

Indexing it all: The Modern Documentary Subsuming of the Subject and its Mediation of the Real

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Abstract

This paper summarizes some of the themes of my forthcoming book, *Indexing it All: The Subject in the Age of Documentation, Information, and Data* (forthcoming, MIT Press). The paper presents research on the history and theory of the modern documentary tradition in the 20th and into the 21st centuries, which it views as an episteme with three dominant moments: European Documentation, Information Science and Data Science. In this paper, European Documentation, citation analysis, social computing, android robotics, and social big data are discussed as cases in the dialectical movement of this tradition. Each stage of this development represents higher levels in the subsumption of human agents and texts within increasingly abstract documentary forms of representation. Documentary indexing and indexicality have been major and increasing sources for the social positioning of persons in modernity, with consequences for personal and social psychologies, politics, and for critique and judgment. The story of the modern documentary tradition is a story of the role of indexing (personal, social, and textual positioning through documentary techniques and technologies) and indexicality (the modes of documentary citation and reference that result in such), and how this has shaped and continues to shape what Suzanne Briet termed, “homo documentator” (Briet, 2006).

Keywords: modern documentary tradition, European documentation, citation indexing and analysis, social computing, Android robotics, social big data, critique

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1 Introduction

“This definition [of documentation, as evidence] has often been countered by linguists and philosophers, who are necessarily infatuated with minutia and logic. Thanks to their analysis of the content of this idea, one can propose here a definition, which may be, at the present time, the most accurate, but is also the most abstract, and thus, the least accessible: “all concrete or symbolic indexical sign [*indice*], preserved or recorded toward the ends of representing, of reconstituting, or of proving a physical or intellectual phenomenon.”

“‘Homo documentator’ is born out of new conditions of research and technique [*technique*].”

— Suzanne Briet, *What is Documentation?* (Briet, 2006)

It is often assumed that information science and data science introduce new phases in the history of information, replacing the book form and introducing new, more flexible, global information services and communication into a world of book and documentary modernism. While these are certainly true claims, we would be amiss, however, not to more fully recognize and even bring into critique the continuity of this progress. For the story of the documentary tradition, particularly in the last century and into the current one is not that of documentation as one tradition and information and data as other traditions, but rather, of an historical continuity in techniques, methods, and the ideology of documentary processes as socio-

technical norms. Indeed, what we are witnessing is not the end of the documentary tradition, but rather, the qualitative intensification of this tradition and the socio-technical transformation of its tools, from that of being embedded in transcendental professional organizations (libraries, classification, cataloging, and librarians) to infrastructural mediators of everyday life (link-analysis ranking, social network algorithms, recommender systems).

Indeed, from one angle — which will be the method of this paper — we may view this progress as the progress of a dialectic, namely, as a *aufheben*, a sublation (or let us use the Marxian term, subsumption, since we are largely dealing with a material ‘gathering up’ and ‘uplifting’ [*aufheben*] into virtual tools for mediation). This subsumptive process of the modern documentary tradition (which in this paper I discuss roughly from the beginning of the 20th century to our current time) is, from a certain historical perspective, the dominant *Zeitgeist* of our age. Thus, the critical perspective that we can offer in this paper is that of marking this moment, as a totalizing moment, but one that leaves remainders, which are increasingly — in not only epistemological and technical senses, but even more importantly, in political and social senses, *left out* of the literal counting, processing, and indexing of knowledge, technology, politics, and professional and everyday social and cultural being. To open up such a critical moment follows the path of Enlightenment *critique*, in the sense that it opens up an historical caesura within what is celebrated as the given (Foucault, 1984; Kant, 2009).

What follows is an epistemological-historical overview of five historical socio-technical cases (European documentation, citation analysis, social computing, android robotics, and social big data), which fit within three moments of the documentary tradition. This tradition is treated as an ‘episteme’ (to use Foucault’s term for epochs of dominant socio-technical devices) and these smaller moments and their sciences (documentation, information, and data sciences) may be seen as smaller epistememes within this tradition. This paper theorizes the subsumption of the personal and textual objects within a documentary episteme, eventually resulting in the reduction of both to being mutually conjoined data points within surveillance and predictive algorithms and socio-technical modes of governmentality.

