Database Art and Design:

Pioneering Strategies in the Arts towards Collecting and Archiving

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Artworks challenge traditional archive, collection, and preservation methods.

Oliver Grau (2019)

Perhaps the paranoid dimension of archival art is the other side of its utopian dimension.

Hal Foster (2004)

This issue of *Stedelijk Studies* focuses on the future imaginings of digital archives and collections.[1] Database art should have a special place in such an issue, as it has played such a pioneering role in opening up and expanding our ideas and approaches to archives and collections in the digital world. And it did so before museums even cared to maintain a website and an online presence as an addition to, and intertwined with, their (exhibition) program, collection, and archives. Database art is a form of digital art that uses the digital archive as both a source of artistic imagination and a form of critical inquiry. All aspects of the database, such as collecting, storing, mapping, and visualizing data, are part of database art, but the more critical and reflexive variants also question the concept and structure of the database, as well as the prejudices programmed into it. In fact, the biases built into digital archives by software and algorithms, which are so heavily criticized today (as shown by other essays in this issue),[2] were questioned early on

by artists and designers. Here, too, the arts have played a pioneering role in pointing out and exposing the politics behind code. Although database art intersects with other categorical terms such as “information art” (a somewhat dated term), “software art,” “digital art,” or “data art,” it evolved as a term to refer to a form of digital art that recognizes and questions the digital archive and its role in and impact on digital culture and society as a whole. In response to the growing grip of databases on society, I argue that artists have laid some of the foundations for exploring the critical and imaginative possibilities of digital archives and collections—and continue to do so in the present.

Building on this foundation, digital strategies and tools are now increasingly being picked up and further developed by museums to broaden their reach inside and outside the museum, both online and offline. To substantiate the above claims, I examine some important artworks and design projects that were created at pivotal moments in the social, cultural, and technological development of digital archives and collections. Together they not only give a concise anthology of this new art form but also clarify their role in raising awareness about how those databases work and function.

Before delving into these art and design projects, a word on the concept of database art (and aesthetics) is necessary. In the autumn 2004 issue of *October*, art historian Hal Foster notes an “archival impulse” in contemporary art. Concerned that his diagnosis might be misread as pertaining to developments in digital art (at that time still kept at bay by the by the editors of *October* journal), he is quick to distinguish between archival art and database art: “The archives at issue here are not databases… they are recalcitrantly material, fragmentary rather than fungible, and as such they call out for human interpretation, not machinic reprocessing.”[3] Database art and aesthetics were introduced in new media and digital art circles by Victoria Vesna in her special issue on “Database Aesthetics” for *AI & Society*, which included Lev Manovich’s pivotal essay “Database as a genre of new media” (later revised as “Database as Symbolic Form”).[4] Recognizing that artists have quickly adopted the digital archive as a new experimental field for art, Vesna argues that database art, like Foster’s archival art, explores “other kinds of ordering, within the museum and without,” albeit in Manovich’s new database genre.[5] Or, as Vesna puts it, “Artists have long recognized the conceptual and aesthetic power of databases, and much work has resulted using archives as a deliberate base for artistic endeavors.[6] She continues, “In an age in which we are increasingly aware of ourselves as databases… it is imperative that artists actively participate in how data are shaped, organized, and disseminated.”[7] While database art was still in its infancy at the time of Foster’s writing, the archival impulse in digital art is certainly less easy to dismiss today. Explicitly referring to, and elaborating on, new strategies for archiving and collecting as developed in the digital arts, Oliver Grau firmly declares in *Digital Art Through the Looking Glass* that “Artworks challenge traditional archive, collection and preservation methods.”[8]

George Legrady is one of the first to recognize the database as a creative medium. Already in 1994—a year before Derrida published *Archival Fever*,[9] a book often interpreted as a call to rethink archives in the face of the changes brought about by digitalization—the artist described the potential of new digital archives in the context of his CD-ROM, *An Anecdoted Archive from the Cold War.* "On first thought," Legrady writes, "a digital interactive archive might not seem that different from its analog counterpart […]. However, near instant access to information across geographic space, simpler modes of information storage with greater precision, simultaneous retrieval of cross-media data such as sound, image and text, and the ever-increasing superior sorting and ordering capabilities of structural databases over analog sequential models are some of the obvious advantages of interactive digital media."[10] Designed from the floor plan of the former Hungarian propaganda museum and prompted by his own family's emigration to Canada in the 1950s, Legrady collected personal and official documents and artifacts representing Stalinist Hungary. He scanned, categorized, stored, and curated them in his virtual museum on CD-ROM.

