The Algorithm as Curator:

In Search of a Non-narrated Collection Presentation

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Current debates over art history's epistemological framework cannot afford to ignore the limitless manifestations of what is arguably the singular cultural and intellectual achievement of our era: the web-based decisioning power of the Algorithm.[1]

– Michael Pepi, Iconology in the Age of the Algorithm

Introduction

In the current museological landscape, traditional, chronological, Western, and canonic narratives are being questioned in the light of new collection presentations. Most museums do not want to tell a single, linear story and are searching for a more trans- or ahistorical, discursive way of presenting multiple global stories about art and within their collections at the same time. This almost neutral, unmediated, and uninfluenced way of thinking might be impossible for human curators, but could be realized using algorithms. Could it be possible for algorithms, instead of humans, to curate collection presentations in the near future? And what does this mean for current museum practice and museum curators? In this article I will examine the possibilities of algorithms and database structures to curate collection presentations as an addition, or even an alternative, to human curators, and also question the influence of applying database logic to the physical and material-based museum.

Last February a new museum dedicated to digital arts opened in Zürich, Switzerland. The Museum of Digital Art (MuDA) is the first physical museum in Europe dedicated to a mostly virtual and computer-based art form. The project was initiated by the Digital Arts Association, and was partly financed by an online crowdfunding campaign. The artists presented in the first four solo exhibitions were selected by the initiators and directors of MuDA, Caroline Hirt and Christian Etter. However, artists that will be exhibiting at the MuDA in the future will be chosen by an algorithm that goes by the name of Hal 101. This algorithm compares given data and past patterns, like Internet searches and data traces of the directors found by a crawler bot, and looks for comparable new content. According to MuDA, "This process insures that nationality, age, gender or financial factors don't override the decision making process."[2] The selected artists or collectives will curate their own exhibitions, having been notified by email at least twelve months in advance when chosen by Hal 101.

Exhibitions compiled by digital data no longer seem to be exceptional in the artistic and museal field. In 2014 the Vereniging Bedrijfscollecties Nederland (Netherlands Association of Corporate Art Collections, VBCN) announced Alix de Massiac and Vincent van Velsen as the winners of their biennial prize for curators. For their winning exhibition concept, De Massiac and Van Velsen analyzed twenty-nine collections of the VBCN—ranging from corporate collections to the art collection of the ministry of foreign affairs—by using only statistical data like the size, color, and the year of acquisition of the artworks, and ignoring factors related to visual and thematic characteristics. Eventually they "objectively" chose to exhibit the most average and most divergent work of each collection.

Of course this is nothing new; the algorithm and data already have a rich artistic tradition within net.art, digital art, and other contemporary art movements. Pioneers like Manfred Mohr (1938) sought alternatives for the expressive art forms of the 1950s. Mohr was one of the first artists to use the computer and digital codes like the algorithm as an artistic medium. Over time, from the beginning of net.art in the nineties and the rise of post-internet art over the last few years, an increasing number of artists have been using database structures, algorithms, and computer-like strategies as an artistic medium; for example, Swedish artist Jonas Lund (1984). Showroom MAMA, the platform for Media and Moving Art in Rotterdam, the Netherlands, showcased the work of Lund in 2013 in the exhibition *The Fear of Missing Out*. The works shown were the result of an algorithm written by the artist himself, for which he categorized and analyzed famous artworks. The outcome was a set of instructions that explained how to make the most successful works of art. Lund subsequently followed the instructions and made new works for the exhibition.

Fig. 1. *VBCN 10 years young*. Credit: Konstantin Guz.

Fig. 2. Jonas Lund, *Shield Whitechapel Isn't Scoop*, acrylic and silkscreen ink on custom rope, The Fear of Missing Out, Showroom MAMA, 2013. Credit: Lotte Stekelenburg.

The algorithm

Algorithms secretly rule a great part of our lives on a daily basis. They advise what music to listen to on apps like Spotify, they recommend what to buy on sites like Amazon, and suggest what movies or series are being watched on streaming apps like Netflix. Algorithms make choices for us based on past purchases and ratings, or develop a pattern of recommendations based on customer segments or users with similar behavior. Filter-, cluster-, and search-based methods are used by many companies to predict preferences and habits, and draw conclusions about similar things that could also be enjoyed by customers or users, and by doing so, create a convenient and personalized experience for each individual. Every aspect of modern living—consumption, entertainment, economy, traffic, schedules—is impacted by different types of algorithms.