In each of the epistemological-historical stages that I present, documentary techniques become more embedded, not only as mediating inter-subjective transactions, but also in mediating self-identity. This double mediation constitutes a self-reinforcing cycle of treating others and treating one’s self as known or knowable identities — as increasingly reductive, but also increasingly conjoined representations — through documentary mediation. Not only documentary techniques, their logical algorithms, and their indexes lead to this, but also more recent historical trends in political economy in modernity and in neoliberalism, which view the self as an entity of psychological and social positioning within markets and trends. (As I will explain, this eventually translates to viewing selves as data points within known parameters over time and extrapolating or interpolating further characteristics from such for both social big data and personal assistant application.)

Hegelian dialectics constitutes one analytical means by which we may chart not only the documentary objectification of subjects and the ‘subjectification’ of documentary objects, but also their eventually mutual mediation as documentary representations or data points, not only statically, but over time, as well. This ‘total subsumption’ of all beings and natural and social objects constitutes the historical movement of modernity in the form of the documentary tradition.

The argument that I will be making is that the technologies and techniques, along with the methods and the organizations, of the modern documentary tradition, in dialectical interaction with the ideological sphere of late capital, work toward the increasing documentary indexing and the social positioning of individuals as subjects of documentary mediation. Increasingly as well, as the quotes from Suzanne Briet in the beginning of this article suggest, social life and personal value are founded upon documentary indexing and the indexicality of social positioning following this. The story of the modern documentary tradition is a history of the role of indexing (personal, social, and textual positioning through documentary techniques

and technologies) and indexicality (the modes of documentary citation and reference that result in such), and how this has shaped and continues to shape what Suzanne Briet termed, “homo documentator” (Briet, 2006).

Following social ‘positioning theory’ in Rom Harré’s work (Harré, 1989), I take the term ‘self’ to refer to acts based on hypothetical sets of skill based potentialities and I take the term ‘person’ to refer to acts based on socially and culturally recognized rules and roles. The expressions of the self, as with other higher order living beings, are done through the affordances of cultural, social and physical materials (e.g., language or other semantic entities, rules for their socially meaningful deployment, and the body).

If I am correct in stating that the documentary tradition has increasingly been transforming ‘selves’ into ‘persons’ in the manner that these terms are defined above, and that modernity is progressing in its increasing normativization of the self through the mediation of information and communication technologies, then this represents a great change in the Western conception of the self, at least since the Enlightenment. This would have political stakes, as well, since Enlightenment thought takes the self as a central agency in the social and even the governmental state, in so far as the self is seen as the driver of historical change and stability through concepts of freedom, foremost of course, freedom of expression and with this, freedom of choosing. Such ‘innate’ properties of the self are taken as natural rights, belonging to the very concept of individuals as (generally) persons, and are encoded in state constitutions and other formal laws of the 18th century (the U.S. constitution and the French Declaration of the Rights of Man and of the Citizen). As we will return to at the end of this article, Kant argued (Kant, 2009) that such a conception of self marked a break from dogmatic and authoritarian philosophy and political governance. A return to a stronger sense of socially normative psychology as structuring the self, then, would bring the Western norm of personal psychology closer to that in non-Western cultures, particularly in Asia. The ‘bridging’ of these cultural psychologies by documentary techniques and technologies is reinforced by shared, ‘global,’ social norms in political and governmental economy (e.g., neoliberal notions of markets and selves as competitive identities in those markets (Foucault, 2008)) and complementary forms of state capitalism and the surveillance states that go along with maintaining such global orders of class. The surveillance state now spans democratic and authoritarian societies (though of course this doesn’t mean that there aren’t differences involved). ‘Global communication’ by means of ICTs then involves not only technical/technological mediations, but also socio-cultural mediations, which have been accomplished by neoliberal class and identity formations across different cultural horizons.

In the conclusion to this paper I would like to discuss some of the issues that remain, despite this subsumption, involving the status of the self and issues of critique that remain as part of the psychological and political lineage of the Western Enlightenment. The story of the documentary ‘indexing’ of selves as persons through computer mediation, not only across technical, but also across cultural and social ‘platforms’ as mediators of expression and the social construction of communicational infrastructures has hardly been discussed in the literature.

2 The modern documentary mediation of others

Let us start with a rather startling quote from the father of European documentation, Paul Otlet, in 1903. It is often assumed that the ‘information age’ is rather new and that the issues that I raised above are rather new, as well, but in the quote that we will examine documentary mediation is seen as restructuring that old trope of the book-friend, so beloved in the modern age of the book, and in this instrumental mediation of texts a restructuring of friendship itself takes place. Here, we must remember that throughout Otlet’s work the concept of ‘the book’ refers to the material specificity of books, most particularly, and to documents more generally. Otlet’s quote, then, is well on the way to recharacterizing not only books, but all forms of documentation, as well as friendship itself, as instrumental tools for serving ‘information needs.’

