```
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
------------- [ INTRODUCTION ]  ------------------------------
```

> Today's art world includes artists who either use digital
> technologies to make and display art (alone or in combination
> with older analog technologies), use the Internet and social
> media in innovative ways to reach and involve audiences, and/or
> make art that responds to issues raised by the Internet, social
> media, and other aspects of the virtual world. [1]

This annotated bibliography began with the original intention to focus on the last component of contemporary artistic practice as listed above: art that responds to digital culture. However, throughout the course of my research, I found that considerations of such art was essentially inextricable from discussions of the use of digital technology as a medium in the creation of art. Several resources also touched upon the use of the Internet in terms of audience expansion.

To guide this research at the intersection of technology, art (in particular, contemporary art, art history, and theory), and digital culture, I propose the following thesis:

> *Art examining digital culture can effectively enhance human understanding of how technology and culture are connected, acting as a mirror to society and interrogating the ways in which technology is changing the world and influencing humanity's future.*

---

[1] Robertson, Jean and Craig McDaniel, *Themes of Contemporary Art: Visual Art After 1980*. New York: Oxford University Press, 2017, 23-24.

Art which utilizes technology or otherwise inserts itself into the digital world is most effective at exploring these ideas.

So, this bibliography takes the form of a fairly broad overview of the impact of our increasingly digital world on art and society, covering all three of the ideas posed in the opening quote from Robertson and McDaniel. However, my thesis helps to focus my literature review in a way that emphasizes how artists grapple with technology-related themes in their work.

I have organized this bibliographic text into five sections.

The first two, ART and INTERNET, widely cover art in the digital age, and the effects of the Internet on artistic practice as well as its influences on humans in a general sense.

The third section, AESTHETIC, builds upon the themes of ART and INTERNET, focusing on the work and theories of James Bridle, an author and artist who first proposed the idea of the New Aesthetic -- which is not the name of an art movement per se, but rather an all-encompassing term related to our newly networked society and how art relates to it.

The fourth section, IMAGE, narrows in on a particular facet of our digital age: the rise in popularity and ubiquity of photography, and the consequences of constant image creation and circulation.

Finally, I end with IDEAS, an articulation of some of the common threads I noticed connecting multiple works, and my hopes for future research projects on this topic.

```
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
------------- [ CONTENT ]  -----------------------------------
```

ART

INTERNET

artist / web texts 2017 + 2018	Intelligence is not enough + Unintended Consequences Katriona Beale

AESTHETIC

book 2018	New Dark Age: Technology, Knowledge and the End of the Future James Bridle
lecture text 2014	Network Tense: How to Approach a Contemporary, Technologically-Mediated World James Bridle

IMAGE

book chapter 2016	I Shoot Therefore I Am -- from *Wasting Time on the Internet* Kenneth Goldsmith
book chapter 2016	Dream Machines and Eternidays -- from *Wasting Time on the Internet* Kenneth Goldsmith
book 2018	Public, Private, Secret: On Photography & the Configuration of Self Charlotte Cotton
book chapter 2012	The Spam of the Earth: Withdrawal from Representation -- from *The Wretched of the Screen* Hito Steyerl
tech news site 2013	How We All Learned to Speak Instagram Virginia Heffernan
journal article 2014	Point-and-Shoot Memories: The Influence of Taking Photos on Memory for a Museum Tour Linda Henkel

------------- **ART** ---

Artists who are exploring [digital media through visual art] are pioneers in helping us to confront what it means to live in a world of accelerated information flow from multiple channels and to find ourselves entranced by manufactured virtual worlds.

Meanwhile, many of the most interesting critical theories of the twenty-first century -- evolving from the emerging disciplines of media and visual culture studies -- take on the expanding varieties and sites of artistic practices as key areas of analysis. [2]

Contemporary art has been shaped by the evolution of technology and our current digital culture. How? What does *digital culture* mean?

---

[2] Robertson and McDaniel, *Themes of Contemporary Art*, 29.

figure 1

Peter Davis, *The Next Chapter*, 2017, from the series *Zeitgeist*. Acrylic on canvas; 20 x 16 inches.

Mayo, Sherry. "The Prelude to the Millennium: The Backstory of Digital Aesthetics." *The Journal of Aesthetic Education* **42, no. 1 (2008): 100–113. https://doi.org/10.1353/jae.2008.0009.**

Sherry Mayo is an American artist interested in arts-technology integration and hybrid studio practices. On her website, she self-identifies contemporary art and digital technologies' impact on culture as areas of scholarly interest. [3] *Journal of Aesthetic Education* is an academic journal directed to an interdisciplinary audience across fields of art and art history, education, and philosophy, and will be a good resource to come back to in further research.

This article provides a valuable and detailed investigation of the evolution of digital art(ist). Mayo details a timeline that connects the Experiments in Art and Technology (E.A.T.) of the 1960s to a proposed new model of the "artist-scientist" today. Throughout, she also mentions several theorists -- Youngblood ("All art is experimental, or it isn't art. Art is research," 104), Enzensberger, Benjamin, Darley ("a paradigmatic aesthetic shift...has taken place that coincides with the development of digital imaging," 105), Manovich, Sullivan, Wolf.

She defines postproduction artistic practice as manipulation of data, as an act of editing and mediating. She declares artists who work in this way "manipulators of the real, the unseen, and the subversive." Most relevant to my research interests were (1) her argument that artists who incorporate digital/postproduction practices "provide critiques of the technology they use and actively create new knowledge within their art making," and (2) her concluding words on page 113:

> The amount of personal fragments available to the researcher through online social networks is tremendous. These archives provide the evidence of identity formation impacted by digital culture. … What appears as diaristic folly or, worse, self-expressive exhibitionism is perhaps vital psychosocial and cultural data that needs to be mined for the benefit of a democratic future. It is this intersection of digital lifestyles, metaspaces

---

[3] Mayo, Sherry, "Who is Sherry Mayo? About Sherry," accessed November 2018, https://www.sherrymayo.com/who-is-sherry-mayo/.

for personal annotation, social networking, and cultural production that offers the artist a role as researcher and resurrects the avant-garde.

I am fascinated by her declaration that the vast amounts of information -- from selfies to status updates -- available online is "vital data" for the artist to consider, and naming of the artist as "researcher;" she is making explicit something that I also believe to be true but haven't really read elsewhere or ever written myself.

Manovich, Lev. "Ten Key Texts on Digital Art: 1970-2000." *Leonardo* 35, no. 5 (2002): 567–75.
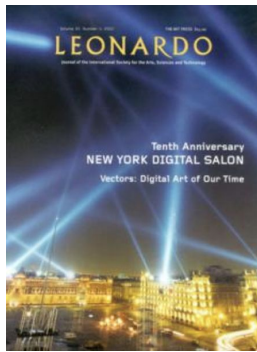
Lev Manovich is a professor of new media art and theory.

Manovich states that "any serious reflection on the social and cultural dynamics of our time has to engage with digital computing." He claims that artists' interest in critical theories of technology and culture -- as explored in texts about "a new functioning of space and time, info-subjectivity, new dynamics of cultural production and consumption," for example -- points to their desire to understand and engage with the ways technology has influenced society.

Again, here, E.A.T. is mentioned. He also mentions Sherry Turkle, in a sort of honorable-mentions list of authors of additional theoretical texts exploring the realm of technology-society-culture. I have several of her books, so this was encouraging in terms of validating some of the resources I have already amassed. He also mentions Marshall McLuhan, as did Sherry Mayo.

His ten key texts are:

- *Expanded Cinema*, Gene Youngblood, 1970.
- *The Computer in Art*, Jasia Reichardt, 1971.

- *Digital Visions: Computers and Art*, Cynthia Goodman, 1987.
- *Discourse Networks*, Friedrich A. Kittler, 1985/90.
- *Cyberspace: First Steps*, ed. Michael Benedikt, 1991.
- *Artintact 1: Artists' Interactive CD-ROMagazine*, ZKM Center for Art and Media Karlsruhe, 1994.
- *The 5th International Symposium on Electronic Art Catalogue*, eds. Minna Tarkka et al., 1994.
- *Mythos Information: Welcome to the Wired World*, eds. Peter Weibel et al., 1995.
- *Cybertext: Perspectives on Ergodic Literature*, Espen Aarseth, 1997.
- *DJ Culture*, Ulf Poschardt, 1998/95.

