Introduction

In 1999, I published a special issue for the *Artificial Intelligence & Society* journal, “Database Aesthetics, Issues of Organization and Category in Art.” In order to make working with the authors easier, I replicated the progress of the book on the web as it was emerging and kept updating the website until completed. As with many academic journals, this one was printed in limited numbers and distributed primarily in the UK. The working site remained online and was soon discovered by a number of people and cited frequently. Even one of the editors of the *Electronic Mediation* series, Mark Poster, who approached me to expand the Artificial Intelligence issue into a book, found the website before getting a copy of the printed journal.

With computers getting much smaller, faster, and more ubiquitous since 1999, so much had changed that it was impossible to simply redo the *AI & Society* journal and thus, this anthology became a much larger project than we first envisioned. In the meantime, the genome has been decoded, biotech has become a new field for artistic engagement, and many more media artists emerged with online works deliberately manipulating databases.

This compilation of essays is not about the technical aspects of computer databases. It is a collection of essays that begin to show how an aesthetic emerges when artists take on the challenge of creating work using the vast amount of information we are bombarded with as material. As an artist working with networked technologies for the past fifteen years, I have discovered that one has to be conscious of the information overflow and develop a philosophy in relation to handling large amounts of data. This is particularly true with interactive work that generates even more information with audience participation. As a professor in the field of media arts, I have realized that too often novice media artists and designers develop work first, and then turn to thinking about how to store and manage the data as an afterthought. This results in many
awkward pieces that utilize preconceived notions of organization which may actually contradict
the meaning of the piece itself. The core message of this volume is that one has to first research,
collect, and survey data that is needed for the work envisioned, then decide how the database
design and engine will reflect the concept appropriately. In other words, artists working with
computer technology have to think of the invisible backbone of databases and navigation through
information as the driving aesthetic of the project.

During the final stages of compiling this volume I co-taught a graduate seminar with
Mark Hansen.¹ We decided to admit as many people as applied in order to amplify the very
problem the class addresses--how does one design a situation that involves too many people, and
consequently, too much information? A class that typically would have no more than ten
students grew to twenty-seven. To complicate matters even more, we opened the class to
disciplines outside of the arts and allowed students from information science, geography,
statistics, and film studies to participate. The first assignment was to come up with a database of
the self using any media. This immediately confronted students with issues one faces when
starting to imagine a project that would forefront how information is organized as an aesthetic
and philosophical challenge. How does one begin to define oneself in terms of information? The
editing process immediately becomes apparent--what do you make public and what do you keep
archived and private? Do you use your genome or your social security and credit cards numbers
as part of your identity? Do you use your body parts, clothes, and belongings? Would you
include your relations with others as a way to define yourself? Are you an open or closed, or
semi-closed system? What media do you use and can it be exhibited, archived, and retrieved?
Almost all issues that are raised in this book came up instantly when faced with databasing the
self.
Students responded with the widest spectrum of approaches--from a photographic representation of a room that included books and personal belongings, to barcodes on all personal objects, to credit cards, Power Point presentations of research in information studies, to traces of daily steps, to computer that represented the process learned by watching.2

Once we surveyed the ideas, they were challenged to think how they would create a database of the class projects. We did not go as far as asking them to actually do this because we knew this would be a huge project that would last years and involve teams of people. The goal was to present them with the daunting problem that many are not aware of when designing database systems--how does one represent the information without dehumanizing it? This question is central to this compilation of practicing artists who are consciously addressing this issue in their creative work. Although not a new preoccupation, it is certainly amplified in the age of ever increasing speed of computing power, miniaturization and ample storage availability.

The Practice of Database Art

Archives and databases offer artists a vehicle for commenting on cultural and institutional practices through direct intervention. Art itself has been recognized by conceptualists as an institution with all the training of product production, display, and consumption--and artists themselves have made us conscious of these issues in many cases better than historians, anthropologists, or even sociologists. From the beginning of the twentieth century, the art world has been slowly deconstructed and dissembled by the very artists the institutions were promoting. In parallel, communication technologies have reinforced much of this work, and as an entire new generation of artists and audiences emerge, we are bound to witness an acceleration of change. The most promising arena for conceptual work in the twenty-first century
is already in place as the archives and database systems are being developed with dizzying speed. It is in the code of search engines and the aesthetics of navigation that the new conceptual field work lies for the artist. These are the places not only to make commentaries and interventions, but also to start conceptualizing alternative ways for artistic practice and even for commerce. As new institutions and authorities take shape right in front of our eyes, we must not stand by in a state of passive disbelief, for it is possible that history could repeat itself, which would leave current and future artistic work on the net as marginalized as video art.