An algorithm is, in fact, a list of rules or instructions coded to be read and executed by a machine in order to solve a problem. These rules or instructions generate complex decisioning processes that can select and map, turning given data into new sets of rules. The strength of the algorithm lies in its ability to approach information with semantic neutrality and its cognitive ability to analyze and learn from data, as well as to eventually apply new findings.

Computer versus curator

The role of the curator within the museum is a much debated issue, and it is not my intention to broadly discuss the current or previous role of curators in museums and museum curators in society. Rather, I want to question the future of the museum curator as an authority, an author of publications and compiler of exhibitions and presentations, but also as a tastemaker, filter, and gatekeeper in our current networked and digitized information society. Because of the constant flow of information on the Internet and in social media, individual users apply their own filters and choose their own channels, a process which already begins at the homepage or search engine. Of course, a large part has been preselected and the Internet experience is customized by algorithms using browsing history. This is what Eli Pariser calls the "filter bubble": "Your filter bubble is the personal universe of information that you live in online—unique and constructed just for you by the array of personalized filters that now power the Web."[3] The filter bubble is the result of the tremendous amount of information floating around on the Web; algorithms are used to find the most relevant information as efficiently as possible. The consequence of this tailored little personal universe is that its owners remain unaware of information outside their respective bubbles. Pariser also states that it is the task of human curators to point out other things people would not be interested in at first sight, thereby taking more risks by doing so. I agree that curators should not take the expectations of the public into account as a starting point, but let the public discover new things and question its expectations. In this case, a human

curator could make more surprising choices than a preprogrammed algorithm, which would benefit the public by challenging expectations and presenting information outside of its comfort zone.

Another discussion I will refrain from conducting in this article is the Internet debate on digital curation and the idea that nowadays everyone with a blog can be a curator. What I intend to do is analyze what it means to be a curator in the light of the digitalization of the entire museum collection and the widespread use of algorithms and databases. An example could be the fact that Tate has digitized its collection and archive, making them available for everyone online, but also, more importantly, it has published the underlying collection dataset. The collection dataset includes information like the artist, the title of the work, the date, the art movement it is associated with, a description of the medium that is used, concise catalog entries, and subject index terms. These index terms, or tags, are contributed by the curators working at Tate and are highly subjective; the curator looked at the artwork and made a decision, coining terms like, "tenderness," "sadness," and "hope" so that the work could be categorized under "emotions and human qualities," for example. Categorizing artworks or creating tags purely based on their visual appearance can only be done by the human curator—for now. This is what makes Tate's data exciting: the tags form the human factor in the database. The fact that Tate has published their dataset is a positive one, because it could offer infinite new views on the collection. "Should a museum curator consider algorithmic methods as part of their work?" Susan Cairns asks herself in "Curating the Digital World: Past Preconceptions, Present Problems, Possible Futures."[4] I believe that museum curators should consider new ways of classifying and sorting information made possible by algorithms, as it is already part of their daily work and activities now that many museum collections have been digitalized and can be viewed and edited via collection management systems and software. Does integrating algorithmic methods in curatorial practice call for a radical redefinition of the role of the curator? Perhaps not. According to Koven Smith, principal at Kinetic Museums Consulting and former Director of Technology at the Denver Art Museum, who is cited by Cairns in her text:

> I don't think that this is actually a radical redefinition of the curatorial role. It's the same mission that they've always had, but refactored to work at web scale and speed. So instead of changing one line of text in a book to reflect current research, the curator is changing one line of code to affect a change in thousands of records at once.[5]

This one line of code Smith mentions can be compared with the tags Tate curators have given to artworks in their database. The most interesting point Cairns raises in her text is how an algorithmic approach would integrate with our understandings of curating as an authorial act. How can we move towards algorithmic narratives and curatorial practice, not just for the interpretation of culture and information, but also for museum collections? In the past the collection was typically seen through the eyes of the curator and works

were grouped by artist, overlapping theme, or period, for example, which could come off as biased or authoritative. What if we were to approach the collection in a different way, through database structures?