Fig. 1. George Legrady, Pockets Full of Memory, 2001. Installation view Kiasma Helsinki Museum of Contemporary Art (2004).

Pockets Full of Memory (2001) is Legrady's first digital art installation in a 'real' museum that explores the digital archive or database (fig. 1). As such, it is mentioned in most early survey books on new media and digital art.[11] The installation was commissioned in 1999 by Boris Tissot, curator of the Centre Pompidou, who envisioned an exhibition that "would integrate issues related to the intersections of memory, the archive, digital technology and the general public."[12] *Pockets Full of Memory* is a digital archive based on the simple idea that museum visitors would scan a personal object they carried in their pocket. This way, they would feel the sensation of creating a database. To collect the data, an input station was placed in

the Centre Pompidou, where 3,300 museum visitors contributed a personal item to Legrady's database installation over a period of three months, although some of them just scanned their hands or feet (fig. 2).

Fig. 2. George Legrady, Pockets Full of Memory, 2001. Opening at Centre Pompidou, Paris.

The most revealing moment of the three-part process, which included data scanning, classification, and visualization, was the final step: the projection of the now digitized objects onto the wall. Visitors could see with their own eyes that their keys, telephones, or marriage contract would not necessarily pop up next to a similar object. The public had a significant influence on the visual output of this constantly changing archive of objects, because the software designed for the project classified and visualized the objects according to people's own choice of keywords and the myriad personal stories added in the space for descriptions. Two items only ended up in proximity in the visual grid if they had similar input, but since the descriptions and keywords were rather subjective, similar objects could appear in quite unexpected places, which was intended to trigger the viewers' critical imagination. This recalls Fosters's "paranoid dimension of archival art" and explains Christiane Paul's "Foucauldian" assessment of this disturbing database art installation: "The mapping of these objects points to the potentiality and absurdities of classifying objects endowed with personal meaning."[13] While designed as a relaxed and joyful interactive game, there is something at stake in Legrady's installation, namely, an attempt to make the general public aware of how certain aspects of a database "work," and to provide them the tools to experience their own role and power within the digital system. Most people did not realize at the time that databases are not neutral data containers, and the artist wanted the public to become more conscious of what digitalization actually means for individuals. *Pockets Full of Memory* is probably the first instance of database art that makes experienceable the fact that digital archives and collections are managed by software and algorithms which can manipulate us, determining how we retrieve,

understand, and visualize data, and that there is someone behind it. Without delving into Jacques Derrida's Freudian reading of the relationship between archives and the structures of human memory through his analysis of an early technological tool (the mystical writing pad), more important here is Derrida's understanding of the archive concept through the meanings implied by its etymological source (*arkhē*), such as control and power. Although Derrida does not mention digital storage media, it can be inferred from his argument that these meanings also apply to new technological inscription methods.[14]

One artist who explicitly problematizes such power issues is Trevor Paglen, both in his art and writings. In an essay on image databases and machine learning, such as the image processing database ImageNet, he argues that digital archives are steeped in politics; in fact, all taxonomies and classification systems are political because someone decides these categories and converts them into algorithms. Like Legrady, Paglen shows the absurd taxonomies that result from how algorithms organize things, using the example of one object, "the apple," which triggers endless subcategories of apple-like things in ImageNet. Paglen concludes, "Navigating ImageNet's labyrinthine structure is like taking a stroll through Borges' infinity library."[15] The political aspect comes more to the fore in categories like "the human body," which is subject to all kinds of prejudices, such as that only "male" and "female" variants are considered normal and natural, and not those in between, from hermaphrodite to transgender. Power and control are especially at work in image recognition software and their accompanying databases, which are used as a surveillance tool. Paglen not only questions the biases built into these technologies (including passages on craniofacial features and how they are detected by computers) but also makes them visible in his artistic work. An early example is *It Started as a Military Experiment* (2018, fig. 3a), which was made with portraits of military employees used to develop the US military's Facial Recognition Technology (FERET). Dating back to the early 1990s, this software is designed to teach computers to see and identify human faces, and is at the forefront of computer vision development. Paglen's portraits as biometric datasets are constructed by algorithms with seemingly mathematical precision, but upon closer inspection, it is based on simple skull shapes and facial symmetries, which can lead to generalizations and errors (fig. 3b).