The quote is from a 1903 publication, “Les sciences des bibliographiques et la documentation,” (translated by W. Boyd Rayward as “The Science of Bibliography and Documentation”), and it was published in the *Bulletin* of the International Institute of Bibliography (number 8), (which would later become the International Federation for Information and Documentation, founded by Otlet and his colleague Henri La Fontaine (Rayward, 1994)):

Today, there exist collections of books comprising more than two million volumes and whose annual accessions are more than one hundred thousand volumes. They have had to come to grips with quite new problems arising, on the one hand, from difficulties of storage, classification and circulation of such tremendous masses of materials situated in the centres of large cities, and on the other hand, from new ideas within the research community about what it should be able to gain from such resources. Once, one read; today one refers to, checks through, skims. *Vita brevis ars longa!* There is too much to read; the times are wrong; the trend is no longer slavishly to follow the author through the maze of a personal plan which he has outlined for himself and which, in vain, he attempts to impose on those who read him.

Works are referred to, that is to say, one turns to them to ask for a reply to very precise, specialized questions. The reply found, one parts company, ungratefully no doubt but certainly for a thousand good reasons, from the obliging friend who has just given such good service. It rarely happens that an adequate reply is found in a single book and that it is not necessary to obtain such a reply from a combination of partial answers provided by a variety of works. Thus arises the necessity of having available great quantities of works, as many as possible; thus, also, the obligation of not systematically eliminating any work from book collections because little importance or value is attributed to it. Who can make a pronouncement on the usefulness or uselessness of a document when so many interpretations of the same text are possible, when so many former truths are recognized as wrong today, when so many accepted facts have been modified by more recent discoveries; when, in the present anarchy of intellectual production, so few questions have been dealt with exhaustively by a single author; and when, so often, it is necessary to be content with a half-truth or run the risk of remaining in a state of complete ignorance?

The number of works which libraries contain increases the need for documentation, just as organs develop functions. This need, in its turn, acts strongly on the necessary enlargement of collections of books. But this process cannot be confined to the realm of large libraries. It spreads beyond them through the diffusion of the works themselves. More reliable, better arranged, more up-to-date books can be produced because of the improved bibliographical apparatus of these libraries. Such books become models that, naturally, intellectual workers, who otherwise only have access to inferior bibliographical equipment, wish to imitate and surpass. Such books lead us to pose very clearly the problem of documentation in relation to libraries of the second rank.

(Otlet, 1990)

In this quote, one can clearly see the instrumentalization of 19th century hermeneutics (and psychology) of reading, as well as the instrumentalization of friendship. If friends could be said to be an ‘open book’ to their partner if only because the partner had the patience and courtesy of reading such, then Otlet’s friend is that of an information deliverer to the needs of the user-friend.

What is important here is the shift in the notion of what a text is, as well as what a friend is. The mutual opening of friends to one another, and correspondingly, the lengthy opening of a text to the reading of the reader is transformed in Otlet’s quote to an exchange of meanings, corresponding to the *a priori* needs of a user. Otlet’s quote challenges, in particular, 19th century German humanism in its analogical reduction of textual and psychological hermeneutics, reframing this analogy within instrumentalist and

positivist epistemology and morality. Moreover, Otlet's book-friend universe is rather promiscuous, rather than discrete, corresponding to large libraries and, as Otlet himself notes to the production of other documents themselves through bibliographical or, more broadly, documentary devices and institutions ("But this process cannot be confined to the realm of large libraries"). The book, as the friend, is not seen as a singularity that is encountered, as a self that has its own unique alterity in relation to the subject, but rather, the book-friend is an 'information source' corresponding to the user's own needs.

But, are these 'information needs,' as we now call such, the subject's own, and if every subject is an information object for another subject, then how is the inquiring subject's own sense of being configured in regard to this need? For the information ecology that the subject is immersed in cannot simply be his or her own, with his or her own 'private language' (as this term is understood in the philosophy of mind, referring to the possibility of there being completely idiosyncratic languages that a self possesses, not understandable by any other being). If an information need is simply my own, then there would be no possibility for the correspondence of information subjects and objects, people and documents, that is, for the 'fulfilling' of information needs.