Database, decontextualization, and narrative
Data can be defined as a set of values that consist of individual pieces of information that are usually collected in a database. It would be almost impossible to imagine our current information society without databases, because they occupy a significant part of daily routines and practices: the government, small and large institutions, companies, hospitals, and universities all rely on the structured collection of data within a database. Even in the private sector, at home, for example, the Google search engine also operates as a huge database structured by algorithms. By citing various authors on database logic and structures within contemporary society and the museum, I will attempt to analyze how we came to think of the database as a way to organize museum collections, whether this could be problematic, and what it could mean for museum practice.

According to the writers of "Curating in the Time of Algorithms," Christian Nagler and Joseph del Pesco, we find ourselves in a memo-centric culture where databases form the primary depot of information, but this used to be very different:

> *A time when our memories were the primary storage vessels of information and the main retrieval mechanisms were stories […]. With the advent of mnemonic prostheses like manufactured images and texts, the primary storage vessels became books, archives, and collections […]. The twentieth century experienced an expansive shift in the production of multi-modal representations—sound-, image-, text-, movement-, and time-clusters of varying composition. These representations first presented themselves in everyday lives as centralized phenomenal streams (e.g., radio, cinema, TV), then resolved themselves into accumulations called databases, and now into more densely dynamic, distributed, coded structures called networks.[6]*

Museum collections also became the subject of database logic, whereas more museums are digitizing their collection and making it available online and always accessible for the public. This can be viewed in the tradition of the idea of open data and the twenty-first-century view that the everyone should have the right to produce and share information freely. Liberating information has almost become a moral value. According to new media theorist Lev Manovich, the museum has in fact become a database: "A museum becomes a database of images representing its holdings, which can be accessed in different ways—chronologically, by country, or by artist."[7]

In my opinion, looking at the museum as if it were a database can be problematic. The first issue is the fact that both

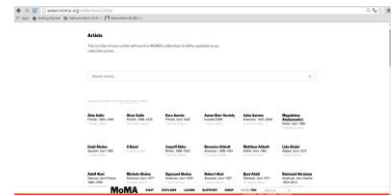Fig. 3. MoMA's online collection search database, screen capture, accessed September 2, 2016, https://www.moma.org/collection.

Fig. 4. MoMA's online collection search database, screen capture, accessed September 2, 2016, https://www.moma.org/collection.

platforms store different kinds of "memory," which are difficult to compare. Museums preserve and at the same time construct public memory in the form of historical artifacts and artworks that form a collection that is dynamic and constantly in flux. Database memory is passive and, according to writer and critic Michael Pepi, it is not designed to conjure, remind, or encourage users to look back in retrospect. Another difference is the fact that the museum produces narrative through exhibitions, research, publications, and education programs. It also requires narrative to produce these cultural manifestations. However, the database relies less on narrative and human decisioning, since it depends on digitally ordered information that can be read by algorithms. The only human decisions that need to be made are made by the data administrator.

Pepi makes this difference clear by comparing database administrators with curators, stating that the people who assemble and maintain museum collections (the curators, directors, and conservationists) operate with a different set of concerns in comparison to a database administrator, who configures and maintains the database so that information can be found effectively and quickly. Another problem Pepi coins has to do with the notion of time and space:

> The museum allows us to step out of time, whereas the database is by definition obsessed with time. The museum marks off a space, but the database is an apparatus necessary for the deployment of information into any situation that will accept its format.[8]

Thinking about the museum as a database can indeed pose new problems for traditional models of presenting collections, because it questions the conventional concept of the museum's authority and status, which is partly based on the structure of its collection. Still, analyzing museum collections though database logic and algorithms can also enable new ways of thinking about narrative and ways of exhibiting. It might be interesting to use statistics and data to study and critically reflect on other aspects of the collection, for example, the country of origin of the artists represented in the collection and how this data is related to each other. But, most importantly, database logic and algorithms make it possible to view the collection without the interference of personal preferences or taste and (art historical) knowledge.