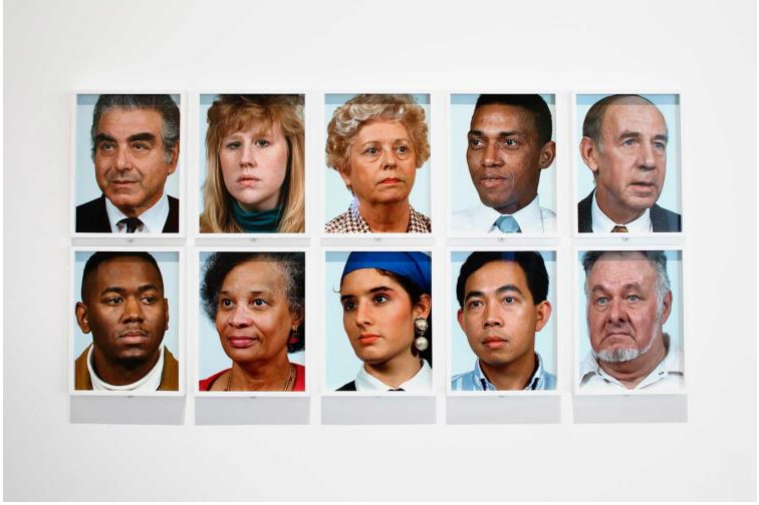

Fig. 3a. Trevor Paglen, It Started as a Military Experiment, 2017. Set of 10 pigment prints 13 5/8 x 10 ½ inch.

Fig. 3b. Trevor Paglen, It Started as a Military Experiment (detail), 2017.

Another example is *Machine Readable Hito* (2017), in which Paglen runs facial analysis algorithms on artist Hito Steyerl (fig. 4). In each rendering of her photographic portrait, the algorithm in question tries to estimate Steyerl's age, gender, and emotional state, but each software does this differently and gives different results. Point proven: machine vision can only interpret what it sees based on the datasets that the operators have programmed into the software. But Paglen goes even further. Bias cannot be removed from machine vision—it is, as he puts it, "a feature, not a bug."[16] All the same, computer vision is increasingly integrated into society, no longer just at the airport or in authoritarian states. This is where envisioning the future of digital archives and collections seems to catch up with us, ordinary people, in the sense that new technologies and their uses do not always evolve as we want or imagine (i.e., they become instruments of control that surpass the Orwellian vision of Big Brother).

Fig. 4. Trevor Paglen, Machine Readable Hito, 2017. Adhesive wall material.

Interactive Digital Archives

In *Making Art of Databases*, Anne Nigten traces two types or genres of archive-based art projects or database art. “On the one hand we find the tradition of predefined and domain-specific applications. The content of the database here is familiar to the maker, and the outcome often represents different ways to select the objects from the database and reorganization mechanisms. On the other hand one sees artists who are looking for ways to create dynamic

environments and applications that come into existence after participant interaction."[17] While there is no clear line between the two forms of database art, the first genre best characterizes Legrady's work discussed here, while another pioneering artist, Rafael Lozano-Hemmer, focuses more explicitly on the second genre, namely, dynamic environments activated by participants. This type of database art has distinct features, such as interactive processes and an interface design geared towards participants who realize the work. Lozano-Hemmer is best known for his large digital art installations for public spaces, which are also featured in most studies of new media and digital art, as well as the earliest books on database art, such as the aforementioned *Making Art of Databases*. But the artist's work also occupies a prominent place in the theoretical studies of interactive digital art, such as Katja Kwastek's *The Aesthetics of Interaction in Digital Art*. What is important here is that most of Lozano-Hemmer's large-scale digital art installations explore the imaginative possibilities of interactive digital archives and collections from the point of view of an "aesthetics of interaction" with the public at large. How can one mobilize texts, images, or objects in a processual database for a user or spectator?

An example is *Under Scan, Relational Architecture 11* (2005), an installation that creates a playful interchange between the public and a collection of pre-recorded video clips (fig. 5a). Instead of "interaction," Lozano-Hemmer prefers the term "relational architecture" to describe his installations. "An important aspect of my work in Relational Architecture is to produce a performative context where default building may take on temporary specificity […]. The pieces are usually ephemeral interventions designed to establish architectural and social relationships where unpredictable behaviors may emerge."[18] With these interactive digital environments mapped to the existing urban fabric, the artist strives for alternative uses, even reclaiming public space, which he believes is often contaminated, if not fully appropriated by commerce and corporate culture in today's global economy. Located in cities across the United Kingdom, the installation uses sensors and search lights to detect people at night, casting their shadows onto a public space, such as Trafalgar Square in London (2008). Once detected and tracked by the digital system, the shadows of the captured passerby become the projection area for a video portrait of an anonymous fellow citizen from the database. Beamed onto the pavement by robotically controlled projectors mounted high above the square, these videos portray local volunteers of all ages and genders. Because these videos (more than 1,000 pre-recorded video portraits were stored in the interactive digital database) are made with such care and precision, peoples' interaction on the square with their digital alter egos is quite lively, visible in the QuickTime videos on the artist's website. The enthusiasm of the "actors" in the clips has a contagious effect on the mostly curious and investigative, yet sometimes hostile or drunk, people who encounter the installation. For Lozano-Hemmer, "participation is an act of creation—what you give is what you get."[19]

