come together on the web, and as libraries, and archives are thinking about how to do that. That is potentially the source of some of the most profound changes in our field: how we access information; the forms of information that are available to us; the means by which we can analyze...our ability to store information on a scale never before seen...

When I go to an archive now--probably you both do, too--I take a cell phone and I snap photos. And that becomes part of a digital archive that I then have to contend with, just like an archivist has to contend with a collection.

Paul Jaskot

Emily used a really provocative term--where art history "begins." I thought that was really quite interesting. Could you all reflect on that a little bit, and it may be in two ways: Where art history begins? Where do you see digital art history, even as a term, as well? Where does *that* begin? So is it useful to define that? But also related to that, is "where art history begins?" And where we are, now? Is there an urgency to digital art history that you think that people should understand? A lot of our colleagues, I think, consider it as just another "-ism," something that they can push into the corner, just like any other kind of "-ism" of art history, to be safely ignored? Can you help our listeners who might want to know when it "begins," and why it's important, why it's urgent? That's the word I keep coming back to. And Emily, maybe you could get us started?

Emily Pugh

It's interesting for me that my thinking about digital art history often takes me back to thinking about what art history is. Because I think the question of both how to use digital technologies and what their influence might be, to me, means questioning what it means to do art history and what I might want to retain of art history regardless, and what might be, for example, something a computer could do, as opposed to an art historian. I kind of think of it in roughly four parts.

I don't know if you two would agree, but I would say most of digital art history's discourse and conversation has focused on developing methods and best practices for leveraging digital technologies to make art history improve existing things that we do. So improving search--being able to search large quantities of information or store large quantities of information more efficiently. Or second, innovate in methodology or approach? Are there new questions we could ask using, say, computer vision or using digital mapping tools? That's where I think most of the conversation has been. But I would also say that digital history is relevant to anyone working in art history now, even if they don't use it in their research, because I think it also includes, on the one hand, studying the historical influence of technology--so digital photography--understanding that in a longer historical development that includes analog photography, because these are all part of the same impulses...the invention of photography leads to the invention of digital photography leads to the invention of computational information, etc. So I think understanding that fourth historical context.

And then also understanding this changed relationship between the way art historical information is created and made accessible, and what influences that has, or impact that has, on how knowledge is produced from that information. And I think that's where I see maybe some of the most urgency: it doesn't just affect people who want to use computational methods to do research, but it affects all art historians. I just saw recently an article that expressed concern over the use of artificial intelligence in art history, especially to recreate paintings--lost sections of paintings or to identify authorship of a painting. That may or may not happen, but I can tell you, it's not a matter of *if* but *when* artificial intelligence is going to be used in libraries to process large collections. And that has a host of implications for an art historian who wants to access that collection. That's where I would say that the urgency arises...

Hubertus Kohle

Well, of course, there is an urgency, although I have to say most of my high-brow intellectual colleagues don't see that. I've just come back from a conference where someone said, with the deepest conviction, that the whole digital thing doesn't have any effect on art history. Far from the fact that we now are looking for books in electronic library catalogs. Generally speaking, it is fair to say that we are living in a digital age and that the pace of digitization will accelerate decisively in the coming years and decades, whatever we think of this development. That was also the beginning of my intervention--we do not even foresee or understand how this pace will develop. And it will certainly be much quicker than it has been up to now. And it has already been so quick. In the sciences all levels will be completely digitized in the future. And even if in art history, that your *original* will continue to retain its paramount importance, the science of art history has always been driven at least as much by the analysis of reproductions as by that of the originals. When you look at the important phases--the 16th-century Vasari goes hand-in-hand with the beginning of print reproduction techniques. Then the 19th century with photography, of course. And now this will be very similar with the digital as well, and it is likely to intensify in the future. In this alone lies the urgency that you raise in your question.

Friedrich Nietzsche once formulated in a letter that, "our writing materials collaborate on our thoughts." And the digital is a writing material. It's a lot more than that. But it's also a writing material. In this respect, we will do well to take this collaboration into account in our art historical work: to question the digital writing tools for their significance in constituting knowledge, and not just in transporting it. Incidentally, I don't know whether digital is a method on a par with approaches, such as, say iconology of feminist artistry. And I think I agree with Emily here if I understood her in the correct way. For it seems to me to be located on a deeper level and with its mediality to overarch and integrate all traditional methods.