The database as a cultural form, like online museum collections, is a non-hierarchical index that does not presume any order and has no beginning and no ending, unlike a book or a movie, or even an exhibition, which must be read or seen in a specific order most of the time. This is what makes the experience of a collection of information in the form of a database seem more objective, neutral, and democratic. Given context like an artwork's place in art history and the artist's place of birth, gender or artistic value are left out of museum collection databases because of their non-hierarchical nature, and the artwork appears to be decontextualized. Boris Groys states that the desire for the nonidentity of the museum is ambivalent in relation to its

traditional system, and he sees "the internet" as a possibility for decontextualization:

> The internet is organized in a less historicist way than traditional libraries and museums. The most interesting aspect of the internet as an archive is precisely the possibilities for decontextualization and recontextualization through the operations of cut and paste that the internet offers its users. Today we are more interested in the desire for nonidentity that leads artists out of their historical contexts than in these contexts themselves. And it seems to me that the internet gives us more chances to follow and understand the artistic strategies of nonidentity than traditional archives and institutions.[9]

Groys explains earlier in his text that the desire for nonidentity is derived from modernist artists who rebelled against identities that were imposed on them by others, and subsequently undermined the cultural or national identities that were attributed to them. He claims that the traditional museum system is in contrast with the desire for nonidentity:

> On the one hand, the museum offers to the artist a chance to transcend his or her own time, with all its taxonomies and nominal identities. The museum promises to carry the artist's work into the future. However, the museum betrays this promise at the same moment it fulfills it. The artist's work is carried into the future—but the nominal identity of the artist becomes re-imposed on his or her work. In the museum catalogue we still read the artist's name, date and place of birth, nationality, and so forth. (That is why modern art wanted to destroy the museum.)[10]

What Groys probably means with the use of the term "the internet" in his text is the database structure or logic of the World Wide Web as a way to structure the experience of ourselves and the world, and not the literal use of the word. Manovich formulates the consequences of structuring the world and the self in database structures as follows:

> Indeed, if after the death of God (Nietzsche), the end of grand Narratives of Enlightenment (Lyotard), and the arrival of the Web (Tim Berners-Lee), the world appears to us as an endless and unstructured collection of images, texts, and other data records, it is only appropriate that we will be moved to model it as a database. But it is also appropriate that we would want to develop a poetics, aesthetics, and ethics of this database.[11]

Applying database logic to the museum and collection presentations seems to be a reflection of current, existing information structures in society, which does not seem strange since the museum has always represented its social environment in which it is embedded, in addition to ways of thinking and ordering a certain point in time. Just like seeking new ways to present museal collections, questioning existing museal narratives and the current debate about ahistoric and discursive exhibition models are characteristic to the present. The advent of the Internet as we know it has made it easier to conceive non-narratives. The anti-narrative character of the Web is caused by the fact that when certain

elements are added online, the result would still be a collection of elements and not a story, and therefore without any cause-and-effect kind of narrative. Manovich is convinced that database and narrative are therefore natural enemies: "Competing for the same territory of human culture, each claims an exclusive right to make meaning out of the world."[12] I would argue that the database is perhaps just another narrative or form of narrative.

Digital reproduction

Photographic reproduction and André Malraux's concept of the *Musée Imaginaire* broke with physical geographical boundaries and made new combinations—and therefore interpretations—of art objects possible. Thereafter, digital reproduction techniques brought endless possibilities for art institutions in digitizing their collections. The fact that users can search for any artwork on (museum) websites and in collection registration software, or even on Google, makes the individual artworks appear as if they are not embedded in any kind of context. Pepi calls this "A stream of 'free,' 'open,' and decontextualized image files that are organized for retrievability by an algorithm," and these are, according to him, an "affront to the museum's subject."[13] Almost all of the decontextualized database images need to be framed in narrative terms in order to obtain meaning. Of course, artworks are always embedded in some kind of context—the environment and period in time in which they are made by the artist, the acquisition by the museum, and past exhibitions that showed the artwork—which a database will never take into account when sorting out its data, unless it is instructed to do so. The context determines and influences the value of an artwork to a great extent. But in the "Epistemology of Search," as David Joselit calls it in After Art, value is mostly generated through indexing and connectivity:

> Art can establish a wide variety of connections simultaneously: after art comes the logic of networks where links can cross space, time, genre, and scale in surprising and multiple ways.[14]

A discrepancy can be found when comparing the same physical artwork in a museum or museum depot and its digital reproduction in a database, since the actual physical artwork is bound to the space in which it exists and cannot float around as easily as its digital twin.