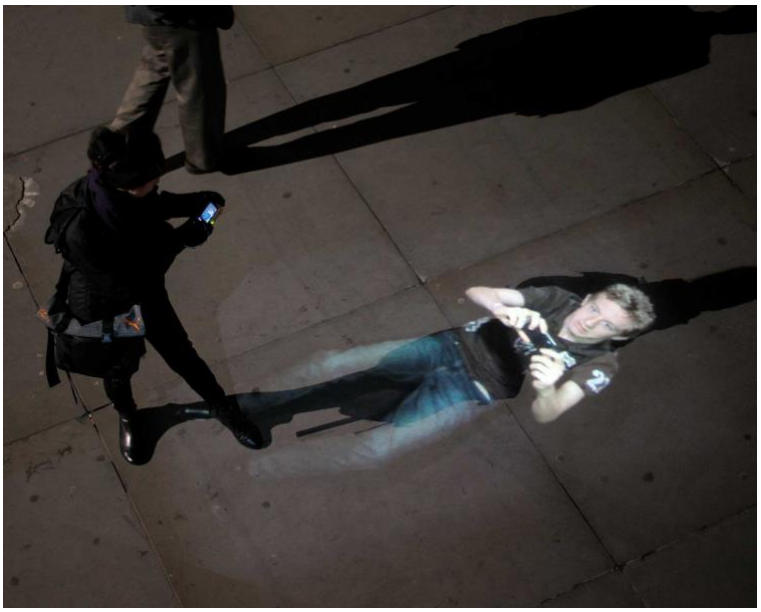

Fig. 5a. Raphael Lozano-Hemmer, Under Scan, Relational Architecture 11, Trafalgar Square, London, 2005. Photo: Antimodular Research.

The game is over when the spectator/participant loses interest and walks away. Then the portrait fades into the dark until another person is captured by the light and reactivates it. In *Aesthetics of Interaction in Digital Art*, Kwastek discusses the use of "play" in the interactive digital art of Lozano-Hemmer and other artists. She prefers the notion of play (understood in the Germen sense of *Spiel*) above the concept of the game (in the English meaning of the term), because she holds that the German concept encompasses *both* the idea of "free and purposeless" play (play as action) *and* the rule-based game (play as strategy). Play in this double sense is used as an analytical tool for understanding the way in which game and play operate in dynamic digital environments, where programmed rules govern human interactions. In Kwastek's words, "Whereas in the traditional arts it is unusual for recipients to play a physically active role, that is the rule in interactive art. The artist conceives of a process that awaits realization by a recipient, for only through the action of the latter can the processual presence of the work take shape. Nonetheless, both the construction of the work's interactivity and its realization depend on technical systems, which are thus also regarded as actors."[20]

Kwastek's theory is clearly grounded in the "actor-network theory" of Bruno Latour, but could be complemented with the theoretical insights of Philip Agre, an expert on interactive digital systems in all forms and formats, offline and online, which he theorizes with concepts such as "capture" and "grammar of actions." In *Surveillance and Capture: Two Models of Privacy*, Agre problematizes privacy issues as a consequence of new digital technologies and digital systems, especially tracking systems that threaten the privacy of citizens. Agre argues that these issues cannot be fully understood with the old surveillance model, so he developed a concept that he identifies with the "capture model," or the way computer systems acquire (track, collect,

and thus “capture”) data. The capture model works with what Agre calls “grammars of action,” a kind of technical “grammar” programmed in computerized systems and digital environments that structures the possible human “actions” within that system of context. “The capture model describes the situation that results when grammars of action are imposed upon human activities.”[21] This grammar is a useful conceptual tool for understanding the meaning and message of Lozano-Hemmer's *Under Scan*, which is equally concerned with issues of privacy and surveillance as a result of automated tracking systems. Agre's capture model helps to explain how the tracking system “captures” a passerby in the square and brings them into dialogue with a portrait retrieved from the digital archive.