On the one hand, the documentary epistemology that stretches from Otlet through the later 20th century Library and Information Science (LIS) discourse of 'information needs' and their fulfillment acknowledges personal needs, but on the other hand, it locates their fulfillment in documentary universes within which 'aboutness' or 'information' (what in the documentary tradition is seen as the 'evidence' (Buckland, 1991, 1997) or 'content' of a text or other information object) have been identified by bibliographic indicators and other metalanguage and metadata (classification numbers, cataloging terms, descriptors, etc.). Indeed, as any reference librarian can attest, the 'needs' of the user become 'clearer' once some material on a topic has been given and the person can further work through the library collection and its tools. This example, alone, should tell us that 'information needs' and their fulfillment are not a matter of the incomplete correspondence of an 'unconscious,' poorly formed, or confused idea in a personal mind and that of a documentary/informational object (or in most cases, its metadata representation), but rather, this phenomenon is a product of people doing information seeking tasks through slowly matching up their language of what they need to do with the language of material in a library or other setting. In this, fulfilling information needs is similar to looking for a packaged item in a foreign language supermarket and choosing the item that most closely corresponds to what one thinks one may be looking for. Often, one is right, not because there is an *essential* correspondence between the seeker's idea and the item, but because there is a *pragmatic* agreement that, for example, yes, indeed, this item tastes like what I call, for example, 'figs' in English.

Indeed, at least in the domain of relatively unknown topics, this searching for the object involves the searching first of all for the subject's own needs in the context of the documentary system. This latter is a search for vocabulary (linguistic, visual, etc.). This was the task of Nicholas J. Belkin's ASK (Anomalous State of Knowledge) systems, which helped gave rise to the 'user' or 'cognitive' turn in Library and Information Science (as distinct from a document retrieval perspective). This is a great and very important insight, which some of LIS's information seeking literature, as well as critics (including some of my past work) of 'user studies' in LIS largely misunderstood. Information needs do not belong to the subject alone, but to the context surrounding both the user and the documents, and it is within the universe of documents and those surrogates of 'information' that are said to belong to them that the subject must position him or herself within and so find their needs in the world of their search. Within ordinary language, this universe can be both that of particular discourses and as broad as all understandable language by speakers. Within documentary systems, it is often a subset of language, identified as important by either human or automated indexes. The situation of the user in relation to documents is not that of a classic cognitivist agent (in classic cognitive science, artificial intelligence, etc.), but rather, something akin to the Lacanian subject within the field of language. The human subject finds itself as a subject of desire (or here, need) by its

location among documentary topics (also called, ‘subjects’), and it is this positioning that in more current times gives to the person a documentary subjectivity that he or she deploys as an ‘online identity’ and which guides the person’s further searches through their use of recursive algorithms.

3 Citation indexing and analysis

If we wish to take an historical perspective, we might see the next step beyond Otlet’s instrumentalization of the document-book, which results in the institutionalization of the subject’s desires as needs in documentary systems, as the further documentary systemization of the subject as a moment in documentary systems. This next step involves the further abstraction of Otlet’s transformation of individual people and texts (as users and documents) into both becoming ‘information.’ This corresponds to the post-war transformation of documentation studies into information science and it begins with the documentary indexing of social position with automated citation indexing.

This transformation took place through both a technological and an epistemological transformation, particularly in the 1960s and 1970s when documentation retrieval gave way to information retrieval. The evolution of documentary retrieval to information retrieval was idealist, of course, in so far as it premised the ability to retrieve items based on the aboutness of texts, but it was also a natural consequence of relying on technical systems that attempted to represent documentary items by abstractions of what was seen as their most important ‘content’ (i.e., their ‘information,’ as understood by metalanguage, metadata, and documentary abstracts). These technical systems began using what were and still are classical transcendental or *structural* ontologies and taxonomies that were information professional tools (classification, cataloging terms, etc.) as, now, *infrastructural mediators* for retrieval. These mediators have become increasingly more important as measuring devices for personal value in professional (e.g., scientific and academic) and general (e.g., online communities) social systems, but they have also become more omnipotent and invisible algorithmic and indexical mediators in everyday social and personal being and worth.

An important moment in the post-war infrastructuralization of documentary techniques, technologies, and institutions occurred in scholarly citation indexing and analysis, best represented by Eugene Garfield’s development of citation indexing systems based on, but computationally enabling, the citation analysis systems of earlier paper forms. The Institute for Scientific Information (ISI) (which Garfield founded in 1960) and its subsequent Science, Social Science, and Arts and Humanities Citation Indexes (more recently joined by Scopus and Google Scholar) has had a strong influence upon determining scholarly behavior through its citation indexing and ranking of scholars and journals, particularly in the natural and the social sciences.

