

Carnal Indexing

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Abstract: While online pornography's unusual indexes may look disorderly, in fact, they evidence the process by which viewers and algorithms interact to arrange digital materials stored in databases of amateur pornography. These arrangements take shape according to patterns of browsing that serve as algorithmic data for the continuous process of organizing sexual representations. Porn sites and search engines offer a false impression of electronic metadata's accessibility and expanse. Indexing requires discernible metadata in order to make database retrieval effective. Images are available to viewers through the negotiation of an elaborate schema in which categories of sexual desire are produced through the sequencing of fixed subject positions always defined in relation to each other. This essay will consider both sides of that organizational process. First, I will examine how the carnal aspects of browsing pornography online create a conjoined relation between subject and object in our embodied engagements with intermediating technology. Second, I will explain how this carnal activity informs this arrangement, through algorithms, of online pornographic images. Doing so reveals that pornographic video hosting services are not merely repositories for content. Instead, their visual and technical design highlights and privileges the conjoined and dynamic relations between body, machine, and representation.

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1.0 Introduction

Any single-word search on Xtube, an online video host for pornography, inevitably produces a set of images tagged with an array of sequenced descriptors. For instance, an inquiry for all items designated as "bear" returns images and videos also labeled as twink, bareback, trucker, beefy, daddy, hairy, piercings and mature. Following the sequence to "twink" materials introduces blond, vintage, love, kissing, 18, breed, smooth, bubble, perfect, chub, Latino, strip, amor, college and interracial. A new search for "domination" returns materials tagged as Asian, Thai, Japanese, worship, control, humiliation, black, pussy, skinny, whip, bdsm and transsexual. The relationship between some of these tags probably seems, if not natural, at least familiar—in porn terminology hairy is a characteristic feature of bear. Other tags, however, create unexpected associations and wondrous juxtapositions—bear would often exclude twink, smooth bubble conjures the fluid permutations of a lava lamp, while the national identity Japanese precedes worship without the adjectival

modification common to a syntactical relationship. While these unusual indexes may look disorderly, in fact, they evidence the process by which viewers and algorithms interact to arrange digital materials housed in archives of amateur pornography. These arrangements take shape according to patterns of browsing that simultaneously enact carnal desires and serve as algorithmic data for the continuous process of organizing sexual representations.

This essay will consider both sides of that organizational process. First, I will examine how the carnal aspects of browsing pornography online create a conjoined relation between subject and object in our embodied encounters with intermediating technology. Second, I will examine how this carnal activity informs the arrangement, through algorithms, of online pornographic images in relation to each other. Such an arrangement effectively represents an index or diagram of the social network in which various pornographic images appear online. In this way, the body participates in creating a virtual community of masturbators, an alternative universe of sexual sociability.

I should start by noting a modern axiom that informs my analysis: we increasingly live electronic lives. We cannot escape daily encounters with computer technologies and their attendant networks of communication (television, cinematic, audiovisual, and photographic, among others). These technologies form a socially pervasive and profoundly personal part of our lives, not only because of their own specific materiality but also because the political, economic, historical, and social context that informs them. Thus, technology is never merely used, never merely instrumental; it is incorporated into our lives and helps constitute our embodied existence. These objective encounters with computer technologies transform us as embodied subjects and alter our subjectivity.

Online pornography has become a significant issue for media, technology, and information scholars. A study by Spink, Ozmutlu, and Lorence finds that “searching” for sexual images on the Internet accounts for more time and effort on the part of users than any other type of search (2004). According to Parikka and Sampson, an estimated one fourth of Western Internet users access online pornography (2009, 3). PornHub, one of the world’s largest pornographic video hosting services, publishes statistics about its company on its blog, “PornHub Insights.” According to PornHub (2015), its website had 18.35 billion total visits in 2014 alone, or more than 2 million visits per hour, making it one of the most trafficked websites online. Much of the research within human-computer interaction (HCI) and cognate fields relies on quantitative and behaviorist modes of description to discuss our subjective encounters with online pornography, rendering the experience of browsing pornography online in a neutral context and as having neutral effect. Within HCI the experience of browsing pornography online has been described as “seeking sexual information,” an example of the way in which some scholars have attempted (somewhat defensively, I think) to put the sensuous, embodied and ambiguous realm of online pornography into objective, detached but still ambiguous terms (Spink, et al. 2004). Despite that sexual arousal is a central experience to browsing online pornography, it has gone unexamined in much of the research on the subject, Paasonen (2011) notwithstanding. Perhaps carnal responses to pornography have been considered too crude to invite much investigation. Or perhaps studying the sensuous and affective dimensions of “seeking sexual information” is dismissed as imprecise criticism in favor of more “rigorous” and “objective” (usually quantitative) modes of description.