Artists have long recognized the conceptual and aesthetic power of databases, and much work has resulted using archives as a deliberate base for artistic endeavours. In view of activities such as those cited above, this is a rich territory for artists to work in—and on many levels. Databases and archives serve as ready-made commentaries on our contemporary social and political lives. Even museums as institutions and the general societal attitude towards art objects can be viewed and dissected from this perspective. The gallery becomes the public face while the storerooms are its private parts, with the majority of the collection residing there. Storerooms are places where artwork resides cut off from the critical arena and in the graceless form of regimented racks. Artists have produced work that comments on these dynamics of collection and display by museums, the institutions they have traditionally depended on. Let us consider some art practices in this domain before moving into how contemporary artists working with digital technologies are responding to knowledge organization and production described above.³

Marcel Duchamp’s Boîtes-en-Valise is seen as the first critique of museum practice: “[it] parodies the museum as an enclosed space for displaying art… mocks [its] archival activity… [and] satirically suggests that the artist is a travelling salesman whose concerns are as promotional as they are aesthetic.”⁴ After publishing an edition of three hundred standard and twenty luxury versions of The Green Box,⁵ Duchamp devised a series of valises that would contain miniature versions of his artwork to be unpacked and used in museums. He
commissioned printers and light manufacturers throughout Paris to make three hundred-twenty miniature copies of his artworks and a customized briefcase to store and display them: “In the end the project was not only autobiographical, a life-long summation, but anticipatory as well. As an artwork designed to be unpacked, the viewing of Valises carries the same sense of expectation and event as the opening of a crate.”

In the 1970s and 80s, artists such as Richard Artschwager, Louise Lawler, Marcel Broothers, and Martin Kippenberger have commented on museum practice using the archiving and packing practice as an anchor. Ironically, storage of fine art in many cases is more elaborate and careful in execution than the very art it is meant to protect. Perhaps anticipating the art of ‘containers’ of interface to data, Artschwager takes the crate and elevates it to an art form by creating a series of crates and exhibiting them in museum and gallery exhibition spaces.

Similarly, Andy Warhol (an obsessive collector in his own right) curated a show at the Rhode Island School of Design that consisted entirely of a shoe collection from the costume collection, shelf and all. The show was part of a series conceived by John and Dominique de Menil, who were interested in bringing to light some of the “unsuspecting treasures mouldering in museum basements, inaccessible to the general public.”

Artists working with digital media, particularly on the networks, are acutely aware of information overflow and that the design of navigation through these spaces has become a demand of aesthetic practice. One of the first artists who used the World Wide Web early on with the now obsolete Mosaic browser was Antonio Muntades. Muntades’s project, File Room, was devoted to documenting cases of censorship that are frequently not available at all or else exist somewhere as dormant data. Similarly, Vera Frankel has created an installation that extends out onto the Web and addresses issues of collection of art, specifically of Hitler’s obsession:

A particular focus of these conversations has been the Sonderauftrag (Special Assignment) Linz, Hitler’s little publicized but systematic plan to acquire art work by any means, including theft or forced sale, for the proposed Führermuseum in Linz, his
boyhood town. Shipped from all over Europe to the salt mines at the nearby Alt Aussee, the burnt collection was stored in conditions of perfect archival temperature and humidity, until found by the Allies after the war: cave after cave of paintings, sculptures, prints and drawings destined for the vast museum that was never built.  

Frankel invites other artists to contribute their own narratives, works, and bibliographies to the work, thus making the piece itself become a kind of archive whose content does not belong to one artist alone. Fear of the loss of originality and the revered artist personae is frequently connected to the endless reproductions that the digital media affords. Another source of fear for artists confronting the new technologies is the integration of individual artists into the context of other works or creation of meta-works. Of course, this is not a fear for those who have taken on a broader view of what ‘originality’ may mean. Ultimately, artists working with digital media necessarily work in collaborative groups and are context providers. Indeed the development of context in the age of information overload is the art of the day. This is particularly true of the current artistic practice on the net in which artists frequently co-opt and summon work and data of others. One of the by products of a 'global culture' is the emergence of meta-structures that include physical architectures, software such as the browser technology that allows us to view information on the Internet via the WWW, and artworks that are meta-art pieces, including work not only by other artists but by the audience itself.

Artists working with the Internet as a medium are essentially concerned with the creation of a new type of aesthetic that involves not only a visual representation, but invisible aspects of organization, retrieval, and navigation as well. Data is the raw form that is shaped and used to build architectures of knowledge exchange and as an active commentary on the environment it depends on--the vast, intricate network with its many faces.