Youngblood was quoted extensively in Sherry Mayo's *Backstory of Digital Aesthetics*. I also thought it was interesting that two of Manovich's key texts were exhibition catalogues -- it would be interesting to locate them and see how electronic art was created and presented over two decades ago in comparison to our current "post-internet" era.

Carr, Nicholas G. *Utopia Is Creepy: And Other Provocations*, 2017.
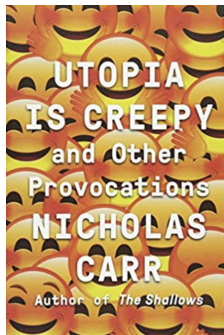
This book contains a collection of Nicholas Carr's essays on technology and society. He discusses McLuhan's insights into the effects of technology and media on society (*The Medium is McLuhan*, 102-106); and, in one piece, admits his fear that Kelly's proposal of online culture as *the culture* may be right (*The Amorality of Web 2.0*, 3-9).

I find Nicholas Carr's works particularly interesting because he has been writing on this topic since the early millennium. This book is not as academic as his others (one of which is summarized in INTERNET), which makes sense given the source and original form of its content--*Utopia is Creepy* is actually a compilation of his blog posts over the past few decades, bound and published in physical book form. However, while the "chapters" are short, I found that the ideas throughout were consistently thought-provoking -- although not all explicitly related to art and creativity.

One essay in particular is a rather sassy take on technology's effect on art and the proposition that the internet has wholly and positively democratized the creative process. It's short, and so I have copied it in full below.

THE MEANS OF CREATIVITY

October 14, 2007

I was flipping through the new issue of The Atlantic today when I came across this nugget from Ray Kurzweil: "The means of creativity have now been democratized. For example, anyone with an inexpensive high-definition video camera and a personal computer can create a high-quality, full-length motion picture." Yep. Just as the invention of the pencil made it possible for anyone to write a high-quality, full-length novel. And just as that saw in my garage makes it possible for me to build a high-quality, full-length chest of drawers.

Gere, Charlie. *Digital Culture*. **Expanded 2. ed. London: Reaktion Books, 2008.**
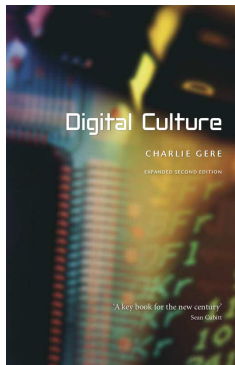
Charlie Gere is a professor of media theory and history. In this book, Gere aims to "map the changes we see" in how the Internet and digital photography and video are transforming our culture -- and "our very selves, how we understand who we are" (9-10). He proposes that digital technology is a product of digital culture, not the other way around (17), and provides an overview of the history of technology in society, its components (invention of computers, telephones, calculators, radio...) and historical contexts (from the 1930s to present).

He dives into the idea and history of "Cybernetics" and various philosophical/theoretical approaches to the understanding and criticism of technology, and notes a wide variety of musicians, artists, filmmakers and writers who have grappled with this theme in their work. He discusses structuralism, poststructuralism, postmodernism, cyberfeminism, deconstructionism,

techno, and cyberpunk. He, too, mentions Walter Benjamin's text "Art in the Age of Mechanical Reproduction" (199-200).

Notable quotes:

- "Marshall McLuhan once suggested that 'art was a distant early warning system that can always tell the old culture what is beginning to happen to it'" (116)

- "In a world dominated by computing technology the computer is no longer simply without 'emblematic or visual power', as Fredric Jameson puts it, but actually disappearing, becoming invisible. In this it reveals, in metaphoric form, a central aspect of our lives. In the developed world at least, we live in a society supersaturated by digital technology" (201)

- "Digital technology's ubiquity and its increasing invisibility have the effect of making it appear almost natural. The tendency to take it for granted can easily attenuate into a sense that it has evolved into its present form naturally, by way of a kind of digital nature. This naturalization is problematic … it ignores the complex human forces that determined its development and present importance" (202)

- "That so much of the technology we now take for granted was developed in the context of the Cold War raises some interesting questions. Underpinning the way we do business, produce media, entertain ourselves and communicate are technologies that bear all the trademarks of the Cold War paranoia that produced them" (203)

- "In particular we are arriving at a point where digital technologies are no longer merely tools, but increasingly participants in our increasingly participatory culture, for better or worse. The need to keep questioning our situation (with which I ended the Conclusion to the first edition of this book) remains more pressing than ever, especially as the technology itself is more and more invisible as it becomes an integral part of the very fabric of our existence" (224)

Gere particularly emphasizes that technology is both *invisible* in society today and essentially *inextricable* from it (or "integral," "supersaturated" as quoted above). This book was one of the more valuable resources I found. Gere provided an extensive and academic overview of the technical and theoretical background of "digital culture." Through his discussions of art forms exemplifying or exploring these ideas, he kept the text intellectually accessible (and interesting) as well as obvious in its relevance to my research.

Bishop, Claire. "Digital Divide: Contemporary Art and New Media." In *Mass Effect: Art and the Internet in the Twenty-First Century*, edited by Lauren Cornell and Ed Halter, 337-352. Cambridge, Massachusetts: The MIT Press, 2015.

Claire Bishop is an art historian and theorist. I am familiar with her as an author from reading excerpts of her 2012 book *Artificial Hells: Participatory Art and the Politics of Spectatorship*. She starts out *Digital Divide* with a line of questioning I found quite compelling:

> While many artists use digital technology, how many really confront the question of what it means to think, see, and filter affect through the digital? How many thematize this, or reflect deeply on how we experience, and are altered by, the digitization of our existence?

She notes (laments, really) that only some -- very few -- artists do engage with these ideas, stating that contemporary art has been "curiously unresponsive" to the "total upheaval in our labor and leisure" caused by the digital revolution.

She provides a short list of (three!) works that she feels adequately explore technology beyond a superficial or material level: Frances Stark's *My Best Thing* (2011), Thomas Hirschhorn's *Touching Reality* (2012), Ryan Trecartin's videos, including *K-Corea INC.K [Section A]* (2009). She continues:

> Each suggests the endlessly disposable, rapidly mutable ephemera of the virtual age and its impact on our consumption of relationships, images, and communication; each

articulates something of the troubling oscillation between intimacy and distance that characterizes our new technological regime, and proposes an incommensurability between our doggedly physiological lives and the screens to which we are glued.

I was quite surprised by Bishop's assertion that contemporary art is (was) failing to incorporate subject matter related to our digitized world. In 2012, she was only able to name three works that did this…? Was she looking hard enough? That said, I wasn't previously familiar with *Touching Reality* or *My Best Thing*, and found it valuable to learn about these works.

It was interesting to read about public critical response from the rest of the art world to this piece, and to read Bishop's response written two years later, *Sweeping, Dumb, and Aggressively Ignorant! Revisiting "Digital Divide"* (included in *Mass Effect* as the subsequent chapter). She explores the source of some of the tension surrounding *Digital Divide* and names some more artists who, in 2014, were exploring the ideas she thought were not represented in the art world. She closes with an interesting statement, proclaiming her belief that "the impact of the digital might be grasped not only in works of art that use its means, but in more traditional practices that reveal its impact obliquely" (355). I found myself starting to keep an eye out for this idea -- that perhaps more traditional practices are also critical in interrogating the "impact of the digital" -- in the rest of my research.
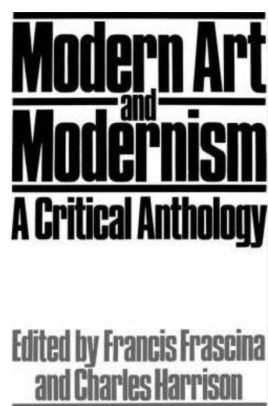
Frascina, Francis, Charles Harrison, and Paul Deirdre. *Modern Art and Modernism: A Critical Anthology*. London: Paul Chapman Publishing in association with the Open University, 1982.