The neglect to examine carnal responses in pornography reflects the common assumption among technology scholars that browsing online is fundamentally cognitive and that, therefore, browsing pornography is analogous to searching for plane tickets. That analogy is misleading,

however, because in the latter case pleasure derives from finding a precise object, usually the least expensive and most convenient tickets, using the least amount of effort. Viewers¹ of online pornography, on the other hand, do not wish to be exempt from sensual being in the process of browsing. The pornographic experience is meaningful to viewers precisely because of their bodies. Zabet Patterson has shown that the pleasure of browsing pornography online does not derive from locating an imaginary perfect image that will satisfy one’s desire. Instead, pleasure derives from the process of browsing itself. “To imagine the goal,” writes Patterson, “is to project into a moment of perfect satisfaction—and the obtaining of a perfect image, one completely adequate to the subject’s desire” (Patterson 2004, 109). Yet nothing can compare to an imagined perfect image, leaving every image inadequate, and so the search continues. Browsing pornography, thus, adheres to something like a “principle of significant effort,” one that has an illusive object orientation. Perhaps this describes the difference between “seeking” and “browsing.” Whereas “seeking” suggests a specific object-oriented action, “browsing” suggests an action in which the object orientation is less defined and more open to serendipitous discovery.

While scholars of online browsing have long acknowledged that different objects might be sought differently, they have yet to offer a sufficiently meaningful examination or structural description of this relationship that fully recognizes its impact on our subjectivity in the process of browsing. Bates (1989) astutely acknowledges that browsing generally evolves throughout the process, but her insight needs to be substantiated by an examination of specific subjective relations to the specific objects sought. While James and Nahl (1996) believe that affect plays a serious role in the browsing process, they rely on quantitative descriptions and narrowly identify affect as always disruptive to the seeking process, rather than an enhancement of it; they offer methods for “coping assistance” to “mitigate” affect by “achieving focus” in order to return the browsing process to an “ongoing cognitive operation.” Dervin and Foreman-Wernet’s (2003) sense-making model acknowledges the subjective role of sense in making meaning in the browsing process, yet she attempts empirically to describe this process with only superficial descriptions of faculty perception of sensation. They conclude that there exists a gap between faculty perception and cognition (Cartesian mechanism) that must ultimately be reconciled in some way (always cognitive).

2.0 Sensing sensuality

Our embodied experience of browsing pornography online is an experience of seeing, hearing, touching, and

moving in which our sense of the literal and the figural vacillate, sometimes discontinuously, but usually configuring to make sense and meaning together. This is because, according to Vivian Sobchack (2004, 75 emphasis original), “we are incorporated *systemically* as embodied and conscious subjects who both ‘have’ and ‘make’ sense *simultaneously*.” To have and to make sense is an undifferentiated experience that grounds and conjoins body and language, feeling and knowledge. Alphonso Lingis, too, has emphasized the conjunction of the lived body and representation (1993, 162):

My body as the inner sphere where representations are perceptible ... and my body as an image seen by rebound from the world, are inscribed the one in [the] other The density of the body is that of ‘pre-things,’ not yet differentiated into reality and illusion [The] body is a precinct of signifiers.

For Lingis, then, the literal and the figural inform each other even as they inform us. We are both embodied and conscious in that we both have and make sense.

The process of browsing pornography online especially highlights and privileges the conjoined relation between the lived body and representation because it uses lived modes of perceptual and sensory experience to represent bodies that are also participating in lived modes of perception. Granted, porn viewers cannot fully caress the smooth shoulders of the man on the computer screen; the precise smell and warmth of the body on screen remain vague. Nevertheless, viewers have a partially fulfilled sensory experience of these things that makes them both conscious and meaningful. This experience is not reducible only to one’s senses or only to cognitive reflection.