Emily Pugh

I wanted to follow up on something Hubertus just said, which is, this conversation that happens where people who are maybe skeptical or have their doubts about digital art history [frame it] as this thing that's on the outside--as if "digital art history's outside of the discipline, and we're worried about it coming into the discipline." And sometimes digital art history is

conflated with technology itself. So there's this idea, among the skeptics, that if we keep digital art history out of the mainstream of the discipline, we're keeping computing out of it. We're keeping data out of art history. When you talk about urgency or how to convey to folks what the stakes of this are--I always think of that old horror movie trope. The call is coming from inside the house, right? These things are already inside our discipline. Libraries have been transforming art historical information into data since the 1960s. Our art historical discipline is already informed by these technologies. And so it's not just about "If you can't beat them join them"--this is already happening. It's just that we're, as scholars, feeling the effects of these things now more directly, on the one hand. And also we have the tools ourselves to engage in some of the kinds of practices that libraries and archivists have been doing. And so that's really the change. It's not the idea of "art history is data" is not itself a new idea, or something that's new to the discipline.

Paul Jaskot

Thank you for the horror movie analogy. I love it. I want to push back on this--both of you are resisting this word "method" or "method" as something new. Because it seems to me that for many art historians, the problem with the computational approach or method, if we want to call it that, is that it really is something new. And it's a really different practice. So "method" in its narrow sense of the term--not theory, but method. And as a practice, our colleagues might say, "Well, it necessarily renders messy, ambiguous humanities data--or evidence--as clean data suitable for computational programs." And indeed, any one of us that has constructed a database knows very well, that it is a different kind of practice than reading an archive, than taking a quote and interpreting it. It might be an analogous practice, it might be a related practice, but it is, I think, a distinct practice. And this act of translation, as it were, inevitably transforms the basic source material of our art historical project.

So how might you respond to critics of that? How might you respond to people who say, "Indeed, that it is a major distortion"? And can you give me a good example of how you have dealt with this tension between evidence and data?

Emily Pugh

First, I think it's very difficult to talk about data in the abstract, which is what happens a lot, both in the abstract of a system. Data doesn't exist on its own;

it exists in a form that's designed to be processed by a system. So, for example, if you have a color, it can exist as a data point--in terms of, say, the wavelength that a color, or as a chemical notation-- something like a color can exist as an objective thing, or it can exist as a subjective thing. It can exist in a format of data, or it can exist as a subjective nondata format. Expressing color as Cadmium Yellow--does that make it less messy? Does that make it overly neat or pat? It really depends on what you're trying to do, and how you want to use color and what you're trying to achieve in analyzing things through color. So the questions about data--whether data can be messy or not--these questions evaporate when you talk about specific examples of specific kinds of data. And again, I think technical history is a great example. Conservation scientists translate art historical information into data--whether it makes things overly pat or erodes messiness or subjectivity, it entirely depends on what the specific question is, and the specific kind of information you're talking about.

I completely agree with you, Paul, that the process of rendering qualitative information into quantitative forms is a particular practice and requires criticality and knowledge. But it's not something that can be discussed in the abstract. I don't know if that in and of itself is a method. Again, I think that that's an extension of things we already do as art historians. Think of something like the *catalogue raisonné*. That's essentially a form of structured data. You may not put it in a database, but it's a form of structured data that is both looked at as objective and authoritative--as a source for determining what's in an artist's *oeuvre* and what's not, but it also contains subjectivity and interpretation. Trafficking between those two ends of a spectrum is part of what it is to be an art historian. Digital forms of information are new, for sure. The reason I don't think the digital itself is a method...I think social network theory is a method. So there are new kinds of methods that we have that are open to us with the accessibility of particular computational tools and with the accessibility of art historical datasets...and we can have a conversation about whether social network theory is useful or not, or etc. And that's a necessary and viable conversation to have. But these are all separate if interrelated conversations that again, need to be happening on the level of the specific method or the specific data or data type rather than on the level of "data" or "the digital," which is just too broad to allow for an actual critical conversation.