This book was given to me by my grandfather a year or two ago as part of a purge of his art studio. It was one of the first books I paged through while doing initial research for this literature review, and I bookmarked *Art and Inquiry* by Nelson Goodman and *The Work of Art in the Age of Mechanical Reproduction* by Walter Benjamin as potential essays to read more closely. As I continued my research, I noted that Walter Benjamin's work was actually referred to fairly

frequently by other authors. I think that other essays in this book would prove useful in my continuing research.

I have compiled a selection of relevant quotes from these two pieces below.

from *Art and Inquiry*:

- "aesthetic experience is dynamic rather than static. It involves making delicate discriminations and discerning subtle relationships … interpreting works and reorganizing the world in terms of works and works in terms of the world … The aesthetic 'attitude' is restless, searching, testing -- is less attitude than action: creation and re-creation."

- "Perhaps no single, simple, significant feature neatly marks off all arts from all sciences and technologies, or all aesthetic from all scientific and practical experience. In some respects, certain arts may be less like others than like some sciences and technologies; and the traditional classification of objects and activities into the aesthetic and the non-aesthetic may be more harmful than helpful."

Both of these quotes reminded me of Sherry Mayo's framing of the artist as *researcher*.

from *The Work of Art in the Age of Mechanical Reproduction*:

- "Even the most perfect reproduction of a work of art is lacking in one element: its presence in time and space, its unique existence at the place where it happens to be … the presence of the original is the prerequisite to the concept of authenticity."

- Art in the age of mechanical reproduction "emancipates the work of art from its parasitical basis in ritual," reversing "the total function of art" to instead be based on politics

- "captions have become obligatory" for the first time with photography; they give directives to the viewer and "have an altogether different character than the title of a painting"

- "The painter maintains in his work a natural distance from reality, the cameraman penetrates deeply into its web … for contemporary man the representation of reality by the film is incomparably more significant than that of the painter, since it offers, precisely because of the thoroughgoing permeation of reality with mechanical equipment, an aspect of reality which is free of all equipment. And that is what one is entitled to ask from a work of art."

- "Painting simply is in no position to present an object for simultaneous collective experience"

- Film and filmed behavior has a "tendency to promote the mutual penetration of art and science" -- photography offers both artistic and scientific uses, which were previously separated in art

- "The history of every art form shows critical epochs in which a certain art form aspires to effects which could be fully obtained only with a changed technical standard, that is to say, in a new art form"

What is this "new art form" for our digital age?

"Experiments in Art and Technology - Bell Labs." Accessed November 20, 2018.

https://www.bell-labs.com/programs/experiments-art-and-technology/.

Experiments in Art and Technology

E.A.T. started in the 60s, as noted by Sherry Mayo in *Backstory of Digital Aesthetics*, but has evolved significantly since then in accordance with the advancement of technology and its role in our lives. It

went dormant for a few decades -- Bell Labs states that its ideas were "well ahead of their time," *too* avant-garde -- but is now active once again. "[As] art and technology have become deeply intertwined, with the rise of smartphones … creative software platforms, sophisticated digital image capture devices, and immersive, large scale digital displays … art and technology are becoming truly coupled, or perhaps even symbiotic." [4]

I have noted two of their Artists-in-Residence here, Sougwen Chung and Jeff Thompson.
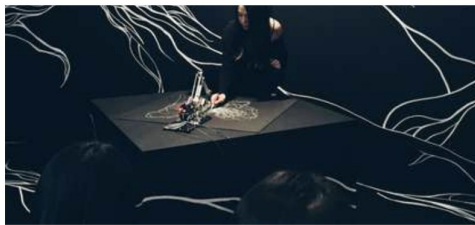
ARTISTS IN RESIDENCE

Sougwen Chung

Image, drawing, and performance, informing her multifaceted approach to experiential art.

Sougwen Chung self-identifies on her own website as "an artist & (re)searcher," whose works in sculpture, image, performance, and installation explore "the mark-made-by-hand and the mark-made-by-machine as an approach to understanding the interaction between humans and computers." [5] Here is an artist explicitly declaring/defining their role as a *researcher* in exploring digital culture, very much in line with Sherry Mayo's proposition in *Backstory of Digital Aesthetics*.

ARTISTS-IN-RESIDENCE

Jeff Thompson

Jeff Thompson is an artist exploring what can be revealed by making visible the material, social, and personal structures of computers and networked technologies.
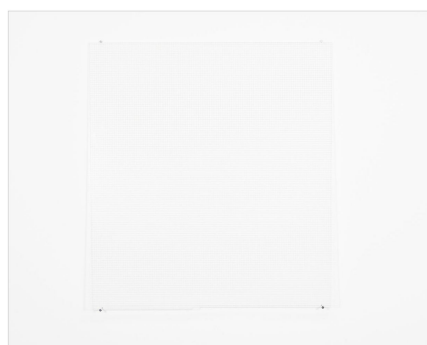
Jeff Thompson's work attempts to reveal the structures underlying networked technology. The description for his work *Blank Email Pixels* describes his engagement with making these ideas of visibility/invisibility on the Internet physically tangible:

Emails often contain tiny 1×1-pixel transparent or hidden images called "web beacons" used to track when the message has been opened. I gathered all 12,383 of these pixels in my email inbox and deleted mail folder. They were etched into a piece of clear acrylic and shown

---

[4] https://www.bell-labs.com/programs/experiments-art-and-technology/genesis-of-eat/
[5] http://sougwen.com/ and http://sougwen.com/info

leaning against the wall, an accumulation of ==invisible yet real== objects.

So many web technologies are hacks that transform the experience of being online in ways that are both hidden to the average user, and yet are easily seen if one knows where to look … web beacons are invisible signals, hiding in plain sight and transmitting information about how you use your computer. [6]

YEAR
2016

MEDIUM
Laser-etched acrylic

DIMENSIONS
11x12" (28x31cm)

TAGS
drawing, data, tracking, Python

BLANK EMAIL PIXELS

At the very bottom of Bell Lab's E.A.T. webpage, there is a menu link to another page titled "Research." Here, I learned about *Future X*, which seems to be a sort of manifesto for Bell Lab's (extremely positive) vision of our digital future (in which technology is extremely pervasive). Bell Labs claims that networking technologies may eventually redefine our existence, ushering humans into a new era:

This era will be shaped by the digitization and connection of everything and everyone with the goal of automating much of life, effectively creating time by maximizing the efficiency of everything we do and augmenting our intelligence with knowledge that expedites and optimizes decision-making and everyday routines and processes. [7]

Written by Bell Labs' president, Marcus Weldon, and first published in 2015, *The Future X Network: Enabling a New Digital Future* outlines this potential new era and the "key technological breakthroughs" it will require. I am not sure how I feel about this (an industrial research and technology company *writing a book* defining a very specific version of our technological future -- their version), but it would probably be a reasonable resource for further reading -- a research perspective from a clearly-defined corporate point of view if nothing else.

---

[6] http://www.jeffreythompson.org/blank-email-pixels.php
[7] https://www.bell-labs.com/our-research/future-x-vision/

-------------- ART ---
------------- **INTERNET** ---

Within the context of changes in modes of communication, human
behavior and thinking change.

...