Needless to say, the structure of this fulfillment is quite different in several ways from a context in which the man is literally present. One’s lived body sits in readiness in front of the screen as both a sensual and sense-making potentiality. Focused on the screen, the viewer’s “postural schema” takes its shape based on an inclination toward (or uninterested recoil from) what she sees and hears. “If I am engaged by what I see,” writes Sobchack (1993, 162), “my intentionality streams toward the world onscreen, marking itself not merely in my conscious attention but always also in my bodily tension.” This tension reveals itself sometimes subtly, sometimes blatantly, but always as an arrangement of one’s material being: the body contorts, retracts, straightens, bows, cocks, reclines, gravitates, recoils, slumps, and so on. While online browsing cannot fulfill certain sensory experiences (touch, smell, taste), when physically aroused, Sobchack writes (2004, 76 emphasis original), the “body’s intentional trajectory, seeking a sensible object to fulfill this sensual solicitation, will *re-*

verse its direction to locate its partially frustrated sensual grasp on something more literally accessible. That more literally accessible sensual object is *my own subjectively felt lived body*.”

Although Sobchack is discussing her experience watching a film, this description of embodied experience maps onto the embodied experience of browsing pornography online. Indeed, we cannot assume that electronic presence completely breaks from the procedures of cinema and photography. Digital representation participates in a broad network of communication that includes the cinematic and photographic. In an electronic cinematic presence (Sobchack 2004, 77), one is “in rebound” (recalling Lingis) from the screen, turning reflexively (un-reflectively) “toward my own carnal, sensual, and sensible being to touch myself touching, smell myself smelling, taste myself tasting, and, in sum, sense my own sensuality.”

Merleau-Ponty has described this phenomenon as our lived body’s capacity to sense itself (1964, 166):

There is a relation of my body to itself which makes it the vinculum of the self and things. When my right hand touches my left, I am aware of it as a “physical thing.” But at the same moment, if I wish, an extraordinary event takes place: here is my left hand as well starting to perceive my right Thus I touch myself touching; my body accomplishes “a sort of reflection.” In it, through it, there is not just the unidirectional relationship of the one who perceives to what he perceives. The relationship is reversed, the touched hand becomes the touching hand, and I am obliged to say that the sense of touch is here diffused into the body—that body is a “perceiving thing,” a “subject-object.”

This description of the lived body’s capacity to sense itself, when considered in the context of browsing pornography online, coupled with Lingis’s description of sensing one’s own sensuality, sounds remarkably similar to masturbation. Effectively a form of “self-touching,” it can also be described as “autoerotic,” “spontaneous eroticism” or “self-eroticism” (“autoeroticism”).² Viewers, thus, take pleasure from both seeing and feeling in the process of browsing pornography online. The touching in pornography (the smooch of a kiss, the touch of a shoulder) becomes actualized as the touch of one’s self. The pleasure represented by the image is physically felt by the viewer as she touches herself.

This form of self-touching is consciously other-directed, and as such, some might argue, it maintains the subject/object distinction because it is different from forms of self-touching in which one’s body and one’s consciousness is self-directed. Narcissism aside, however,

one's consciousness is never entirely self-directed and it would seem that masturbation demands special focus on an external, if also imaginary, figure of desire. It is precisely because one's consciousness is not directed toward one's own body but toward the figure of desire onscreen that the subject/object distinction remains interlaced rather than distinct. The diffusion of consciousness is matched by a dispersion of embodiment. The viewer is "caught up without a thought (because [my] thoughts are 'elsewhere') in this vascillating and reversible structure that both differentiates and connects the sense of my literal body to the sense of the figurative bodies and objects I see on the screen" (Sobchack 2004, 77).

To the extent that viewers are provoked by figural objects that are elsewhere, we are not focused on the particularities of our literal bodies either. My perception of the figure on screen and my sense of self are, therefore, vague and diffuse, even as the interaction heightens and intensifies my sensorium. At the moment one's lived body, in rebound, senses itself in the online pornographic experience, the particular objects that sensually provoke the viewer are perceived in vague and diffuse ways. One's body is the site where the sensual event of representation occurs, where the sexual solicitation by the figure onscreen and our own self-touching become diffused into our bodies. Thus, the literal body and the figural bodies onscreen are both differentiated and connected.