After seven minutes, the tracking system reveals itself as a grid on the pavement (fig. 5b). At this moment, the play becomes less careless and free; in fact, members of the public are made to realize that *all* their movements are tracked and scanned by the computer and that this is part of a bigger scheme of control. The seemingly innocent play with the digital system, enabled by a grammar of action, suddenly breaks down and turns into a creepy surveillance system. This explains the title of the piece, *Under Scan*, referring to the systematic, invisible tracking by the digital system. Lozano-Hemmer's playful installation has an unparalleled critical dimension; it not only shows how we can use digital archives and collections imaginatively for public interactions but also uncovers the potential danger of manipulating these interactions in the process—the “grammar of action” embedded in the program imposes specific behavior on the participant. Regarding the future of interactive digital archives and collections in a museum context, the artist's work is groundbreaking and even guiding, because it is inviting and playful, yet combined with a certain “seriousness.” In this way, he finds a balance between critical content and pleasure or “fun,” which is important for museums.

Fig. 5b. Rafael Lozano Hemmer, Under Scan, Trafalgar Square, London, 2005. Photo: Antimodular Research.

A related video, although not directly connected to digital archives and collections, is *How Not to Be Seen* by Hito Steyerl (2013, fig. 6). The video humorously yet ironically gives us five lessons about invisibility in the information age; instructions for techniques to sabotage and escape the ubiquitous surveillance society in which we live as individuals today. With their artworks, Lozano-Hemmer and Steyerl show the downside of the computer-driven, digital information society, criticizing without being deterred by it, in an effort to create awareness and offer opportunities to deal with it. By looking critically at the production, use, and distribution of images from the end of the twentieth century to the advanced digital age in the twenty-first, including the endless images generated and disseminated by social media and surveillance technologies and the impact of these technologies on our lives, Paglen's and Steyerl's art makes an important contribution to a critical vision and creative imagination of our digital future in the context of image databases and beyond, along the lines described by Vesna, Manovich, and others in the anthology *Database Aesthetics*.[22] Their work also reveals the darker sides of the well-intentioned sociotechnical imaginaries, defined by the S&T (Science and Technology) community as "collective visions of good and attainable futures."[23]

Fig. 6. Hito Steyerl, How Not to Be Seen: A Fucking Didactic Educational.MOV File, 2013.

The Prejudice of Database Design

Although the dividing lines between art and design are no longer as clear in the contemporary visual culture of the twenty-first century, it is nevertheless relevant to pay attention to groundbreaking projects in the database genre, produced in what is still considered the field of design. Designers have embraced the database as a creative genre, and think critically about the nature, role, functioning, and use of the digital archive or database in society. Also interesting is that designers have an established tradition of working in contexts of social relevance, often in collaboration with other parties; the term "social design" has a history, after all. One pioneering project in the design field is *Million Dollar Blocks* (2006), from the Spatial Information Design Lab (SIDL) at Columbia University, directed by Laura

Kurgan from 2005 to 2015. The SIDL design collective researched the first genre of database art on Nigten's list, repurposing known datasets in existing digital archives and collection through the creative use of software. *Million Dollar Blocks* is an example of a recognized design project demonstrating the intrinsically political nature of data in existing digital archives and collections, similar to Paglen's database projects, but much earlier (fig. 7).

Million Dollar Blocks, uses a criminal justice dataset from the Justice Mapping Center (JMC), which is uploaded to new mapping software, or GIS: software that consists of both data analysis and visualization tools. In 2006 traditional geographic maps focused on where crimes were committed to calculate crime rates in specific parts of the city and make policy decisions based on that information. SIDL's alterative mapping project, however, reorients the datasets from the crime scene to the home addresses of the inmates. According to Kurgan, *Million Dollar Blocks* goes against the idea of "hotspot" crime maps, introduced in 1994 by New York Police Commissioner William Bratton with the enthusiastic approval of Mayor Rudolph Giuliani.[24] SIDL shows in infographics and visual maps that inmates in the United States mainly come from just a few neighborhoods in the poorest residential areas of the largest cities, called "million dollar blocks" because these areas require significant government investment, not for the neighborhoods themselves, but for the often privatized penitentiary system (fig. 7). SIDL's alternative use of criminal data provided new information on prison patterns, raising ethical and political questions such as whether incarceration is an unsuccessful response to poverty and the relationship between the imprisoned population and their original whereabouts. Recognizing that data is not neutral, the underlying purpose of the SIDL project was a political one: to raise public awareness of the American incarceration system (and the vast sums spent on it) in the hope that policymakers will develop new strategies to prevent crime, instead spending money on improving the socioeconomic conditions that underlie and affect crime.