Not everyone views the turn to the digital in a positive light,
considering the ramifications for culture in general as well as
for art. ... [Online] distraction can turn Internet users into
passive consumers without the mental space to reflect about the
meaning of what they are consuming. [8]

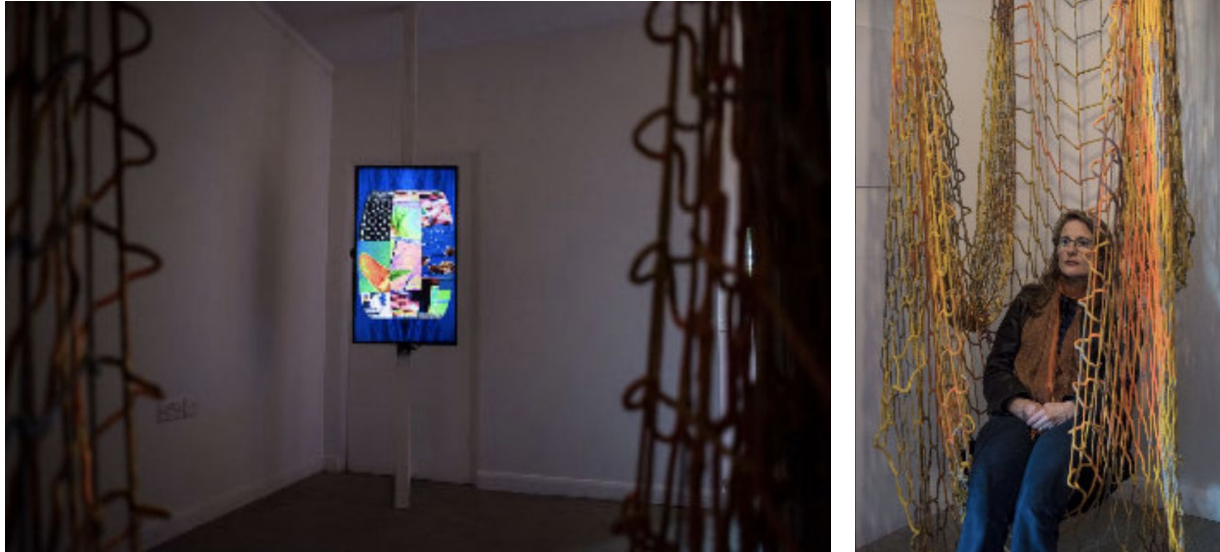[8] Robertson and McDaniel, *Themes of Contemporary Art*, 27-28.

figure 2

Katriona Beales, *Entering the Machine Zone*, 2017, exhibition view. From *Are We All Addicts Now?*, Furtherfield, London. Portrait flatscreen displaying interactive moving image work generated using Raspberry Pi, accompanying audio, with suspended seat made from suicide prevention netting; dimensions variable.

Groys, Boris. "Art Workers: Between Utopia and the Archive." In *Mass Effect: Art and the Internet in the Twenty-First Century*, edited by Lauren Cornell and Ed Halter, 357-368. Cambridge, Massachusetts: The MIT Press, 2015.
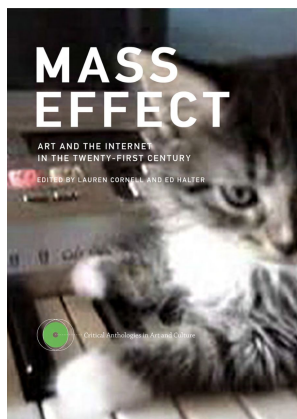
In this essay, Boris Groys posits that the conditions within which artistic work is produced have changed "drastically" with the emergence of the Internet (357). He claims that the Internet is "a machine of surveillance," creating "total visibility, accessibility, and transparency" (359). He discusses how creative work takes place in private, beyond public control. Postmodern art theory hoped that the process of reproduction would allow for dissolution of identity and the self; Groys quotes Douglas Crimp referencing, again, Walter Benjamin:

> through reproductive technology, postmodernist art dispenses with the aura. The fiction of the creating subject gives way to the frank confistication, quotation, excerptation, accumulation, and repetition of already existing images. Notions of originality, authenticity, and presence … are undermined (365).

On Benjamin's idea of the original versus the copy, he writes that on the Internet, "the circulation of digital data produces not copies, but new originals," and discusses how this circulation is traceable, registered, and dated (365). He discusses Marshall McLuhan.

He believes that the Internet will change "radically" with coming cyber wars that will destroy or at minimum significantly damage it. He closes with a discussion of the purposes and motivations of artists versus politicians. Both want to shape the future, but political practice "disappears in and through this future," whereas artwork remains. He claims that it is this anticipated future presence of art that affords it the ability to influence the future -- that guarantees it can.

Carr, Nicholas G. *The Shallows: How the Internet Is Changing the Way We Think, Read and Remember.* **London: Atlantic, 2010.**
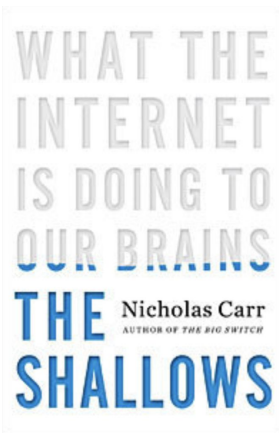
Nicholas Carr writes about how the Internet is changing humans -- on an individual basis, but then also how that is changing how we communicate and share and interact with each other.

I have read this book several times, but for this particular research project, I think Chapter Seven: The Juggler's Brain, and Chapter Nine: Search, Memory are most relevant.

In Chapter 7, Carr discusses how the Internet is essentially the latest in a long series of tools that have shaped the human mind (115). But he doesn't believe (nor does research support) that it's shaping our minds in a beneficial way. Some quotes:

- "When we're online … the real world recedes as we process the flood of symbols and stimuli coming through our devices," an effect he says is also amplified by the social interactivity of the Internet (118).

- He proposes that use of the Internet turns our minds into "simple signal-processing units," and notes Michael Merzenich's belief that the Internet can in fact "massively remodel" them (119-120).

- He introduces the term "hypermedia," which is the combination of hypertext with the technology of multimedia, resulting in words, images, sounds, and moving pictures that are electronically linked in their presentation on the Internet.

- Internet use has weakened our ability to think critically, imagine, and learn mindfully, instead promoting distraction and "superficial learning" (116). We are experiencing a de-evolution of our brains (reversal of civilization metaphor: from cultivators of knowledge to "hunters and gatherers in the electronic data forest," 138)

- The Internet ultimately compromises our ability to know things ourselves.

In Chapter 9, Carr discusses the relationship between books (and notebooks) and memory throughout history. He states the the Internet is now seen as a replacement for personal memory, not just a supplement to it. He quotes several technology writers who view this outsourcing of memory as a positive development, who argue in favor of the convenience of not having to store information in our brains anymore. He states that this is wrong. Biological memory and computer memory do not equate -- while computer memory is static, discrete, and unchanging, with a finite capacity, human memory "is in a perpetual state of renewal" and never reaches a point of "full" (191). He states that the more we use the Internet, the more we train our brain to be distracted:

> Our brains become adept at forgetting, inept at remembering. Our growing dependence on the Web's information stores may in fact be the product of a self-perpetuating, self-amplifying loop. As our use of the Web makes it harder for us to lock information into our biological memory, we're forced to rely more and more on the Net's capacious and easily searchable artificial memory, even if it makes us shallower thinkers (194).

He concludes with a discussion of culture and memory, stating that "offloading of memory to external data banks doesn't just threaten the depth and distinctiveness of the self," but also of the culture we all share (196).

I find that Nicholas Carr's works are excellent resources for inspiring further research, as he frequently quotes or name-drops philosophers, media theorists, neuroscientists, psychologists, and other scientists and scholars working in related realms of inquiry. While his inclusion of art-related ideas is minimal, he does reference media theorists and other experts whose work bridges the gap between creative fields and technical fields.

Goldsmith, Kenneth. "Chapter 4: Archiving is the New Folk Art." In *Wasting Time on the Internet*. **First edition. New York: Harper Perennial, 2016.**

Goldsmith introduces the idea of "digital readymades," relating the objects (images, text) we find and collect while browsing the web to Duchamp's "[collapse of] the distinction between artist and shopper" (124).

Pinterest in particular is Duchampian according to Goldsmith, as all Pinterest content is either a ready-made or a collage of preexisting images (127). He relates Pinterest back to theories of art history: "Each image is at once both unique and cloned, reverbating with modernism's constructivist methods of collage and assemblage, as well as postmodernism's mimetic strategies of appropriation and sampling" (127). He, too, quotes Walter Benjamin when discussing the relationship between collecting and making.