Furthermore, a form of autoeroticism in which one's body and one's consciousness are self-directed requires such cognitive reflection and attention toward oneself—what Sobchack calls a kind of double reflexivity—that it can and often does undo carnal pleasure. Sobchack points out how it is nearly impossible to tickle oneself for self-consciousness of our laughing results in it becoming forced. The process of browsing pornography online collapses the distinction between object and subject insofar as browsing for sexual representation participates in perceptual "rebound." At that moment, the search reflects sexual desire itself as necessarily other-directed and requires an object other than oneself "so as to avoid a reflexivity that is so doubled as to cause conscious reflection on sexual desire itself" (Sobchack 2004, 78). One might even claim, then, that browsing sexual images online fails to be pleasurable at the moment it becomes consciously reflective.

In these moments, one does not think about one's own body and one is not, therefore, thrust outside of the onscreen image. Instead, viewers are consumed by the image; they feel their bodies as only one side of "an irreducible and dynamic relational structure of reversibility and reciprocity" that has as its other side the figural body onscreen (Sobchack 2004, 79). It is a process of reflexive and reflective exchange that allows viewers literally to feel the warmth, moisture, and smoothness of a body.

This relation can be broken, not only by conscious reflectivity by also by reflexive feelings of shame, disgust, or the panic of being discovered by someone outside the scene intruding upon the moment (entering the picture, if you will). The intensity of these feelings attests to the body's relation to the figure on the screen, its sense of investment in what it sees, hears, tastes, touches, and smells. Consider, for example, when we cover our eyes or ears in a slasher film, literally sickened at the sight of blood, terrified by the psychopathic murderer, and frightened, frustrated, or made anxious by the victim's impending doom. These all attest to the conjoined relationship between the figural body onscreen and our literal body in the movie theatre—an affective experience that is carnally and consciously meaningful. Similarly, browsing pornography has a carnal and conscious relation to pornographic images, conjoined by the always reflexive and reflective exchange of sensation that defines the autoerotic goals of this particular browsing process.

3.0 Sensual structure

In adult pornographic hosting services, such as Xtube, Porn Hub, YouPorn, and PornoTube pornographic images online have been arranged around affective and social experiences, whereby curiosity, frustration, disgust, surprise, desire, pleasure, and wonder arise from the relation of images to their location within a digital space. The representation of particular acts, body parts, and fetishes can be as striking as an image's proximity to similar or different images. By rolling the onscreen cursor over thumbnail images, for example, one causes a scrolling visual field of objects to pass the screen, which unfolds metadata surrounding an individual image or set of images, such as textual fragments and audio files about the image. As the process repeats itself from image to image, what the viewer sees is not only metadata about images, but also metadata about relations among images. On a superficial level, such relations reveal the associative principles of indexing, in which images always exist in relation to other images. To offer a familiar example, such indexing occurs on Amazon.com when algorithms arrange objects based on other viewers' interests ("customers who bought this item also bought ..."), creating a relationship according to predetermined datasets organized for the online display.

For pornography websites, however, these relations also operate on a level of sensation in that their tendencies and currents are particular to viewer-initiated spatialization. That is, viewers initiate these relations through the process of browsing for images to "satisfy" their sexual desire. The images they choose are recorded as data into an algorithm that then participates in producing the visual (as well as textual) association of images (proximate

display) for future browsing. The resulting arrangement of pornographic images on display, effectively an index or catalog of images, is made increasingly affective by calling up anecdotal and historical information about an image's everyday use through its proximity to images or metadata of other fetishes, revealing its place in a larger social network of sexual fetishistic relations. In other words, the algorithm participates in creating a kind of sexual network among viewers.

Paasonen (2011, 2) describes the intensity of traffic between viewer and machine in online pornography as "affective loops." She writes, "[Pornography] tries to mediate the sensory and to attach the viewing body to its affective loop: in porn, bodies move and move the bodies of those watching." Media generally, according to Bolter and Grusin (1999, 3), aim at transferring sense experiences from one person to another. Algorithms arrange images in pornographic databases online according to particular desire and embodied browsing habits of its viewers, raising fundamental questions about their role in mediation, technology, and sensory experience. Pornhub, Xtube, and many other pornographic video hosting sites have implemented sophisticated algorithms to observe, analyze, and identify viewers through large surveillance networks online. These computer algorithms track browsing habits and a range of metadata, such as geographic location, IP addresses, and viewer-generated tags, categories, and video titles. These algorithms draw on individually-generated data as well as aggregated data in calculating search results.³

PornHub and Xtube consider their algorithmic design and the data it collects to be proprietary knowledge. Many pornographic video hosting services employ software programmers to develop database management systems and algorithms from scratch, instead of licensing a system from another company.⁴ This gives pornographic video hosting companies the ability to make their own strategic calculations behind algorithms and graphic user interfaces that seek to intensify traffic between human and machines by creating visual arrangements of images that further entice viewers to browse.