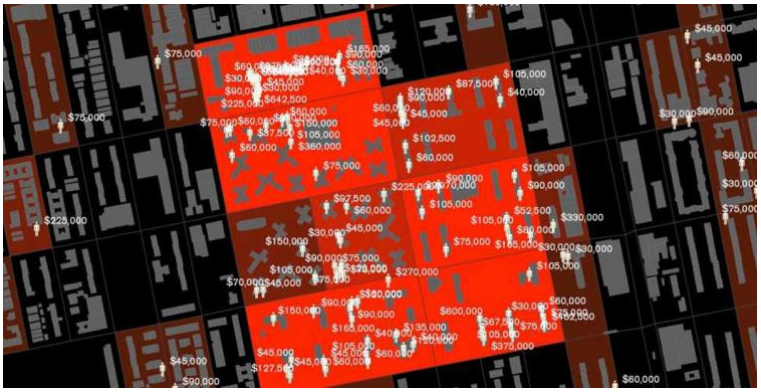

Fig. 7. SIDL, Million Dollar Blocks, 2006.

According to Manovich, data mapping and data visualization are often lumped together, but he emphasizes that they differ because the former simply organizes quantified data in a database according to algorithmic parameters, while the

latter is a visualization algorithm designed to graphically represent these categorized datasets. Data mapping is based on choices built into the software that become visible (or "readable" and easier to understand) in the data visualization. Manovich thus identifies data mapping with a form of politics. “This is the new politics of mapping of computer culture. Who has the power to decide what kind of mapping to use, what dimensions are selected, what kind of interface is provided for the user—these new questions about data mapping are now as important as more traditional questions about the politics of media representations by now well-rehearsed in cultural criticism (who is represented and how, who is omitted).”[25] In her article "Queering Homophily,” Wendy Chun extends Manovich’s insights into how analytic data-mapping tools work (especially the power relations built into them) in big data networks, especially social media. "Networks," she writes, "are not unstructured masses or endless rhizomes," but are generated by carefully programmed algorithms based on exclusionary principles.[26] She also refers to the biased algorithmic systems used by police in the US, including those based on machine learning, in effect extending the problems identified by SIDL to those of racial bias. Chun explains this sociotechnical phenomenon through the concept of “pattern discrimination.” By identifying patterns in big data, AI algorithms create biases and practice discrimination that reflects those of their creators and society as a whole.[27]Feminist scholars, such as Ruha Benjamin, Catherine D’Ignazio, and Nanna Bonde Thylstrup, have also been very productive of late in pointing out these issues.[28]

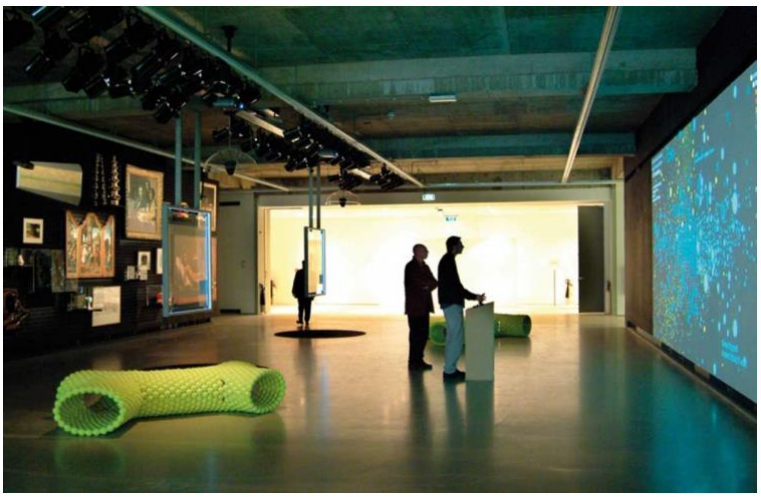

Fig. 8. LUST, Digital Wall and Digital Cloud, Museum Boijmans Van Beuningen, 2003–2006. Overview, with on the left the DataWall and on the right the DataCloud.

Politics may be less poignantly at stake in digital archives and collections in museums than in the constantly evolving databases that support the day-to-day reality of social media networks. Many museums are working hard on a more inclusive policy with regard to their physical collections and exhibition program, so that their digital archives and collections will naturally change at some point.