In an age in which we are increasingly aware of ourselves as databases, identified by
social security numbers and genetic structures, it is imperative that artists actively participate in how data is shaped, organized, and disseminated. The collapse of the Berlin Wall, broken with the help of communication technologies, marked the beginning of collapse for many walls of categories. In this context, artists become information architects helping to usher in this new way of working, thinking, anticipating, and helping to visualize new structures.

My purpose in this book is not only to show the thinking in relation to databases of practicing artists, but also to raise awareness to a wider audience about the importance of considering how our social data is being organized, categorized, stored, and retrieved. Too often this process is an extremely dehumanized system, even though societies are defined by the way we organize our information. This book is precisely concerned with accomplishing this end through its focus both on how data is given life and how information is shaped into knowledge. Implicitly, this is also about the need for us all to realize that artists should be increasingly involved in this work, or at the minimum, have an awareness of database construction and their placement. All who have contributed are not only contextualizing themselves from this point of view but are also actively participating in practice.

While compiling this book, I realized that there is a large body of work by artists working in digital media who consciously employ databases and use them for aesthetics and the critique of established systems of organization. It also became clear that many artists like me are almost forced to write about our work because it changes so quickly that it is difficult for humanities scholars to keep track and gain an understanding of what it is that we do. This is another reason that the majority of authors in this volume are practicing artists and others included are curators who actively work with artists engaged in digital media in its many forms.

I begin this volume with an overarching, broad survey of how databases are shaping our
collective reality, fully realizing that I am only scratching the surface and that the information is changing as I write. My goal is to give a sense of context that artists respond to by observing, critiquing, and directly engaging the infrastructures of databases in our creative work, exposing the invisible realm that is rarely connected to the idea of creativity and even less to any kind of aesthetics. My overview is followed by Lev Manovich’s essay, “Database as Symbolic Form” that was published in the AI & Society special issue and later grew into a chapter of his much celebrated book, Language of New Media, in which he brings up the relationship of database and film and puts forward that notion that the new language of the computer age is indeed the database. After a wonderful, shorter overview that almost summarizes my introductory essay, Manovich goes on to make a connection to an emerging new narrative that has a direct relationship to databases. His text is an essential one for anyone wishing to have an understanding of why an artist would take the time to ponder on databases that seem so uninteresting at first glance. He states that …“new media artists working on the database/narrative problem can learn from cinema as it is; cinema already exists right in the intersection between database and narrative.” With this poignant connection of the importance of database and cinema, it only made sense to invite Grahame Weinbren, a pioneer interactive artist and theorist who has worked with cinematic issues in his installations since the early 1980s. Weinbren is also the editor of the Millenium Film Journal that publishes articles on experimental and avant-garde cinema, video, and more recently works that use new technologies. In his essay, “Ocean, Database, Recut,” he uses Salman Rushdie’s book, Haroun & the Sea of Stories, as an example of literature that uses non-linear structures as cinema should, instead of the tyranny of linear thinking that we have been subjected to since the nineteenth century in both literature and cinema. Thus, right at the outset we have a dialogue developing between authors in this volume.
Weinbren disagrees with the introductory stand of Manovich where he puts forward that narrative is replaced by database. Instead, he proposes a less radical approach that would reconsider the narrative in light of the database. To prove his point he once again returns to Rushdie’s story in which he sees the ocean as deep, changeable, and fluid—a giant library that is always in flux. He also uses the tragic day of 9/11, which he felt powerfully living in downtown New York, as an example of how an event can take on many narratives depending on the person retelling the story, their background, placement, and attitude. Each person presents one facet and only the collection of stories from different perspectives can gives us a relatively accurate picture of what really happened. And so it is with the idea of databases and aesthetics. These two authors follow my narrative with a cinematic perspective, from a very different point of view, offering the reader not only a choice, but also much to consider.