In their attention to web analytic, pornographic video hosting services are similar to marketing companies. As John Cheney-Lippold explains (2011), computer algorithms have the capacity to infer categories of identity upon viewers based largely on their web surfing habits. As views input more and more surfing habits and metadata into the database, content and advertisements are then suggested to viewers according to their perceived desire. Importantly, this "affective loop" is always changeable based on newly observed behavior or the input of new metadata. The purpose of this adaptability is to create a capacity of suggestion, to softly persuade viewers to

an imagined perfect image that enables a repetitive and recursive search.

Xtube, for example, arranges images from the moment it first engages viewers on its splash page by asking viewers to select their identity as a man or woman and to select their corresponding interest in men or women or both (the default selection is for men interested in women). Upon identifying one's gender and corresponding gender(s) of sexual interest, Xtube displays columns and rows of the most recently uploaded videos, similar to YouTube. Viewers are able to browse through a wide variety of pathways: most viewed, best rated, recently featured (by Xtube's staff), most discussed, top length, top favorites, and random. Within these standard categories, Xtube arranges videos according to the latest uploaded video by default, though one can filter search results.

On the right side of the screen, Xtube offers viewers a wide selection of categories of images and videos, which correspond to viewers' previously identified sexual interests. For example, if a viewer identifies as a man interested in women or a woman interested in men, categories include anal, anime, asian, BDSM, fetish, ebony, latina, mature, miscellaneous, toys, group sex, interracial, lesbian, MILF, and voyeur. If a viewer identifies as a man interested in men, categories include many of the same categories above with some variation, such as bear, fisting, hunks, muscle guys, transsexual, yaoi, big cock, daddies, general gay, and twinks. Curiously, Xtube uses the same categories for viewers who identify as women interested in women as those categories used for viewers who identify as men interested in men, even when the categories seem inappropriate.

Additionally, Xtube features blogs, including real time feeds from registered members' blog posts, online groups, forums, instant chat relay features including live-streaming video, quizzes and polls created by different viewers, a dating portal similar to Gay.com, an online sex shop where viewers can purchase a variety of sex toys, and even a version of Craigslist.com, in which viewers can find people on Xtube in their local area who advertise events, jobs, retail outlets, personal advertisements, escort services, bars and night clubs.

The viewer adds titles, descriptive information (often in the form of tags), commentary, and narrative description about images. Viewers can rate images, add images to a collection of favorites, create playlists, browse other videos uploaded by specific viewers, or browse a specific viewer's collection of favorite images and videos. Having incorporated social networking design elements into their websites, pornographic video hosting services make explicit the way browsing pornography has become a social experience. Viewers can befriend each other online, exchange stories about their fantasies and desires, follow

each other's uploaded videos or favorite videos, and contribute to wikis that attempt to explain the sexual nomenclature used in tagging pornographic videos and provide synonymous search terms, effectively a sexual thesaurus. It is difficult to know precisely how much of this data Xtube, PornHub and others include in forming a viewer's algorithmic identity and in arranging images online; conceivably, it is all potentially useful.

However, the arrangement of images on display does more than entice viewers to continue searching. It also serves to regulate viewers' subject positions. The sexual categorization that surrounds pornographic images ostensibly allows viewers, according to Patterson, to "project their virtual selves into a seemingly endless variety of scenarios and environments, and to embody an infinite variety of freely chosen subject positions, roles and desires" (2004, 106). This nomenclature, which reflects already present social relations, functions to guide, if not overtly discipline, viewers' subject positions and desires by creating an environment in which subjects and desires are produced as essential standards. According to Patterson, "part of the captivation of cyberporn is that it allows images to be managed and categorized so readily, allowing the subject to assimilate and emulate a particular subject position while retaining the hallucinatory promise of fluidity" (2004, 107). Many of these categories reflect the nomenclature of subjects and desires within sexual subcultures. Hence, the bounds of power are not always top-down. Instead, as I have shown elsewhere (Keilty 2012), these stabilized categories of subject and desire operate in complicated ways within the dominant culture. For Chauncey, such categories are created under the weight of social disapprobation, leading members of a sexual subculture to insist on a form of solidarity that requires conformity to group standards (1993, 300).