Scholarly citation indexing and the types of scholarly behavioral analyses that they purport to represent that follow from these are possible because they ‘objectively’ inscribe persons as informational subjects/objects by evidentiary or documentary systems. A person is identified as an ‘author’ and is bibliometrically ranked as such within whatever class of documents and documentary topics that the system indexes. The behaviors that such systems purport to track are actually behaviors that longitudinally are self-defining through the interaction of users with the algorithms and the indexing parameters of the system itself (Day, 2013). Indexing and search algorithms form a cybernetic system of control upon expressions of information needs and information identification, which may lead to the redefining of the human agent as a documentary subject. The ideological norms for fields and sciences entraps both texts and then human agents within object and subject documentary (i.e., representational) identifications, in turn, historically strengthening the ideological parameters that define the range and ranking of the relation of people and texts as documents.

Citation analyses show scholarly behavior within the confines of the parameters of the algorithms and indexes that measure them, and so, like many social science analyses, are somewhat tautological in

what they show. These bibliographic/bibliometric structures, technologies, and techniques offer certain understandings of people and texts as authors, documents, citation, etc. For example, in most systems, bibliographic references are counted, for example, but not acknowledgments (Cronin, 1995), some journals are not indexed, chapters of multi-authored books are often not counted, and so forth. (The arts and humanities remain poorly indexed by citation systems, and so citation analyses methods, such as the h-index, are not used as often or with as much importance in the humanities as compared to the social and natural sciences in North American academic evaluations, at least.) Author rankings, like journal rankings, may be self-reinforcing over time, not due to being effects of some quasi-natural ‘laws’ of bibliometric universes (e.g., Bradford’s law of impact, Lotka’s law of productivity), but rather, due to sociological tendencies and the privileging of certain of these tendencies over others by the value systems that must be implicit in citation indexes in order for them to be seen as not just technically, but socially, valuable. Indeed, citation analysis measures human behavior and bibliometric behavior as a consequence of this, but the human behavior that is measured over time becomes a consequence of the bibliometric/documentary systems as these systems are given central governance controls over social environments (for example, through academic evaluation procedures that prioritize the results of citation analysis tools).

4 Social Computing

The technical debt of Google PageRank and other web link analysis systems to Eugene Garfield’s work in citation indexing is well established. Social Computing — encompassing not just web link analysis systems, but recommender systems such as Amazon’s search and social networking algorithms — extend the means and social logic of citation analysis to larger populations of users. Through logical mediators, metadata, and text analysis, webpages are ranked, ‘like’ works are identified, and ‘friends’ are found through other ‘friends.’ The basic means for documentary mediation — organizing knowledge through logical processes of difference and identity — are carried out for the user at the time of the search, mediating the need at the time (or increasingly, with personal communication devices before) an ‘information need’ is known by the user. Recursive algorithms introduce a winnowing of choices corresponding to the user’s needs, a process that ‘gathers up’ past searches in future searches (Thomas, 2011, 2012).

This ‘calling’ or “interpellation” (Althusser, 2001) of the user by a universe of documents that are pre-identified by recursive algorithms, and previously, by link analysis algorithms and alike, constitutes the documentary naming of a person as *a certain type* of information user. The user is called into presence within the socio-technical documentary system by an identification of information needs out of popularly or professionally measured choices and out of his or her past choices. “Information needs” do not arise simply out of personal interests, but rather, ‘interests’ are themselves interests in things known or knowable, and so, interests arise out of discursive, or more broadly stated, ideological, spheres. Documentary positioning — indexing — of both documentary objects and subjects, then, are ‘political’ in so far as ‘needing’ information is that of positioning one’s self within informing collections of social materials through the use of language and technological/technical search infrastructures, which enfold within their dialectic historical trends and social norms.