Like several of the other authors in this collection, he discusses the problematics of the invisibility of the Internet's structure and how we take it for granted, stating "When we use an apparatus extensively, it becomes invisible, as we become completely subsumed by content" (125). He mentions media theorist Matthew Fuller.

He argues that our collection and arrangement of digital objects on Pinterest, Instagram, and Spotify are "contemporary expressions of folk archiving," an idea first posited by Rick Prelinger (129). He discusses examples of artworks that "concretize digital data into physical objects," acting as "stunning materialization[s] of the quantity of digital culture" (142). I think Jeffrey Thompson's *Emails* piece is another example of this type of art.

In a parallel to Boris Groys' *Art Workers: Between Utopia and the Archive*, he closes with a note of the distinction between politics and art, although here he is more concerned with the cost and consequences of taking political versus artistic action. He quotes Ludwig Wittgenstein: "Do not forget that a poem, although it is composed in the language of information, it is not used in the language-game of giving information," stating that this is the very "freedom and beauty" of art.

Quaranta, Domenico. "Internet State of Mind: Where Can Medium Specificity be Found in Digital Art?" In *Mass Effect: Art and the Internet in the Twenty-First Century*, edited by Lauren Cornell and Ed Halter, 425-438. Cambridge, Massachusetts: The MIT Press, 2015.

Domenico Quaranta discusses how contemporary art practice takes place in a new reality where the internet exists as a given component of life. We no longer consciously choose to be online (modem connectivity), but are online as a default condition (seamless connectivity). She argues that the use of the Internet as a platform for artistic activity is "still absolutely valuable" (427).

She discusses the work of Eva and Franco Mattes, artists who, over the course of almost two decades, "have developed a consistent, formally eclectic body of work around three main topics … : identity subversion, the relationship between media and reality, and the end of property (both intellectual and personal)" (428). She believes that their work makes for an ideal case study of the development and evolution of the relationship between art and technology (and in particular, the internet). Their work explores anonymity, virtual reality, hacking, media, voyeurism, and appropriation through works in print, video, photography, and performance.

On page 431, she argues that internet art still makes sense because:

> the internet remains a sphere where artists can engage a broader, if not bigger, audience in an ongoing dialogue; criticize, subvert, and maybe condition ever evolving techno-social structures; play where the power has moved; and engage contemporaneity in a different way. Art cannot only reflect reality, as a mirror, it also needs to engage reality on its own level, and the internet is, now at this very moment, one of the most relevant levels of the contemporary real.

She states that only artists who are actively contributing to the evolution of the internet (by, for example, learning technical skills or working with hackers) can engage with it in this way. So a collaborative, technology-immersed approach like E.A.T. is on the right track -- at least on the artists' side. Artists should be "deeply aware of the cultural implications of the media;" they should be, as Lev Manovich noted, interested in framing their work within an understanding of the critical theory surrounding the digital age.

She closes with several examples of artists using the internet as a platform to create valuable art, including Oliver Laric, Evan Roth, and Addie Wagenknecht. Evan Roth, since 2005, has made an effort to keep his website listed as a top Google result for the search "bad ass mother fucker" -- a performance that Quaranta believes is particularly meaningful and thoughtful for its attempt to engage with the non-art crowd of Internet users. I plan to further research these named artists and their works in future research.

Beales, Katriona. "Intelligence is not enough" and "Unintended Consequences," Texts, accessed November 20, 2018. http://www.katrionabeales.com/texts/.

Katriona Beales is an artist who engages with technology's effects on society in her work. Her pieces often take the form of multi-media and participatory installations, like the work depicted at the start of this section on page 19.

Unintended Consequences is a transcript of a conversation between Katriona Beales (artist) and William Tunstall-Pedoe in April of 2018, available on Beales' website in the form of an illustrated PDF file with speech bubbles depicting their back-and-forth. Tunstall-Pedoe is a software engineer; he sold to Amazon the voice-recognition software that would become Alexa. I have excerpted only the conclusion of their discussion on the following page:
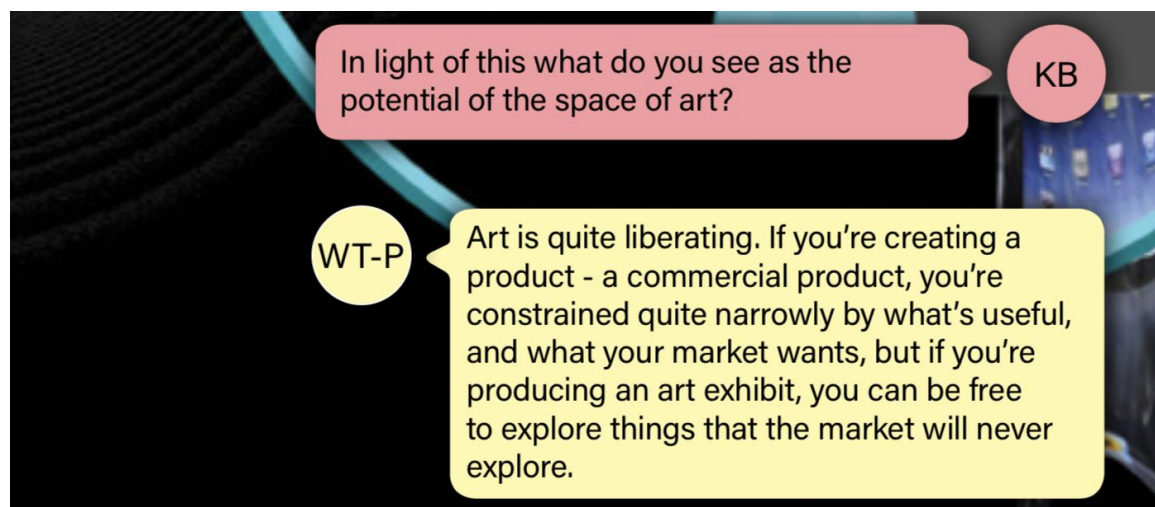
Here we have the declaration that art allows for the exploration of ideas that might not otherwise be engaged with. I see this as additional evidence in favor of the value of art because of its potential to illuminate ideas without the limitations and external influences that face, for example, business and politics.

from *Intelligence is not enough*:

- Katriona argues that we are unable to resist the "seductive beauty and endless imagery of online space" as we are increasingly immersed within it
- She claims that technology is not neutral, but in fact embodies the politics of its creator(s)
- She quotes Hito Stereyl (whose work is included in next section of this literature review)
- She suggests as an act of resistance/defiance/de-exploitation that we deliberately create "dirty data sets" -- for example, by deliberately mistagging Facebook photographs to intentionally lead its facial recognition system astray
- She proposes that it is critical for artists to use new technologies like virtual reality and machine learning in their practice