Search engines, such as pornographic hosting services, also require discernible categories and classification in order to make information retrieval effective. Images are available to viewers through the negotiation of an elaborate schema in which categories of sexual desire are produced through the sequencing of fixed subject positions always defined in relation to each other. As I have shown elsewhere (Keilty 2009), while the viewer might role-play within these classifications, the exploration is constrained by a logic of recognizable cues. In pornographic video hosting services, viewers who submit material to the website organize their images, videos, or narratives among standardized categories. Some of these sites offer tagging options, a form of folksonomic classification, but the tags are subsumed under the standardized classificatory scheme. That is, tagging, in some instances, operates within overarching categories.

Partly what interests me, then, is how the Internet allows for a global community of masturbators who have in common similar fetishistic desires and whose social relations become effectively cataloged, indexed, diagrammed, and regulated through the very structure of online pornographic images. Thomas Laqueur has suggested that these online communities of masturbators constitute a change in the history of masturbation. "There are hundreds of thousands of pornographic sites that cater to every masturbatory fantasy imaginable," writes Laqueur, "but what is really new is the proliferation of virtual communities of onanists, an alternative universe of sociability that is created through the public revelation of the not-so-vice" (2003, 419). Masturbation—once a solitary sexual pleasure, marked by privacy, loneliness, self-absorption, guilt, and shame—has come to be an increasingly public, social, and communal experience online. Viewers enter into a participatory relationship with online pornography, contributing to how pornographic images will be arranged and displayed in relation to other images in future browsing scenarios. In other words, browsing habits and metadata supply affective and social data about the images viewers see. The algorithm arranges images around affective and social experiences, which means that "affective loops" are both the result of affective and social experiences and that affective and social experiences arise from these arrangements.

For example, viewers might watch a video described with a "hairy" tag which places the video within an erotic relation to other videos tagged with the same word. Algorithms will identify videos patterns between videos, and suggest additional videos based on perceived viewing patterns. Doing so not only softly persuades viewers to keep searching but also allows for an erotic and affective sociability among viewers who share a similar desire for videos described as "hairy." Without necessarily interacting with each other, viewers form a distributed intimacy with each other by trading and exchanging "hairy" videos as a shared cultural form. This circulation and distribution of "hairy" videos therefore constitutes an erotically charged and affective cultural practice. The texture of these relations helps us to better formulate a framework to understand previous studies that address the organization of pornographic videos online (Beaudoin and Ménard 2015).

Merleau-Ponty's description of physical self-consciousness reinforces the way in which viewers experience the algorithmic arrangement of images as affective and social. As touching in pornography becomes actualized as the touch of one's self, one become conscious of their desire. The proximate display of images produced by an algorithm reveals one's desire in a broader sexual and social network of fetishistic relations. This display of associated images provokes viewers to act on their self-conscious desire by clicking through to an associated desire. Viewers

are, therefore, not simply lost in their desire, a purely sensual experience, but prompted to become conscious of the relation of their desire to other images and to act on that consciousness.

It is important to remember, too, that the arrangement of images on display in online pornography does not reveal an image's fixed identity in relation to other images. Pornographic images online do not constitute the static presentation of a thing. Instead, these images and the process of their arrangement are lively events in which viewers participate as bodies and so make the images they see meaningful at the level of the body. Both the meaning and the arrangement of images on display constitute a probabilistic materiality in which images are not an entity but a provocation to interpretation, which thereby offers an indeterminate possibility for their arrangement through the algorithm.

This is to say, to the extent that the meaning of images changes, so too will the browsing activity around those images. Two otherwise unassociated fetishes become associated through an algorithm when viewers' browsing activity repeatedly associates the two. Should viewers interested in images categorized as "bear" also frequent images categorized as "fisting," the two categories of images will be arranged online in close association with each other. The same is, of course, true of individual images. Should the meaning viewers create from these images change, so too will their browsing patterns and the association, e.g. arrangement, of different images. Thus, these images do not express a set of things in relation to each other whose identities are self-evident or whose arrangements are fixed. They are always probabilistic identities. As in any probabilistic field, the act of intervention (reading, seeing, watching) constitutes the event and gives it determinate form from its potential. Whether this is actually a classification system or just a conglomeration of individual relations and fragment associations is an open question. Nevertheless, these terms have an indexical function that guides viewers experiences and indicates subject relations and reveals the shifting nature of taxonomies.