Hubertus Kohle

I agree with your clarification: practice on the one hand, and method on the other hand. And it would be completely stupid not to underline the presence of a digital practice--of course, all art historical practice is, in the meantime, coined by this digitality. I'm familiar with the argument about the vagueness of intellectual, historical, artistic data, and it is brought up again and again. I would not overestimate it. Certainly when it comes to evaluating aesthetic quality, we are moving in a field that is difficult to calculate. But in a strictly historically-defined orientation of the subject, the problem does not seem insurmountable to me--a dating around 1900 or "Painter X likes to travel in the south of France" can certainly be converted mathematically and also relativized by weightings. Moreover, we have to understand quite fundamentally, and here come back to the question of subjectivity which has been raised by Emily, that such ultimately statistical procedure are always only approximations, which are furthermore--and this is the most important thing--in need of interpretation. From this point of view, understanding and interpretation procedures can hardly be substituted by calculation and the diffuse fear which prevails, at least implicitly, among many conservative representatives, that human cognitive ability would become superfluous seems to me to be unfounded. Maybe it is even at the core of this somewhat arrogant behavior that the digital doesn't bring anything,

Paul Jaskot

It is really exciting the way that some of the work I've seen, of digital approaches to art history, has really been about opening up totally new areas or opening up new questions. It hasn't been about resolving--or about making major arguments--but really opening the field in profound ways. I think that goes back to thinking about the breadth of the field. It's really about knowing what our subject is in the first place. I go crazy as an art historian, when people tell me "Oh, I've studied, Weimar architecture," and what they're really talking about is that they've studied 40 buildings in the Weimar Republic, out of the thousands and thousands of buildings that are there. To me, that is the real potential here. And also the potential of questions that are, as you say, in need of interpretation. There's still very much a humanistic core there.

So continuing with this evidence question, and the question of examples. I was wondering if you all could tell me what you think is exciting work happening in digital art history? For example, there are a cluster of projects that have developed in the early modern period that are quite noteworthy.

Do you see other centers of activity in art history? Are there areas or projects you would want to draw our attention to?

Emily Pugh

First I want to echo Paul, something you just said. I agree that it's exciting--the potential of these things to open up new areas of the field, new questions. The other thing I find exciting is how these things prompt me to look at existing questions in new ways, or consider existing questions in new ways. So things that have always been questioned seem to more urgent or take on a different cast. You've already mentioned the question of scale. But in answer to your immediate question about centers of activity, I do see some interesting areas. My colleague Sandra [McKay] in the Getty Provenance study--The Project for the Study of Collecting and Provenance (PSCP)--is doing really amazing, interesting things on the art market. I think that's definitely promising. Seeing some of the work, Paul, that you're doing with mapping and Holocaust studies.

These are both similar areas of promise that I've seen for a while now, and it does feel a little bit like we're at plateau at the moment. There's a few reasons for that. I've been thinking about how I want to write an article called "The Tyranny of the Project in Digital Art History," or something like this. There's so many projects at a certain scale--between, maybe small projects of handfuls of people, or maybe they're sort of larger ERC projects--but projects all over the place, often trying to make specific interventions in specific subfields or disciplines or areas, which is wonderful and should continue. But the degree to which that has coalesced into anything--as far as repeatable models outside of those specific areas in which the projects are intervening--that has seemed elusive. So you have all these individual projects going deep, and less in the way of a way forward for the field as a whole.

And so that feels like the plateau we're in right now--the need for more repeatable models for the field as a whole to deploy. You have teams of researchers seeking to innovate in a particular area. But the work--and this relates to my first point--the work of integrating that in the mainstream of the discipline hasn't happened as much. And if you think--if you use an analogy to the sciences--if one person uses, say, artificial intelligence to read the writing on a rolled up scroll--it can be interesting, it can yield results, that doesn't mean that then becomes practice within conservation. That doesn't

mean that every digital experiment becomes part of how conservators work day-to-day. There's a big difference between those two things: innovation should happen; we should be working to see what can be discovered; what new questions can be asked; or new methods of answering or analyzing them. But also really important is understanding how that fits into--or doesn't--to the day-to-day mainstream of art historical practice. And I think until we have that integration, that it will be these one-off things that may be useful for this one subfield. But that aren't part of the larger disciplinary discourse.