Norman Klein continues this literary/cinematic thread with his own brand of non-linear thinking and writing that makes unusual connections and observations that are at once satisfying and sobering. “Data reminds us that we are being colonized by our own economy, outsourced and psychologically invaded,” he writes. A writer who works with memory, presence, and absence, Klein very quickly discovered that the book does not suffice as a database narrative and in the early 1990s started collaborating with media artists on developing works on CD-ROM and DVD that include the endless images accompanying his complex thoughts. Bleeding Through is one such project that he describes in his essay as he links to Virginia Wolf, Baudelaire, and Marquez’s Hundred Years of Solitude, among others. To me, Klein represents a true contemporary writer who is able to make connections between a myriad of seemingly unrelated people, events, and facts in an almost poetic way. Notice that he too mentions Manovich, albeit in passing.
Christiane Paul further continues the discussion on narratives in her essay, “The Database as System and Cultural Form: Anatomies of Cultural Narrative.” After giving us her very clear definition of database aesthetics, she goes on to present different data models which will prove helpful to the reader as the works discussed by artists are presented later in the volume. She puts forward the tension between the linear and hierarchical structures of databases and the seemingly infinite possibilities of reconfiguring the information within these structures. As a curator and theoretist, she has been attracted to artists who work consciously with this tension such as the Radical Software Group (RSG), Mathew Fuller, and Maciej Wisniewski. Paul gives a very good overview of a group of artists--some of whom are represented in this volume--who largely work outside of the established museum systems, using the Internet as a creative field. She also brings up Manovich’s claim that “narrative and databases are natural enemies,” and instead offers that computer games are often narratives whose constituent elements are still organized in a form of database structure. By now the reader will most likely agree with Paul that databases are another form of narrative and not “competing for the same territory of human culture, each claims an exclusive right to make meaning out of the world.” As we discover the vastness of possibilities presented to us by the World Wide Web database alone, it is easier to envision the ocean, forever in flux, endlessly deep, and vast as the metaphor of choice. Still, it is useful to start with the polarities, lest we drown by plunging into the information ocean first.

Steve Dietz, another curator of media arts whose interest centers largely on network based artworks, continues the narrative with a short historical background and then presents another group of artists who work with databases. Dietz established himself as the Director of New Media Initiatives at the Walker Art Center, a building with eight floors. He was in charge of the online Gallery 9 that resided, famously, on the ‘ninth floor.’ He eventually left the museum
institution to be a freelance critic and curator. In his essay he gives us an overview of artists who have approached the subject of archiving and databases such as the *Unreliable Archivist* by Janet Cohen, Keith Frank, and Jon Ippolito who directly shake up ideas of purified categories to which museums tend to cling. He also discusses Muntadas’s historical *File Room*, an artwork that set a precedent for database works that are politically based by allowing free input of information in relation to censorship. Dietz also brings up the important relationship of databases and bodies as “memory archives” by commenting on Kac’s “Time Capsule,” presented by the artist at the end of this volume.

Memories and embodiment are of central concern to Bill Seaman who calls his essay “Recombinant Poetics.” Bill spent a number of years developing a work called the *World Generator / The Engine of Desire*—a virtual world generating system that specifically draws on the potentials of the database aesthetic. Much of the conceptual work was influenced by his research of the *Memory Theatre* by the sixteenth century thinker Guillo Camillo,¹⁰ and with research on how DNA works. In other words, Seaman created an artwork with an endless set of potential stories, as do Weinbren and other artists that work consciously with large sets of information.

Seaman is followed by the essays of the artists Sharon Daniel, Warren Sack, and Robert Nideffer who are theoreticians in their own right and contextualize their work with philosophical and socially conscious stances. All three come from different backgrounds—which is evident in their intellectual approaches to the work they do. Daniel’s earlier work focused on performative and experimental video, and as she moved to exploring the Internet as the creative space of choice, her work became progressively socially activist. Appropriately, her approach to database is influenced by reading Foucault’s interpretation of the “work” and the “author.” Daniel’s
approach to narrative questions the idea of the author as the sole creator: “the individualization of the author provided a context for the objectification of the work as both unity and commodity.” The argument for a fluid, complex, and non-linear narrative is intensified in her introductory section and is further elaborated in the description of her works that show her attitude towards narrative in action. She repeatedly brings up the tension of the individual and the collective, the illusion of a solitary author, and the importance of the collaborative process, preparing us for Warren Sack’s “Network Aesthetics.”

Sack is a software designer and media theorist who works in creating systems in information architecture and the topology of social relations. In other words, he develops ways to visualize the invisible tracks left behind by people connecting and interacting—directly and indirectly—on the Internet. As vast and deep as the Internet is, we still have a flat, and to a large degree, linear access information. Sack heads the Social Technologies Group (STG) at UC Berkeley where he leads research that moves away from network architecture (connections between machines) and information architecture (connection between people and machines), to discourse architecture which connects people to people via the networked public space powered by computers. Again, we return to the idea of narrative, but this time in a much more expanded manner. He brings into the discussion the use of Artificial Intelligence (AI) in designing systems that allow for discourse architecture to emerge. Here the reader will be introduced to the background and core concepts of AI before going further into how one may design systems with “common sense.” He continues with a similar philosophical base that we encountered in Daniel’s essay, elaborating on AI using Kant, Deleuze, Husserl, and Heidegger among others, as his philosophical underpinning. It is interesting to see how this philosophical influence comes to life.
with work that mirrors this thinking in networked spaces that are designed to actively engage and expose these dialectics.