Connecting characteristics

A good example of contemporary "curating," or collecting based on a large online database and algorithms, is the website and free online platform Artsy, led by Carter Cleveland and Sebastian Cwilich, which aims to "make the all the world's art accessible to anyone with an Internet connection."[15] Artsy allows users to build their own online collections based on real, existing artworks that can actually be bought, which functions like some kind of modern version

of Malraux's Museum without Walls. The foundation of the website lies in its classification system and technological framework, The Art Genome Project, which "maps the characteristics (we call them 'genes') that connect artists, artworks, architecture, and design objects across history."[16] Just like the algorithms on Amazon and Facebook, The Art Genome Project recommends other artworks to users based on personal taste and previous choices. This classification system has been criticized for making oversimplified connections between works based on characteristics like subject, style, and movement.

As I see it, the museum never is and never will be a pure database, because it collects and exhibitions physical objects—with the exception of Internet art and performance art—that must be framed in some kind of narrative, which can be the traditional art historical canon, an overlapping theme, or simply museal context. Applying database and algorithmic logic to the museum in the search of a non-narrated collection presentation seems to be somewhat ideological, as these techniques are not completely neutral or democratic. Human decisioning is still required for systems to work.

Thinking about the museum as a database and collection presentations made by algorithms enables new ways of thinking about current practices. It questions the role of the human curator and his or her personal taste, and also challenges the role of the museum and the objects it collects in today's society, where almost every physical artwork has a digital reproduction. The fact that exhibitions made or chosen by algorithms, as seen in Zürich, have become more common seems to be a reflection of our present lives, shaped by algorithms. And since the museum usually reflects the society in which it is embedded, experimenting with database logic and algorithms does not seem strange. It is important that these new models and techniques are critically analyzed, for they are not purely democratic and neutral, but developed and used by large capitalist companies.

Manique Hendricks (1992) studied art history at the University of Amsterdam, graduating in 2015 with a thesis on post-internet art and the notion of authorship in the digital age. She is currently enrolled in the MA Heritage Studies Museum Curator at the University of Amsterdam and works as a curator in training at the Stedelijk Museum Amsterdam, which is an essential part of the master's program. Fascinated by the influence of Web 2.0 and the digital revolution on society, cultures, and art, she organized an exhibition on Internet art on the social networking site Tumblr in 2015 at 37PK, an art platform and exhibition space in Haarlem, and also wrote an article on the same subject for Simulacrum. Manique was involved with producing an exhibition on Mohamed Bourouissa, which opened in September 2016, and is presently working on the Ed van der
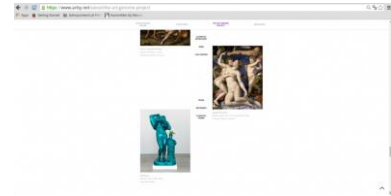

Fig. 5 Artsy.net, screen capture, accessed September 2, 2016, https://www.artsy.net/about/the-art-genome-project. Artsy connects Agnolo Bronzino's Allegory with Venus and Cupid with the Metallic Venus of Jeff Koons based on the subjects Venus, movement, and classical figure.

Elsken retrospective, which is planned for February 2017, both at the Stedelijk Museum Amsterdam.

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6. Christian Nagler and Joseph del Pesco, "Curating in the Time of Algorithms," *Fillip* 15 (2001).
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10. Ibid.
11. Manovich, *The Language of New Media*.
12. Ibid.
13. Pepi, "Iconology in the Age of the Algorithm."
14. David Joselit, *After Art* (Princeton and Oxford: Princeton University Press, 2013).
15. "About," Artsy.net, accessed September 2, 2016, https://www.artsy.net/about.
16. Ibid.