Hubertus Kohle

I understand this as a relatively skeptical intervention by Emily. And it's no wonder, that it is as it is, because if you compare that to the digital scholarship in text scholarship, we have a very much shorter history. And not as well-developed history. Researchers in the digital began 70 years ago, the famous Father Busa, for IBM. We did that maybe 30, 40 years later, and on a much smaller scale, which, of course, depends on the fact that art history is a smaller subject. But the guy I was talking about who spoke at the conference where he said, "Well, if Franco Moretti, did something good in the digital literary sciences, of course, but he was grounded on a longer history of experiences that we do not have." I take note, of course of the activity in the US, especially the provenance and standardization-oriented projects at the Getty Institute, which has from the beginning been one of the main players in the field. And they now also moved into this important field of linked open data, which I mentioned before. And you know, Paul, at your own university, you have these architectural reconstruction projects. What I think is even more important, you begin to put up degree programs, to put up centers for digital art history. In Germany, we have at least half a dozen digital humanities centers, yet there's no visual content in it. It's all textual. And this is not only the fault of those textual guys who defend their sphere, but it's also our own fault because we do not try to get into them.

How do you want to do it with a mostly skeptical generation of art historians, who are now determining what happens in our field? Well, in Germany and Europe...I mean, it shouldn't sound too skeptical. Of course, there are many beautiful things being done, but you don't really have the impression of a well-developed sphere, which integrates different projects. I remember some of it which is done in Leuven in network studies....but what I most admire here in Europe or in Germany is what is done by Heidelberg University

Library, which depends very much on the effort of one specific person, which is Dr. [Maria] Effinger, who has developed a broad digital publishing retro-digitization and research data strategy and continues to play a decisive role in the implementation of digital practices in the specialist community, which is maybe not contingent.

What also seems really exciting to me are the efforts towards artificial intelligence, which Emily has been talking about as well. Up to now, we have mostly used computers as a fast medium to store our research results obtained by analog means. I think with AI, we can let the computer off the leash, so to speak, and let it act with greater autonomy. Although I'm well aware of the dystopian aspects of these perspectives, of course. In the public discussion, the biases that arise from training AI from a biased perspective, are always in the foreground. But in a historical perspective, and as you know, especially in the United States, this is very much the reasoning which is going into the direction of artificial intelligence in the humanities. But in a historical perspective, it is precisely these biases that could be identified via the use of AI, which are nothing less than historically constant. I mean, take the AI in order to see the biases, which have been existing in history.

Beyond this, I would stress that even more important than the specific digital art history projects is the inclusion of digital procedures into the normal practice. For example, by using statistical software, publishing, open access, etc. And one last sentence: what strikes me in the AI movements and operations is that there seems to be on the horizon--we don't really understand what the computer does, because we don't have a look into the black box of the artificial intelligence. But something which is happening there, maybe it could be inspiring--because it develops a completely different view, on a machine view on artistic phenomena. And I would also say, let's try it out, not block it from the beginning. And let's see if something interesting happens in that field.

Paul Jaskot

I like what you say not only about new knowledge there, but also the potential to reveal the biases in history, because that speaks to the potential critical role that a digital engagement could provide. That's really why I see it so intimately related with the social art history project, which is also in its essence, meant to be a critique, and meant to be a kind of critical investigation of the way that art and society are related. In that regard, given

the methodological focus of social art history on deep and broad archival research, it's been that way for decades now. It seems like a natural fit with computational methods. Questions of, for example, class, gender, race seem to demand a kind of systemic approach that might be well-suited for digital methods and even for AI in that regard. Do you think this is the case? Are there some art historical questions that are favored by the digital? And will that mean that others get pushed out of the field if we embrace digital art history as a discipline?