Sack’s network aesthetics is followed by Robert Nideffer’s exposure of the game engines that power the experience of playing computer games. Christiane Paul brought up games as an example of a new type of narrative and Nideffer demonstrates how the engine and the player work together as indexical pointers to a significantly extended notion of database. Nideffer received his doctorate in social sciences before shifting to media arts with a focus on computer games. In his essay, he makes a strong point of the importance of designing systems that allow flexibility and structural changes of game worlds and game engines. Even though computer games are a relatively new phenomena, the market for this activity developed with dizzying speed with the unfortunate consequence of formalizing the aesthetic at a very early stage. The dissatisfaction that Weinbren voices over cinema remaining in the linear realm (except for the few examples in the artist and avant-garde film and video), is already felt with the gaming industry. Many artists became interested in games as a creative space but find themselves confronted with equally monstrous market machines as did the film industry. Nideffer’s essay offers a solid background in the evolution of games before he leads the reader behind the scenes, exposing the invisible aesthetic of the gaming engine.

This brings us to the second section in which artists give a more descriptive accounting of their works. Nancy Patterson describes her wonderful Stock Market Skirt piece that is at once funny and disturbing with its many layers of meaning; Lynn Hershman gives a retrospective accounting of her database work with identity that moves from analog to digital media; George LeGrady describes his long term project, Pockets Full of Memories, in which he designed a system for the audience to continuously add to the memory database by scanning in their objects;
Eduardo Kac plunges us into the animal database with implanted chips through his work, the 
*Time Capsule*; and John Klima gives us an example of the eco-system as a database aesthetic. 
Finally, Marko Peljhan describes his work *Polar*--a piece that combines the biological and 
physical with the abstract and the immaterial using the computer network and database. This 
comes full circle from Weinbren’s metaphor of database as an ocean. Indeed, echoing Weinbren, 
Peljhan says that “the work was inspired by the notion of the cognitive 'ocean' as described 
respectively in Stanislaw Lem and Andrey Tarkovsky's *Solaris*.11

Working on this book has been difficult as it was almost impossible to pin down the 
meaning of database art. At some level, the vastness of human knowledge and experience 
enencoded in a type of information that is in some way or other organized and then networked is 
beyond comprehension. It is more than we can grasp as individuals, so it is important to 
collaborate and to recognize the collective network we are all part of. In light of this, an 
accompanying website that will become a database emerging from this collection of essays will 
continue the dialogue and no doubt expand it in more ways than one.

Note: As an adjunct of this book, an expanded version will be on a web site, 
http://vv.arts.ucla.edu/DBA, and all artists who will be included will be listed in the last section. 
The Database Aesthetic site is a long-term project that will be continuously making connections 
as a living artistic organism.

1 Mark Hansen is a statistician who joined the UCLA faculty in the Department of Statistics and Design | 
Media Arts after working at Bell Labs. His collaborative database art project, *Listening Post*, with artist 
Ben Rubin, won a Golden Nica at the 2004 Prix Ars Electronica.
More information about the class can be accessed through the Database Aesthetic website, http://vv.arts.ucla.edu/DBA.

Curators who responded and understood artist’s comments on the culture of storage, archives, and preservation of art have the opportunity of participating and commenting on this practice. One of the most impressive examples of this kind of work is a recent exhibition titled Deep Storage, organized by Ingrid Schaffner and Mathias Winzen. This show perhaps marks the end of the era of analogue archiving and the beginning of an era of digital archiving. A few projects are included in this show that point to the next step of artwork generated by digital archiving and databasing.


The Green Box is actually entitled The Bride Stripped Bare by her Bachelors, Even. The nickname is coined to distinguish The Box from Duchamp’s masterpiece, a sculpture of the same title produced between 1915 and 1928, and known simply as The Large Glass.


File Room is located at: http://fileroom.aaup.uic.edu/FileRoom

Memory Theatre was a work by the sixteen century thinker, Giulio Camillo. For more background on Camillio and the theatre, please visit http://switch.sjsu.edu/switch/sound/articles/wendt/folder6/ng6211.htm

Solaris is a film adaptation of Stanislaw Lem's science fiction novel by Russian filmmaker Andrei Tarkovsky, (1972, USSR, 165 mins).