-------------- ART --
-------------- INTERNET ---------------------------------------
-------------- [new] AESTHETIC --------------------------------

see : new-aesthetic.tumblr.com
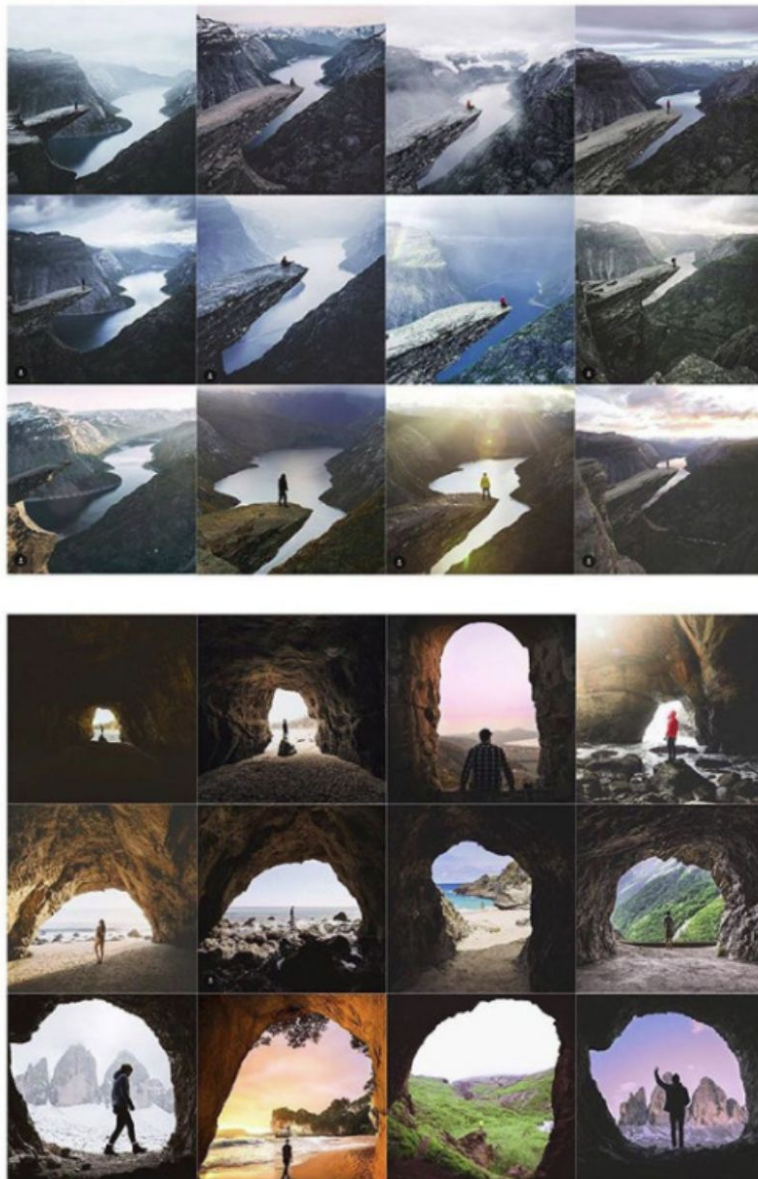
@insta_repeat on Instagram. "Déjà Vu Vîbes 🌲 Wander. Roam. Replicate"

Bridle, James. *New Dark Age: Technology, Knowledge and the End of the Future.* **London ;
Brooklyn, NY: Verso, 2018.**
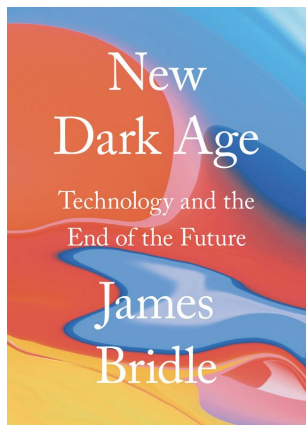
In *New Dark Age*, James Bridle claims that technology has
"transformed our planet, our societies, and ourselves, but it has failed
to transform our understandings of these things" (2). He writes that
the abundance of knowledge that the internet makes valuable has in
fact compromised its value and our ability to think.

He discusses the history of technology, offering extensive examples of
its effects on society, from the ubiquity of surveillance to digitized
stock exchanges to social media to those strange children's videos on YouTube (Chapter 9,
Concurrency, ties YouTube's "content crisis" to the disinformation campaigns of the 2016
election.). He, too, discusses the invisibility of "hidden technological processes" as problematic
(120), and like several others notes the significance of the development of the networked
computer as a consequence of the Manhattan Project (Chapter 2, Computation).

In closing, he states that "the network is only the latest, but certainly the most advanced,
civilisation-scale tool for introspection our species has built thus far" (249). He poses
guardianship, "based on the principles of doing the least harm in the present and of our
responsibility to future generations," as a strategy for living in our current *new dark age*:

> Guardianship insists that these principles require a moral commitment that is beyond
> the abilities of pure computational thinking, but well within, and utterly appropriate to,
> our darkening reality. Ultimately, any strategy for living in the new dark age depends
> upon attention to the here and now, and not to the illusory promises of computational
> prediction, surveillance, ideology and representation. The present is always where we
> live and think, poised between an oppressive history and an unknowable future
> (251-252).

Bridle, James. "Network Tense: How to Approach a Contemporary, Technologically-Mediated World." *Journal of Electronic Publishing* **17, no. 1 (February 1, 2014). https://doi.org/10.3998/3336451.0017.106.**

Discusses the rise of e-books, of the physicality of the book and how e-books dissolved this. Discusses the concept of code spaces, from the work of Rob Kitchen and Martin Dodge; code spaces are a function of software and architecture working together, of a system or network and a space (like an airport lounge).

Discusses "The New Aesthetic" as an ongoing research project, not an artistic movement, but rather as a developing kind of "network discourse."

Discusses his interest in collaborating with machines, in exploring how technological systems and human systems interact and communicate and relate.

He defines "the network" as not just the internet, but rather the internet and us. He states that "the distinctions for most of our purposes between the physical and the digital, the real and the virtual, are essentially meaningless. We must continually talk about these things as being a community or commonality in which we are all involved."

He discusses the writings of William Gibson, who first coined the term "cyberspace," and Thomas Pynchon's latest novel about the Internet, and relates them both to the confusion of time and knowledge in the network.

He also discusses the internet as it ties into U.S. scientific and military history, which was mentioned in multiple works throughout this literature review.

He states, "It's a structure that resembles and replicates and shapes history, memory, and even consciousness to some extent. We are mapping ourselves. The internet perhaps is a tool we've built to explain ourselves to ourselves and possibly the right tool at the right time."

For future research: selections from James Bridle's blog --

The New Aesthetic and Its Politics   booktwo.org/notebook/new-aesthetic-politics/

The internet considered as a fifth dimension, that of memory

                            booktwo.org/notebook/internet-fifth-dimension-memory/

Land Art for the Internet   booktwo.org/notebook/land-art-for-the-internet/

------------- ART ---
------------- INTERNET ---
------------- AESTHETIC --
------------- **IMAGE** --

Vast quantities of images and data are flowing from every source
imaginable--science, art, advertising, news, entertainment,
governments, and, increasingly, ordinary citizens (using cell
phone cameras and webcams). [9]

- - - - - - - -

[Reality] now widely consists of images ... The world is imbued
with the shrapnel of former images, as well as images edited,
Photoshopped, cobbled together from spam and scrap. Reality
itself is postproduced and scripted ... image and world are in
many cases just versions of each other.

...

[Image production] becomes mass postproduction in an age of crowd
creativity. Today, almost everyone is an artist. [10]

---

[9] Robertson and McDaniel, *Themes of Contemporary Art*, 28.
[10] Stereyl, "Too Much World: Is the Internet Dead?," from *Mass Effect*.

figure 4

Andy Warhol, *Self-Portrait (Fright Wig)*, 1986. The Andy Warhol Museum, Pittsburgh. Color Polaroid photograph on paper; 2.8 x 3.7 inches.

figure 5

Eric Yahnker, *Factory Reset*, 2018.
From *Factory Reset*, The Hole, New York City.
Pastel on sandpaper; 50 x 48.5 inches.

Goldsmith, Kenneth. "Chapter 6: I Shoot Therefore I Am." In *Wasting Time on the Internet*. First edition. New York: Harper Perennial, 2016.

"In the digital ecosystem, the apparatuses surrounding the cultural artifacts are often more engaging than the artifacts themselves" (180). Mentions media critic Vilém Flusser:

- stating that, in Flusser's view, "the traditional content of the cultural artifact is completely subsumed by the apparatuses--technical, political, social, and industrial -- surrounding, and thereby defining, it" (181)
- Flusser's decades-old ideas (posited in *Towards a Philosophy of Photography*, 1983) about analog photography are directly applicable to considerations of our changing relationship to digital photographs
- Flusser claimed the camera would give rise to devices that would "[robotize] all aspects of our lives, from one's most public acts to one's most innermost thoughts, feelings, and desires"
- The more you capture images and post them to Instagram, the more you become addicted to your cameraphone and Instagram, "which Flusser likens to opium addiction or being on a 'photograph-trip'" (182)
- Flusser's 20th-century investigations of media have proven to be "prescient" in the 21st-century; he has "framed, theorized, and unpacked the new complexities of our digital world" (187-188)

"To Instagram, what people are photographing is beside the point; the real point is that they keep posting" (182).