Emily Pugh

This is such a big question. There absolutely are questions that are relevant to social history that computational approaches might be very well suited for. But I think that's probably true of a lot of areas of the field. I honestly don't know if I think that they're uniquely suited to social art history. Following from what we were just talking about, there's a way in which artificial intelligence and specifically computer vision can be a way of looking beyond the categories of how we've traditionally understood and cataloged images. If you look at how art historical photo archives have been catalogued in the terms that are used or not used--socially biased terms, maybe racist terms, maybe sexist or gendered terms, maybe terms that reflect just the historical biases of art history, like classifying things by national school. So if you ask a computer to analyze images based on the pixels, and not based on the text that humans applied to those images...because when you search image databases based on their metadata text, you're building upon the biases that informed that metadata that humans created. So I do think there are ways that digital technologies and computational means can ask us to rethink some of these categories.

Paul Jaskot

One of the great things that social art history does is kind of critique the complacency of art history...the complacency of the validity model, I guess, if you will. And so for me, putting the emphasis on the genesis is how we get to our question of what kinds of questions are critical? And perhaps you could speak to what you think is critical digital art history? What do you learn? Or why would you learn to code or structure a dataset? How does that help us become critical art historians? Or does it?

Hubertus Kohle

For me, the anti-canonical aspect of digitalization has always been in the foreground. And I think you have already noticed that today, an art history student becomes acquainted with several thousand, perhaps even a low five-digit number of works of art during their studies, even where canonization processes are addressed, which is not as well-known as some of the social art historians might suppose. At least in art history, we usually only see the tip of the iceberg and only the tip of the iceberg remains visible here. To avoid misunderstandings, if I want to criticize the cannon, I first have to know it. But this is where digitalization should provide decisive assistance. Because rankings play no role in digital databases for the time being. The computer is relentless.

Here in Munich, we are working on an AI-based image search system that tracks down semantically- or formally-similar images, directly accessing the digital reproductions, not metadata entered by humans. That's what I tried to say before, when I said that the AI might open new machine visions, which depend not as heavily on human vision. Here, the masterpiece stands directly next to the less important, but maybe significant work, of artists. Just as on the internet: art images, then next to non-art images. European works next to non-European ones. There are certainly genetic connections here between digitization and the practice of a global art history, which in Europe and in Germany, for obvious historical reasons, is very much less developed than in the States. When you talk about structuring a data set, this certainly leads us to a certain mental rigidity, somewhat neglected in traditional forms of art history. By the way, to speak about data when having to do with artworks is still an affront for many of us who continue to foster an essentially essentialist idea of art. One which defends something like an otherworldly idea of art, so to say. And even if most of us think that we this is long past, I don't think that this is true.

Emily Pugh

I agree with everything Hubertus is saying. Our answers are really in a lovely way echoing one another. But in terms of the tools of computation, or how the use of digital technologies can precipitate a more critical art historical practice, I think part of that comes through the estrangement that can happen when you consider.... that's what I was alluding to earlier when I talked about existing questions that I think about in a new way. When you look at, say, a photo archive, and I think, "Why is this categorized by national school? What does that mean? What are the ways that we do things--is that

because that's the way they have to be done? Or is that just because that was the only way we could do them based on the affordances we had at that time?" It's engaging these questions of evidence, questions of data, questions of argumentation, questions of certainty, how you express certainty versus lack of certainty...I think, for me, my engagement with digital technologies has prompted me to think about these questions in different ways that I bring to my practice as a whole as an art historian, whether I'm using digital technologies or not.

But I would also say that, equally, and I think there's the sense among skeptics, that there isn't a criticality that folks bring to digital technologies. And there are people who don't bring criticality to their work, regardless, and certainly among them are people who use digital technologies. But I think that's absolutely key: you can't deploy these technologies unthinkingly.

You have to have some understanding of how they function--whether means coding yourself or not. It really depends on what you're doing. I wouldn't say everyone needs to know or doesn't need to know how to code. But you shouldn't deploy computer vision if you don't understand how it works. And yes, it's a problem that computer vision operates... and neural networks are black boxes that are, for example, grouping images by similarity, but we don't know what it thinks of similarity. These are issues and problems. And so it's absolutely important to bring a criticality to these practices, at the same time that they can, I think, in many ways, help precipitate some sort of distancing--precipitate criticality for art history as a whole.