Louis Althusser’s theorization of “interpellation” (Althusser, 2001), as the calling of the subject by the law. is useful to recall here, particularly if we understand this calling in terms of social indexing or subject positioning through documentary systems. This *interpellation* is aided by the *interpolation* of data within social big data systems, so that predictive functions help define the subject not only in real time but in future times. Predictive algorithms work with past and present behaviors in order to define and guide an ‘information need’ to specific documentary objects and ‘like’ objects. Social computing is, thus, the computational mediation of social and personal psychologies by logical functions of identity and difference, recursively leading to identity formations and identity constructions that follow existing social networks and the past searching habits of both the user and the larger social and cultural whole. (And in so far as

social psychology is understood in terms of commodity markets, social computing acts as the mediator between commodities and consumers/producers, both being understood as mutually joined expressions of ‘rational markets’ and personal ‘choices.’) Social computing is the expansion of citation indexing to broader and more general online environments. It mediates human interaction by technical infrastructures of recommender systems, Boolean functions, recursive algorithms, and natural language processing techniques for deriving semantic content and inferences. The increasing presence of these documentary algorithms and tools at the time of search or even before have made them, in our increasingly media concentrated lives, not only mediators, but creators, of our reality. In as much as they have joined us, they have also divided us into smaller silos of social care and responsibility. Our documentary devices (and their computational hardware) have increasingly become us, as we have become them; those increasingly invisible funnels of our concerns and our dreams, and not in the minority, of our narcissisms. As we will now see, some have attempted to give these “screen memories” (to borrow a term from Freud) a physical form, as well.

5 Android Robotics

Modern documentation begins with a materialist division between persons as readers or viewers of signs and of texts as bodies of signs as meaningful inscriptions. Modern documentation begins by reducing this relationship to a material relationship of retrieval, but as we saw with the Otlet quote that began this article, this materialism is immediately inverted by an even stronger idealization: the text now understood as a container for ‘information.’ This information, as a form of reference or ‘evidence,’ is the basis for the modern notion of the document. The task of modern documentary professions and technologies is not to unite a person with a text, but rather, a user with a document, though as we have seen it is the documentary or ‘informational’ universe of the document (derived through abstractions, representations, and fragments of the text) that structures user ‘information needs.’

Even if we were to understand the historical progress of the modern documentary tradition in the 20th and into the 21st centuries as being chiefly characterized by the subject becoming a documentary object, we would only see half the picture. The other half, though, is still very much in the process of evolving: that of the becoming subject of documentary objects. It begins, of course, with human projections upon machines.

Industrial modernity is made up of this ‘becoming’: mechanical levers, machines built on models of the body and the mind, machines built to mimic human organizations or to augment such. While documentary retrieval has sought to put the ‘content’ of documents (‘information’) into the minds of users, ‘strong AI’ has sought to put minds into the coding of machines. Android robotics represents either a stage in this latter, toward a total simulacrum of humans, or, it may be seen as part of what we might call a ‘communicative AI’ where human psychological projections upon the android form plays an important role in reading intentions and meaning upon the android’s expressions, as well as providing real world training sets for the machine learning of human cognitive and affective expressions.

The first step in either of these communicative AI options would be attempts to overcome ‘the uncanny valley’ (MacDorman, 2006; Mori, 2012) that prevents androids from being understood as humans by the persons interacting with the machines. A more natural communicative circuit may be desirable, if only to condition the machine to ‘learn’ based on more humanly natural training sets with it. One would think that mimetic transference would be easier with an android than with a text or even with a humanoid or other non-android robot, but this is often not the case. Just as only certain types of texts produce ‘eerie’ affects, such as ghost stories, stories featuring doppelganger and alike, etc. (Freud, 1959), people easily pick up signs of something not being right with one another, and so read into today’s rather primitive androids symptoms of hostility, illness, and even death (Mori, 2012), as well, of course, as bemusement regarding their mechanistic novelty. Just as uncanny narratives produce uncanny affects by deviating from scripts within realist frames of narrative, androids produce such affects by performative flaws within real

interactions with humans. Their very appearance as humans makes them susceptible to producing uncanny affects. Even scripted performances, such as theater performances (Oh, 2010), which have traditionally been understood as simulacrum, are not immune to this appearance of the uncanny. The ‘becoming subject’ of the document is very difficult to achieve, especially when such performances are not just through disembodied AI agents (such as call answering android voices), but rather, through physical robots that have the initial appearance of human beings.

Nonetheless, we live in an era when robotics increasingly is coming to be incorporated into and extend human subjectivity. Robotic call centers, human exoskeletons, voice controlled robots, and physical implantations are increasingly being not only programmed to serve users, but are trained through user actions for performing mental and physical expressions. Together, humans and machines are enfolded within one another in the performance of normative acts, which are increasingly precise and singular, despite their normativity. Digital machines, as compared to analogue machines, are better designed to perform within parameters of possible actions in conjunction with human intentions. The construction of inter-subjective documents and their social and recursive inclusion in further expressive acts is not only a characteristic of human to human mediated communication, but also human to computer communication.