"Photography is easy … If taking good photos were difficult … Instagram would never be as possible as it is today" (182).

"I shoot therefore I am. The camera doesn't work for us. We work for the camera. Our compulsive behavior leaves no scene undocumented. … We think we're documenting our own memories, but what we're actually producing is memories for the apparatus. The digital photograph's metadata -- geotagging, likes, shares, user connectivity, and so forth -- proves much more valuable to Instagram than any subject matter it captures. The image is irrelevant in comparison to the apparatuses surrounding it" (184-185).

Notes how an Instagram photo can't exist within ecosystems outside of Instagram -- and its parent company, Facebook (185).

Images take on different meanings depending on context and distribution (185).

He thinks that the only hope to critique and actively work against the "automatic programming" of a system like Instagram is to do something never intended by the company, like uploading deliberately boring photos or blurring images beyond recognition (187). Parallel ideas to Katriona Beales' proposed "dirty data sets."

Mentions 1971 proposal of conceptual artist Douglas Huebler to "photographically document … the existence of everyone alive" (189). Mentions 1960s mirror constructions by artist Robert Smithson. Mentions the (more current, post-Internet, that is) work of artists Penelope Umbrico, Eric Oglander, Mishka Henner, Constant Dullaart, King Zog (Felix Heyes and Benjamin West), Dina Kelberman.

He discusses how photography has changed from the creation of stable objects, existing within "the binary of true/false art/reality," to "free-floating artifacts, detached from the anchored signifiers and contexts that first birthed their meaning" (197). He mentions the Pictures Generation, and their critique of mass media images through work questioning ideas of authorship and originality. He discusses Richard Prince's *New Portraits* as building on the ideas

of *Cowboy*, stating that "with this one small gesture, our naivete" about Instagram was "sharply critiqued and exposed" (201).

Images on the Internet are both semantic and visual at the same time (204).

Discusses "institutional critique," how the context in which art is displayed gives work its meaning and influences its reception. He states that he witnessed institutional critique being performed at MoMA by museum visitors, taking selfies with works and paying more attention to their phones than to the actual art. From page 213:

> In the museum, the artwork … has become secondary to the experience of actually being there. The art on the walls is the pretense that draws people to the museum, but once they get there, they're elsewhere: on their smartphones, facebooking, instagramming, vineing, tweeting, periscoping, texting, facetiming--everything, really, except for paying full attention to the art on the walls.

 Goldsmith, Kenneth. "Chapter 5: Dream Machines and Eternidays." In *Wasting Time on the Internet*. First edition. New York: Harper Perennial, 2016.

Selected quotes (both from page 158):

- "Seeing ourselves and our lives reflected in our interfaces is a key part of the reason we stay so attached to them"
- "The myth of Narcissus, who mistook his own reflection in the water for another person, underlies the success of social media"

According to psychologist Jacques Lacan's theory of the "mirror stage," when a baby first sees itself in a mirror, there is an immediate identification of self with that image. Page 158:

> From that time on, according to Lucan, the image of oneself as a whole person is intoxicating; we become hooked on external representations of ourselves, which goes a long way toward explaining why we love to find ourselves tagged in Facebook photos

or have our tweets retweeted. If the Internet is a giant copying machine, then every time we see ourselves reflected in it, we are more drawn to it. It's no surprise that we can't stop self-googling or try as we might, we can't leave Facebook. There's too much of *us* reflected in it to walk away from.

- "Every time I open a social media app, the first thing it shows me is how I am reflected in it: how many times I'm mentioned in comments, how many likes I got, how many retweets and favorites I have amassed. This accumulation is social media's capital, a symbolic currency for which 'I' is the metric of valuation" (158)
- According to Marshall McLuhan re: the insertion of self into media, "men at once become fascinated by any extension of themselves in any material other than themselves" (159)
- Believes that "surrealism and its ethos are hardwired into the very core of our computing experience" (163)
- Mentions Jonathan Crary's book *24/7: Late Capitalism and the Ends of Sleep*

Cotton, Charlotte. *Public, Private, Secret: On Photography & the Configuration of Self*. Aperture; The International Center of Photography, 2018.

This book contains a collection of essays and interviews with artists exploring photography and the changing role of the image in contemporary society. Pieces of particular relevance include:

- *Essay: What's in an image* by Marisa Olson, pages 38-42 (she quotes Trevor Paglen)
- *Essay: Keeping up with the Cartesians: On the culture of the selfies with continual reference to Kim Kardashian* by Daniel Rubinstein, 65-68
- *Interview: Ann Hirsch with Marina Chao*, 90-91
- *Interview: Trevor Paglen with Paula Kupfer*, 132-135 (mentions Kate Crawford as "really smart in terms of how she's thinking about this kind of thing" -- when asked about

writers or theoreticians focused on art/machines/humans/history. Another author to look for in future research.)

Steyerl, Hito, and Franco Berardi. *e-flux journal: The Wretched of the Screen*. E-Flux Journal 6. Berlin: Sternberg Pr, 2012.
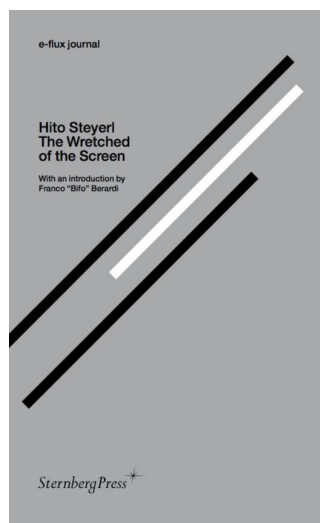
Selected quotes from *The Spam of the Earth: Withdrawal from Representation*, pages 160-175:

- "images trigger mimetic desires and make people want to become like the products represented in them" (165)
- "social media and cellphone cameras have created a zone of mutual mass surveillance, which adds to the ubiquitous urban networks of control … On top of institutional surveillance, people are now also routinely surveilling each other by taking countless pictures and publishing them in almost real time" (167)
- "the pressure to represent and be represented is increasingly internalized" (167)
- "photographic or moving images are dangerous devices of capture: of time, affect, productive forces, and subjectivity" (168)
- "The more people are represented the less is left of them in reality" (168)

I think Hito Steyerl's ideas on visual representation are the thoughtful criticism our image-obsessed world needs. Her works, while pretty intense / require a bit more effort to get through than some of the others I've reviewed here, are definitely worth delving into in future research.

Heffernan, Virginia. "How We All Learned to Speak Instagram." *Wired*, **April 16, 2013.**
https://www.wired.com/2013/04/instagram-2/.

 This is not a scholarly source, but I found this article an interesting accompaniment to this section. Particularly given Charlie Gere's explanation of *Wired* as an articulation of the "powerful and influential ideology that combines a belief in the transformative powers of technology and in the positive and self-regulatory capacities of the market," with a reader that is "profoundly optimistic about the future" (152-153 in *Digital Culture*).

I am not necessarily wholly convinced of technology as a "force for good," and now that I know (thanks to Gere) that *Wired* is directed toward the "technological-utopianist," the ending of this article makes perfect sense. In her final sentences, the author attempts to characterize Instagram as a tool to remind us of the joy and beauty in life, but she first provides a somewhat objective and fairly useful breakdown of the basics of Instagram. I have directly copied portions of the article below:

> Instagram is not an art project. Founded in 2010 by … two sumptuously capitalized Stanford grads, the app changes how we behave, as evidenced by the site's trademark clichés: feet, skies, lattes, "selfies" shot in bathroom mirrors. The tiltability and unobtrusiveness of camera phones, the simplicity of retakes and crops, and the one-touch lens-flipper that practically requires self-portraiture—these features evidently condition us to point our Instagrameras in the same directions, over and over.
>
> As in the best social media, the artifacts are not the innovation on Instagram; it's the system that's special. The name Instagram, it seems, does not so much play off telegram as ideogram. Instagram images have become units of speech, building blocks in a visual vocabulary….