Paul Jaskot

I agree with both of you. But I guess maybe I'm more optimistic. I think that the necessity for collaboration within digital practices, and the ability to see hidden histories and to reveal the biases that we talked about before--these seem fundamental in this moment. At least in the United States, we're really trying to rethink what art history is. And art history itself is being challenged, of course--institutionally, financially, in all the ways that the humanities have always felt that pressure. I feel that the digital approach has forced us to think in more critical terms, even while we also have to be critical about those new methods that we're bringing on board.

Emily Pugh

When we say digital art history, we're talking about a large collection of different elements. And it's not only the practice of using computational methods of analysis. And so, this is what makes me excited to go to work every day: not only that there is a potential to do new things or ask new questions, but there's this potential to really think from inside the discipline about what the discipline is, and open it up in ways that are really vital and exciting. And so, I don't want to sound overly jaded or overly skeptical. In fact, it's in the criticality that I get most excited. In a way, I wish there was more of a kind of lively discourse around digital art history. To be honest, I hear a lot of people say they're skeptical, but mostly I see it on Twitter.

We don't see lots of articles being published about what specific problems people see. That is a development I'm hoping for in the coming years--a more lively engagement across the field and with these issues. Not just positive things...you see it more in digital humanities...it's a little bit easier to find critiques of digital humanities and it's honestly, kind of difficult to find people actually writing articles about what their problem with digital art history is. It's important to have a real lively discourse.

Hubertus Kohle

Yes, I didn't want to be too pessimistic either. This is very much caused by the fact that we get, of course, a lot of money. I mean, we obtained a huge German Science Foundation project, interuniversitarian, and a million dollar project on the digital image. But what is striking, this comes not so much from the subject itself--within the subject itself--but it comes from the outside, and the outside is trying to force art history in this direction, which, in the minds of my conservative colleagues is a reason to fight it even more than before. But okay, as long as they don't want them to have the money, I will take it.

Emily Pugh

(Laughter). I think Hubertus is absolutely right. But it's not, again, this feeling that it's this pressure coming from the outside. For me, part of the lightbulb moment was going to archive and library conferences, or like the triple IF conference, the International Image Interoperability Framework, which is this organization of initially libraries. It's driven by Stanford--this is not corporate influence, right? And museums, libraries, and archives are really eager to use this image standard. But you go to the conferences, and it's all software developers and archivists, there isn't a scholar in the room, right?

And I started to think, well, this is a change to the information of infrastructure of art history that's happening. And it's being led only...obviously, I want to hear from software developers, I want to hear from librarians and archivists, but I also want them to hear from me and my colleagues. I want them to know what the needs of scholars are. So again, you can think by shutting out digital history, that you're shutting out data, that you're shutting out corporations, that you're shutting down computational methods, etc. But in fact, you're not. I'd rather be in the room having the conversation and making sure that the values of art history or that the needs of art history being represented, because it's happening, whether we like it or not. I mean, we all do it every day. How many of us use Google image search? That's corporate influence right there.

Paul Jaskot

Well, we've talked a lot about the past and the present and hinted at the future. So I wonder if you might both talk a little bit about giving some advice. What would you say to a graduate student, beginning their studies about digital art history of computational methods? What advice would you give, Hubertus?

Hubertus Kohle

Well, there was talking about coding. I myself cannot code. This is also related to the fact that I started to deal with the subject very--I think so, at least--very early. And then those days, it was very questionable in its perspectives. Today, I think that, especially humanities graduates can additionally qualify themselves by acquiring coding skills. Although this is a complicated field. And I think that's something that my colleague called "universal dilettantism" should also be avoided. Because if you try to specialize deeply into massively different fields, that can also be an average, which does not really qualify you in one of the fields. But I would, however, definitely encourage other graduate students to see the subject perspective of art history in the most intensive exchange possible with a digital perspective, especially in the field of image studies, which are still traditionally pushed into the background compared to tech studies. We were talking about that before. And this has not only to do with the reticences--with the hesitations of art history, but it is also of course, grounded in the logocentric, basic attitude of Western culture. There's really a lot of catching up to do in digitally-supported image analytics.