Nevertheless, museums construct stories and narratives in which choices are made about the available data and its accessibility. Given all the new technical possibilities, how can digital archives and collections be shared with the public? Pioneering designers include those engaged in digitized archives and museum collections, especially with regard to the second genre of database art, focusing on dynamic interaction. An early design experiment with the interactive use of digital collections and archives was realized between 2001 and 2003 by the Dutch design collective LUST for Museum Boijmans Van Beuningen (fig. 8). To provide access to the museum's new “Digital Depot,” LUST designed two interconnected interfaces, *DataWall* and *DataCloud*. With *DataWall*, a changing selection of physical artworks from the museum’s collection was shown. Hanging in front of these works of art were transparent glass touchscreens, which could display various information and digital content regarding the objects behind them, based on user interaction. The deeper the user went into the information, the less transparent the glass panels became. As LUST stipulates, “In this manner the user’s focus was guided from the wall to the information on the screens.” Opposite *DataWall*, the *DataCloud* was projected—in LUST’s description, “a spatial visualization of the real-time database of the entire Boijmans collection (119,000 works of art). Each piece of art is represented by a point in a 3D space. All these points form a colorful universe, visually quantifying the extremely abstract term of '119,000 works of art' to the visitors of the museum.”[29] This interactive starry sky—a visual metaphor often used as interface design in new media and digital art since Rhizome.org’s first use of it in the 1990s—represented a “universe” the user could travel through intuitively. By entering their own criteria, viewers could also make personal selections from the large museum collection, which were then displayed as a data cloud. “In this manner,” LUST adds, “the user can gain insight in the make-up of the Boijmans collection.”[30]

In “Database as Symbolic Form,” Manovich claims that databases and narratives are each other’s “natural enemies.” “Database represents the world as a list of items, and it refuses to order this list. In contrast, a narrative creates a cause-and-effect trajectory of seemingly unordered items (events). Therefore, database and narrative are natural enemies.”[31]Manovich describes the database as a neutral collection of structured data that can be linked with each other in endless, nonlinear ways, while the narrative follows a linear logic to create a basic story. In response to Manovich’s controversial thesis, Katherine Hayles counters that database and narrative are not rivals but rather symbionts: the database will not outdo the narrative and become the dominant cultural form of the digital age, but they will develop a “mutually beneficial relation,”[32] whereby the first (database) needs the latter (narrative) to make its results meaningful. Jerome McGann develops a third position in the discourse by stating that “no database functions without an interface,” and that such an interface “embeds, implicitly and explicitly, many kinds of hierarchical and narrativized organizations.”[33] Together, LUST’s two projects for Museum Boijmans Van Beuningen combine the two perspectives of Manovich and Hayles,

which is then made concrete by McGann's interface design. But even there, in the seemingly endless expanse of the projected archive, users could build their own narratives by formulating selection criteria of their own.

There are also many artworks that critically think through and imaginatively use digital archives and collections in museums, from Jeffrey Shaw's *Virtual Museum* (1992), the spaces and collection of which could be navigated while sitting in front of a computer, to Lancel/Maat's *Master Touch* (2013), an installation in which participants were invited to touch and caress their own face, which was then captured in a database by a facial recognition system, where it could be merged with famous portraits in the (digitized) collection of the Rijksmuseum in Amsterdam (fig. 9). Yet, when looking for imaginative uses of digital archives and collections, we need to look—and continue to look—at both art and design, the latter being more open to the museum's wishes as a client, but not necessarily less reflective or imaginative.

Fig. 9. Lancel/Maat, Master Touch, Rijksmuseum, 2013. Performance and installation on 1 and 2 November, 2013.

Biography

Sjoukje van der Meulen earned her PhD at Columbia University (New York, 2009). She is Assistant Professor of Modern and Contemporary Art at Utrecht University, with a research focus on among others new media and digital culture. She was a lecturer at the Media Studies Department at the University of Amsterdam (2013-2015), where she taught a course on database art and aesthetics.
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[1] I would like to thank Max Bruinsma and the editors of this issue, Karen Archey, Claartje Rasterhoff, and Vivian van Saaze, for their very constructive comments and bibliographic suggestions in reviewing my contribution.

[2] See, for example, Lucy Bayley, Bernhard Rieder, and Hande Sever in this issue.

[3] Hal Foster, “An Archival Impulse,” *October* 110 (Fall 2004): 3.

[4] Victoria Vesna, ed., “Database Aesthetics: Issues of Organization and Category in Art,”

AI & Society 14, no. 2 (2000). The issue was compiled online in 1999 and published in the print journal in 2000.

[5] Foster, “Archival Impulse,” 5. Interestingly, both Foster and Vesna build their argumentation on archival art and database art respectively on the tradition of institutional criticism from the 1970s to the 1990s.

[6] Vesna, “Database Aesthetics,” 171.

[7] Ibid., 156.

[8] Oliver Grau et al., *Digital Art Through the Looking Glass: New Strategies for Archiving, Collecting, and Preserving in Digital Humanities* (Krems a.d. Donau: Edition Donau Universität, 2019).