Again, here, are mentioned (1) technology (in this case, an application) changing human behavior, weirdly homogenizing it; (2) the idea that technology "conditions" us to perform

certain small, discrete units of action "over and over;" and (3) it's not the content / artifact / photograph that's special, but rather the system / apparatus.

Henkel, Linda A. "Point-and-Shoot Memories: The Influence of Taking Photos on Memory for a Museum Tour." *Psychological Science* **25, no. 2 (February 2014): 396–402.**

https://doi.org/10.1177/0956797613504438.

This peer-reviewed, academic journal article details the results of two scientific studies investigating if the act of photographing art objects affects what's remembered about said objects. The authors claim that researching this relationship between cameras and memories is meaningful because of photography's ubiquity in our lives today.

Subjects (undergraduate students) viewed objects in the Bellarmine Museum of Art and photographed some of the works they viewed. The first study found that taking a photograph of an object impaired ability to remember its visual details, as well as impairing ability to remember that the object had been seen at all (object recognition). "[The] act of photographing the object appears to enable people to dismiss the object from memory, thereby relying on the external device of the camera to 'remember' for them" (401).

The second study found that photographing a zoomed-in part of an art object (rather than an art object as a whole, as in the first study) did not impair memory of visual details or object recognition. Focusing attention on an object in this way might engage attention and cognition to a greater degree than merely photographing it, possibly eliminating the "photo-taking-impairment effect" (401).

```
-------------- ART -------------------------------------------
-------------- INTERNET --------------------------------------
-------------- AESTHETIC -------------------------------------
-------------- IMAGE -----------------------------------------
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
-------------- [ IDEAS ] -------------------------------------
```

Let's return to my original thesis:

> *Art examining digital culture can effectively enhance human understanding of how technology and culture are connected, acting as a mirror to society and interrogating the ways in which technology is changing the world and influencing humanity's future.*

> *Art which utilizes or otherwise inserts itself into digital culture is most effective at interrogating these ideas.*

Compiling this annotated bibliography has allowed me to explore how "digital culture" is defined both within and external to the art world. It has served as a (rather extensive) introduction to a fairly broad field.

I have identified several key theorists and academics to guide further research, including:

- Marshall McLuhan (mentioned by Mayo, Manovich, Gere, Carr, Groys…)
- Gene Youngblood
- Kate Crawford

I have also identified some key terms that were common threads throughout multiple works:

- Cybernetics
- Postproduction
- Postinternet

Most significantly, I have identified some ideas / theories / themes posited by multiple authors, some of which I myself may have already thought but lacked scholarly evidence to back up. These include:

- The internet's visibility and particularly its invisibility, which I <mark>highlighted</mark> in yellow throughout to demonstrate the frequency with which authors grappled with this idea
- Technology as a development of an age of paranoia / the Cold War
- Art that engages with technology and actually <u>utilizes it</u> as being able to most effectively thoughtfully critique it
- Traditional art as having a place in interrogating ideas of digital culture as well (I might revise my original thesis in light of this, but need to conduct additional research)

Moving forward, I would like for this to serve as an example framework for a potential (and much larger) living document. The delineated four categories I explored each overlapped or had relevance to others, and I would like to find a way to more easily link between categories or otherwise visually / structurally allow for such overlap. I think that a digital / internet-based format might serve this purpose well.

I aim to add additional works, and to continue to more deeply engage with some of the included texts of essay collections (*Mass Effect* in particular, from which I originally selected and read ten pieces, only two of which ultimately made it into this work). I would also like to learn

more about the "long tail" theory in new media, which was mentioned in passing by several authors.

I would also like to more critically evaluate some of the artists and specific works of art mentioned throughout these writings. A piece on Ryan Trecartin's art was one of the preliminary *Mass Effect* essays I selected that did not make it into this annotated bibliography -- he is an artist I definitely plan to learn more about. I was also fascinated by essentially everything James Bridle wrote, and would next like to learn more about his actual artistic practices. Hito Steyerl's works were both the most challenging and most interesting to me -- in a future work, I would like to include a section breaking down some of her theories as well as her art, similar to James Bridle's AESTHETIC section in this paper.

figure 6

Collaborative project between The Andy Warhol Museum and EarthCam, *Figment*, 2013-present. 24/7 live video feed of Andy Warhol's gravesite at St. John the Baptist Byzantine Catholic Cemetery in Bethel Park, Pennsylvania; accessible at https://www.warhol.org/andy-warhols-life/figment/. Still images captured from live feed, November 2018.

- -
------------- [FULL BIBLIOGRAPHY] ------------------------

Bridle, James. "Network Tense: How to Approach a Contemporary, Technologically-Mediated World." *Journal of Electronic Publishing* 17, no. 1 (February 1, 2014). https://doi.org/10.3998/3336451.0017.106.

Bridle, James. *New Dark Age: Technology, Knowledge and the End of the Future*. London ; Brooklyn, NY: Verso, 2018.

Carr, Nicholas G. *The Shallows: How the Internet Is Changing the Way We Think, Read and Remember*. London: Atlantic, 2010.

Carr, Nicholas G. *Utopia Is Creepy: And Other Provocations*, 2017.

Cornell, Lauren, and Ed Halter, eds. *Mass Effect: Art and the Internet in the Twenty-First Century*. Critical Anthologies in Art and Culture. Cambridge, Massachusetts: The MIT Press, 2015.

Cotton, Charlotte. *Public, Private, Secret: On Photography & the Configuration of Self*. Aperture; The International Center of Photography, 2018.

"Experiments in Art and Technology - Bell Labs." Accessed November 20, 2018. https://www.bell-labs.com/programs/experiments-art-and-technology/.

Frascina, Francis, Charles Harrison, and Paul Deirdre. *Modern Art and Modernism: A Critical Anthology*. London: Paul Chapman Publishing in association with the Open University, 1982.

Gere, Charlie. *Digital Culture*. Expanded 2. ed. London: Reaktion Books, 2008.

Goldsmith, Kenneth. *Wasting Time on the Internet*. First edition. New York: Harper Perennial, 2016.

Heffernan, Virginia. "How We All Learned to Speak Instagram." *Wired*, April 16, 2013. https://www.wired.com/2013/04/instagram-2/.

Henkel, Linda A. "Point-and-Shoot Memories: The Influence of Taking Photos on Memory for a Museum Tour." *Psychological Science* 25, no. 2 (February 2014): 396–402. https://doi.org/10.1177/0956797613504438.

Manovich, Lev. "Ten Key Texts on Digital Art: 1970-2000." *Leonardo* 35, no. 5 (2002): 567–75.

Mayo, Sherry. "The Prelude to the Millennium: The Backstory of Digital Aesthetics." *The Journal of Aesthetic Education* 42, no. 1 (2008): 100–113. https://doi.org/10.1353/jae.2008.0009.

Robertson, Jean, and Craig McDaniel. *Themes of Contemporary Art: Visual Art after 1980*. Fourth edition. New York: Oxford University Press, 2017.

Steyerl, Hito, and Franco Berardi. *The Wretched of the Screen*. E-Flux Journal 6. Berlin: Sternberg Press, 2012.

"Texts | Katriona Beales." Accessed November 20, 2018. http://www.katrionabeales.com/texts/.

image sources:

fig 1: https://www.peterdavisartist.com/zeitgeist-paintings.html

fig 2: https://www.furtherfield.org/events/are-we-all-addicts-now/ and https://www.furtherfield.org/wp-content/uploads/2017/10/AWAAN-project-documentation-web-.pdf

fig 3: https://new-aesthetic.tumblr.com

fig 4 + 5: https://www.warhol.org/andy-warhols-life/ and http://theholenyc.com/2018/10/14/factory-reset/

fig 6: screenshots captured directly from live video feed, viewable at https://www.warhol.org/andy-warhols-life/figment/