6 Social Big Data and Neoliberal Governmentality

One of the most important aspects of social computing now is the use of large data sets for predictive ends. Particularly in the case of emotive or in this sense ‘aesthetic’ actions (i.e., emotive, rather than logical, senses of ‘liking’; fashion and shopping trends; tastes, etc. — (Bollen, 2011), technical interpolation and extrapolation, whereby documentary subjects and objects are brought together as conjoined data points of interest and longitudinal inferences are derived from this, constitutes the documentary metonymic compliment of ideological interpellation and social positioning in an age of big data. One is positioned as data, conjoined to documentary objects and that mutual objectivity as conjoined data is recursively read back unto the self for future searches and for future self-presentation to interested others. One is called or interpellated by means of known parameters, but that inference through live, historical, or social surveillance and recording (‘tracking’) then gives rise to other inferences, whereby one extrapolates new possible conditions, and so forth.

Social big data, particularly when combined with contemporary neoliberalism, which stresses self-positioning and competition within markets, leads to a new form of governmentality (Rouvroy, 2013). This new form of governmentality is one of control and self-control by large and recursive data, operating as self-reinforcing interpretive and behavioral command and control centers of cybernetic governance. As online mediated life becomes more ubiquitous, total, and common in the midst of a divided and isolated modernity, this new form of personal and social mediation uses documentary fragments to give persons and texts identity, expression, and value from their mutual positioning in parametric data fields. Life is expressed *as*, rather than simply through, each of us, and this representation slowly becomes us, singularly and as a whole. This is the documentary spirit, now given further force by neoliberalism and the collapse of not only the welfare state, but by the increasingly obvious end of employment by these same and similar tools of informatics.

7 Critique

It is often assumed that documentation is fundamental to critique, in so far as it provides evidence for states of the world. But, evidence is always evidence *of* something, and so itself derives from discourse. In the case of documentarily mediated knowledge, however, discourse — or in a more general sense, the organization of ideas, ‘ideology’ — is not the only source of the norms that evidence conforms to. There is a technologically mediated component, as well. The history of the modern documentary tradition in the 20th and now the 21st centuries has been one of the increasing dialectical interaction of ideological norms and

technical/technological tools toward the construction of documents and users as ‘evidence’ of these socio-technical systems.

To be useful and successful, these information and communication technology and techniques must help users get information that is useful, that makes sense. Creating such conditions is the purpose of documentary devices and services. Through documentary devices and services documents and their representational surrogates are organized and presented to users in useful manners. On the one hand, such organization must follow the logical processes of information organization and processing, as such occurs in both traditional documentary techniques and computational algorithms. (For example, search queries today are still largely keyword formulated rather than natural language queries; in cases where users do enter natural language queries, then the search algorithm may initially parse the queries into stop words and then calculate the relevance of the remaining key terms.) On the other hand, such organization must follow norms of human expectations—both for groups and for individuals.

In sum, documentary techniques and technologies employ ideological and technical operations, in dialectical relation with each other. The Dewey Decimal Classification scheme, for example, enfolded normative 19th century Western European cultural understandings of the major headings and divisions of general knowledge. Today, algorithms enfold group or individual harvested past searches in order to serve user needs. The logical order of the DDC and the order of subdivisions for cataloging are intuitive to anyone raised in the Western cultural tradition and educated in rhetorical procedures for argument. Computational processes built upon a logic of identity and difference, syllogisms and logical inferences, translate human affects of friendship networks and ‘liking’ into a computer mediated simulacrum, which then, cybernetically, may come to condition (or displace) face-to-face friendships.