Incidentally, I have hired a statistician for our own projects here in Munich. She will even become an assistant professor in art history, although from birth--well, not from birth--she is a statistician. I think this is necessary. I don't know what your experience is. If we really want to build up a professional digital art history, we need, of course, we need people like the ones I tried to describe before, when I said that graduate students in art history should maybe learn to code. But if we really want to build a professional strategy, we need the real professionals in the field. And it is difficult, of course. We need cooperation between information scientists on the one hand and art historians on the other, but we probably also have to draw them, *some* of them--and *many* of them are not do not exist, because who is interested in the arts?--we should try to draw them into our field where they will work as statistically- or informationally-oriented art historians. By moving them to new graduations, the citizen, which I was talking about, is going to write a dissertation in art history. I think we have to mix both fields, at least in some of the positions, we have to mix the two subjects together.

Paul Jaskot

I agree with that. I think that one of the things that has been successful here at Duke has been embedding the computational questions in the art historical department. It's not something *over there* they do. But they're learning GIS and mapping as an art historical question. They learned 3D modeling within art history. And that really makes a huge difference for us. Emily, what would your advice be?

Emily Pugh

Increasingly, it'll be important for every graduate student of art history to develop some degree of data literacy facility--working with data, critiquing the data that they encounter. I think working natively with data is going to be an important skill that increasingly every art historian will have to have. If you look at, for example, in the Getty Research Institute, where I work, we acquired the first part of the architect Frank Gehry's archive, that goes to I think, '88. So it's only the first part of his career. It includes 68,000 digital design files. These are born digital files, and say you want to write a dissertation on Frank Gehry--or your dissertation involves some study of Frank Gehry, so it's unlikely that you'll need to look at all 68,000 files. You might not need to look at all of those, or search all of those files, but you may need to come up with computational means to analyze a subset of those files.

Or...there's hundreds of thousands of drawings in that collection. Maybe you'll need to use computer vision to say, send me back all of the images that contain this motif. Things like that. But there's a facility of working with data--and being critical of data, for example, as libraries, might use computational means to process very large archives, that could mean metadata that is discussed in terms of probability. So the model now, when an archive catalogues a collection, [is that] there's a subject specialist who's probably not going through every item, but every folder, or every box, in describing--based on their specialty--they have training and subject specialty--describing, what's in that box or folder? Well, what if a computer's doing that? Then there's not going to necessarily be a pair of human eyes on every piece of metadata that comes out of that process. So you might be searching in a catalog. And you may be seeing results in your library catalog, but say, we're 90% sure that there is a [insert] "blank" in this image...these kinds of things. And so, to be able to understand what you're even looking at, to understand how to critically engage with that metadata...these are going to be important skills of every art historian, and then I think that also becomes a launching pad.

So for example, I've taught a course a couple times now at the American Academy in Rome. And the goal for me has really been what does a methods class look like? What does a digital art history methods class look like? How can you--as you're saying, Paul--frame these questions in terms of art history, not solely in terms of technology, and how can you provide a base level of knowledge that can be then a place where someone can develop...So maybe they never use computational methods. But if they decide to, they now have some critical acumen for deciding how to use it, whether to use it, what they need to keep in mind. Also, I think this becomes a way for them to understand...the different kinds of technical expertise that are involved and how they might build those collaborations...the difference between computer vision, this is a huge field, and there are different forms of computer vision that are trying to do different things. So starting to understand these kinds of nuances in the different technical fields that digital art history is involved in. So that's what I would say: just starting from a point of data literacy.

Paul Jaskot

Well, we've had a very wide-ranging conversation here, and I really appreciate it.

Caitlin Woolsey

Thank you for listening to *In the Foreground: Conversations on Art & Writing*. For more information about this episode and links to resources referenced in the conversation, please visit Clarkart.edu/rap/podcast. This program was produced by Caroline Fowler and me, Caitlin Woolsey, with editing by John Buteyn, music by lightchaser, and additional support provided by Annie Jun and Jessie Sentivan. The Clark Art Institute sits on the ancestral homelands of the Mohican people. We acknowledge the tremendous hardship of their forcible removal from these homelands by colonial settlers. A federally-recognized nation, they now reside in Wisconsin and are known as the Stockbridge-Munsee community. As we learn, speak, and gather here at the Clark, we pay honor to their ancestors past and present, and to future generations, by committing to building a more inclusive and equitable space for all.