[9] Jacques Derrida, *Archive Fever, A Freudian Impression*, trans. Eric Prenowitz (Chicago: University of Chicago Press, 1996). Originally published in French in 1995.

[10] George Legrady, “The Interface Metaphor in the Digital Archive,” *Revue Virtuelle* 12 (Paris: Centre George Pompidou, 1994), n.p.

[11] See, for instance, Christiane Paul, *Digital Art* (London and New York: Thames & Hudson, 2003), 178–179.

[12] George Legrady and Timothy Honkela, “Pockets Full of Memory: An Interactive Museum Installation,” *VisualCommunication* 1 (June 2002): 163.

[13] Christiane Paul, *Digital Art* (London: Thames & Hudson, 2008), 179. The first edition of this book dates from 2003. I refer to Michel Foucault here, as he philosophized about the irrationalities and idiocies of classification systems in his well-known book *The Order of Things* (first published in French in 1966).

[14] Jacques Derrida and Eric Prenovitz, “Archive Fever, A Freudian Impression,” *Diacritics* 25, no. 2 (summer 1995): 9–10.

[15] Kate Crawford and Trevor Paglen, “Excavating AI: The Politics of Images in Machine Learning Sets,” accessed February 10, 2020, https://www.excavating.ai, 12.

[16] Caitlin Hu, “A MacArthur Genius Unearthed the Secret Images that AI uses to make Sense of Us,” *October* 22 (2017), accessed September 20, 2020, https://qz.com/1103545/macarthur-genius-trevor-paglen-reveals-what-ai-sees-in-the-human-world/.

[17] Anne Nigten, *Making Art of Databases* (Rotterdam: V2 Publishing, 2003), 7.

[18] Sylvie Fortin, “The Light that Blinds: A Conversation with Rafael Lozano-Hemmer (Hamilton, NJ: ISC Press, 2013), 275–283.

[19] Stefan Zebrowski, “What You Give is What You Get: Rafael Lozano-Hemmer (interview),” accessed September 20, 2020, https://magazine.art21.org/2010/09/23/what-you-give-is-what-you-get-rafael-lozano-hemmer.

[20] Katja Kwastek, *Aesthetics of Interaction in Digital Art* (Cambridge, MA: MIT Press, 2013),

92.

[21] Philip E. Agre, “Surveillance and Capture: Two Models of Privacy,” in *The New Media Reader*, eds. Noah Wardrip-Fruin and Nick Montfort (Cambridge, MA: MIT Press, 2003), 746. The article was first published in *Information Society*10, no. 2 (April–June 1994):101–127.

[22] Victoria Vesna, ed., *Database Aesthetics: Art in the Age of Information Overflow* (Minneapolis: University of Minnesota Press, 2007). In 2007, Victoria Vesna turned the special issue she edited for *AI & Society* on database art and aesthetics into an anthology on the same topic, with contributions from a wide variety of scholars and artists in the field. See also note 4.

[23] For a comprehensive definition of social-technical imaginaries, see http://sts.hks.harvard.edu/research/platforms/imaginaries.

[24] Laura Kurgan, *Close up at a Distance, Mapping, Technology, and Politics* (New York: Zone Books, 2013*),* 189.

[25] Lev Manovich, “Data Visualization as New Abstraction and Anti-Sublime” (2002), accessed February 18, 2020, http://manovich.net/index.php/projects/data-visualisation-as-new-abstraction-and-anti-sublime.

[26] Wendy Hui Kyon Chun, “Queering Homophily,” in *Pattern Discrimination*, eds. Clemens Apprich, Wendy Chun, Florian Cramer et al. (Luneberg: Meson Press, 2018), 61.

[27] Ibid., 62.

[28] See https://mitpress.mit.edu/books/data-feminism, https://mitpress.mit.edu/books/politics-mass-digitization, or https://www.ruhabenjamin.com/race-after-technology.

[29] LUST website, accessed February 19, 2020, https://lust.nl/#projects-9.

[30] Ibid., https://lust.nl/#projects-8.

[31] Lev Manovich, “Database as Symbolic Form,” in *Database Aesthetics,* 43.

[32] N. Katherine Hayles, *PMLA* 22, no. 5, Special Topic: Remapping Genre (October 2007): 1603.

[33] Jerome McGann, “Database, Interface, and Archival Fever,” *PMLA* 122, no. 5, Special Topic: Remapping Genre

(October 2007): 1588. A note of credit to Charles Vielvoije, who elaborated these different relationships between narrative and database in his BA thesis at the University of Amsterdam (2014).

[34] Manovich, “Database as Symbolic Form,” 40.