As I have suggested in this paper, the socio-technical dialectic is historical in its increasing mediation of not only information and communication through representational entities, but in the formation of identities of self and other as representational entities. As we live so much of our lives online and as so much of our social and professional lives are conducted and evaluated by our documentary production, analysis, and ranking, documentary mediation becomes more and more the infrastructure through which we understand our lives and those of others. We come to live a *represented* life — a life of ‘digital experience, eventually, as represented data within normative parameters of social and cultural measure. In an economic system that is both increasingly informational and omnipotent within everyday life, and which is, partly because of such technologies, an economy of scarcity for the vast majority of people in even the ‘developed’ economies of the world, what remains outside of this counts, literally, for little if anything, though of course much does exist outside of it, not least, the worlds of affects, intentions and experience in more ‘general life’ outside of the documentary systems. We enjoy following our friends on Facebook, but we may be deeply touched in meeting them for real. We drag the ‘information’ that we find on the Internet into our lives and put it to the test in a more general ‘real life.’ We post on the Internet our experiences and photographs that occurred outside of the Internet, *per se*. There remain excesses and reserves to the more restrictive economies of online life, which is the source for much of the energy and meaning of the representations found there. But, some believe that we are increasingly losing sight of this ‘extra’ to online and digital life and why it gives joy and optimism to such (Turkle, 2011).

One really crucial question for affect, judgment, and knowledge at such an historical moment is what is the status of *critique* within the increasing presence of a documentary infrastructure mediating all forms of life?

The notion of *critique* that I have in mind arises in the 18th century as part of a very specific moment in the West — the moment of the Enlightenment. This doesn’t mean that critique doesn’t occur or hasn’t occurred in other cultural or historical environments or moments, but rather it was institutionalized in the Western Enlightenment as a very specific set of assumptions about people and their rights to expression. Basically, people and small groups of people became understood as singular agents —

powers — of great and diverse potential, whose source didn't lie in religious and monarchical orders and states. Public institutions arose to foster this, in commerce, knowledge (schools and libraries), organized sport, and many other institutions during the late 18th, 19th and 20th centuries. Though later critiques arose to check some of these powers when, as individual or collective, they hindered the inherent powers of individuals overall (such as the communist critique of Marx), even here the underlying theme was that of the right of persons to express themselves and to overturn not only established institutions and dogmatisms, but also personal habits and identities. Constitutions were written to embody such rights as foundational or 'inalienable' to all human beings, and the beginning point for such was taken to be intellectual freedom demonstrated in the right of free speech.

The usual framing of the documentary tradition is to see the documentary tradition as aiding the Enlightenment tradition by grounding truth claims in evidence. But, as I have been suggesting, the documentary representation of objects and persons as evidence and evidential claims, as is frequent in the modern documentary and neo-documentary tradition in LIS, can obscure, as well, the rights of persons and texts to critique and understanding. The Enlightenment self is not that of a representational identity, but rather, it is a set of potentialities of skills gathered by experience and deployed singularly — either by persons or by groups of persons — in regard to situations. 'Experience,' in such, is understood as patterns, models, and affects for analogical, but non-exact, iteration, combined with other past experiences in given situations according to *judgment*. Judgment, if it is rational, utilizes logical inference, but as a means, not as an end. Judgment is analogical, sometimes even allegorical, and is always experimental. For this reason, the wise person sees their judgments as provisional and as part of a conversation. One's best judgment may not always be a correct judgment, because the logical is not the rational, theoretical knowledge is not practical knowledge. But by taking account of other's experiences better judgments are usually better made.

Because of the importance of judgment in all living lives, both more information is reasonable and greater dialogue and difference is preferable. What the best amount of either may be in many situations is debatable. The best that we can do is to have a broad knowledge and be patient with ours and other's judgments and continually interrogate ourselves toward this. It is true that necessity breed action, but patience and listening breeds the judgment that is necessary.

But particularly in habitual or dogmatic situations, not the least in regard to the self's own relationship to his or her own opinion, prior to judgment lies the necessity to first open up the space of judgment by *critique*. If critique is threatened by the recursive closing of singularity and experience, then judgment becomes increasingly ideological and even formulaic. (Though, the more ideological and formulaic it is, the easier it is to claim increasing levels of relevance in information retrieval.)

Critique is threatened today on many levels, from the surveillance and governance of persons by states, governments, and corporate bodies, to instrumentalism in education, to the pressures of competition, money, and time in neoliberal scarcity, and to shrinking publication markets and the consolidation of media. In this article I have given several examples of an historical trend in documentary modernism toward the increasing representational mediation of texts and persons as information objects and as data points. Such mediation increasingly is occurring at the level of infrastructures of everyday life as well as scholarly knowledge. While there are very many reasons to celebrate the 'information age' and to claim that documents lie at the heart of modern knowledge and civilization, there is also a darker side to the story that I have tried to suggest in this article. A fuller account is usually preferable to a narrower account, and the simple purpose of this article has been to give the reader something to consider about the relation of modern information and communication techniques and technologies to lived experience.

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