Finally, the embodied aspects of the arrangement of objects on display have not been lost on visual criticism. Scholars of enlightenment visual culture, for example, reveal a corporeal relation between exhibition and viewer in the arrangement of objects on display in the Baroque curiosity cabinet, the Wunderkammer. In such cabinets, the arrangement of objects on display also arose out of wonder, surprise, irritation, and curiosity. This is not to say that the arrangement of images online today can be anchored solely in the referents of the early modern period, or that there is some kind of causal effect of old media on new. Instead, the digital functions as part of a baroque genealogy, which articulated differential relations

between embodiment and technics. It places, according to Munster, "body and machine, sensation and concept, nature and artifice in ongoing relations of discordance and concordance with each other."⁵

As with the Wunderkammer, many pornography websites provide an overflow of images and textual fragments, seemingly arranged in a rambling and chaotic fashion, opposed to concepts of ordering and system. Recall the myriad of pornographic images on display alongside pop-ups, advertisements, flash and animated GIFs, all accompanied by background music. Many pornography websites provide an enormous range of selection that seems to promise satisfaction. This conception of design participates in an aegis of "getting what you want" but in excess of it. In this way, pornography websites promise the accessible and visible while delivering the curious and obscure. Such a method of display is an aesthetic contrivance that draws the wonder, curiosity, surprise, and, sometimes, frustration of the viewer, amassed, no doubt, by the material limits of computer technologies, such as the capacity of silicon to conduct electrons at particular speeds.⁶

Paasonen persuasively argues that pornography scholars must examine the meditational logic of online pornography, that there is an "affective loop" between sexual representations and viewers online. Part of understanding this meditational logic means being attuned not only to the content of pornography but also the technological apparatus by which that content is delivered. Pornographic video hosting services are effectively databases or digital archives of pornography. User interface designers and software developers make strategic choices about the design of these databases, including algorithms that determine modes of display that operate on the level of sensation, guiding and intensifying traffic between human and machine, viewer and pornography, thereby blurring the lines between the two. Indeed, pornographic video hosting services are not merely repositories for content. Instead, their visual and technical design highlights and privileges the conjoined and dynamic relations between body, machine, and representation.

Notes

1. To the extent that technology is never merely used, I have opted not to describe those engaging with online pornography as "users," which perpetuates the kind of cognitive, and sometimes pathologizing, modes of description that I seek to disrupt. See also Day (2011).
2. *OED Online*, s.v. "autoeroticism."
3. The exact detail of what data these companies use to form the basis of search results is proprietary knowledge. However, I was able to obtain this drastically

broad understanding through informal email conversations with Pornhub and Xtube public relations employees who were authorized to speak on the subject.

4. While many pornographic video hosting companies develop their own algorithms and database management systems, they work with Content Delivery Networks and Internet Service Providers to deliver their content. Pornhub, for example, partners with LimeLight Networks and Level 3 Communications, respectively.
5. The relationship between digital visual culture and Baroque visual culture has been articulated by numerous new media scholars. See especially Murray (2008) and Munster (2006).
6. It is important to remember that the embodied experience of browsing pornography online is mediated by the material specificity of computer technologies. Browsing always occurs in relation to the limits around which a specific computer technology, such as the desktop computer, is capable of functioning.

References

- Bates, Marcia J. 1989. "The Design of Browsing and Berrypicking Techniques for the Online Search Interface." *Online Review* 13: 407-24.
- Beaudoin, Joan and Elaine Ménard. 2015. "Objects of Human Desire: The Organization of Pornographic Videos on Free Websites." *Knowledge Organization* 42: 90-101.
- Bolter, Jay David and Richard Grusin. 1999. *Remediation: Understanding New Media*. Cambridge, MA: MIT Press.
- Bostwick, Michael and Jeffery A. Bucci. 2008. "Internet Sex Addiction Treated with Naltrexone." *Mayo Clinic Proceedings* 83: 226-30.
- Chauncey, George. 1993. "Christian Brotherhood or Sexual Perversion? Homosexual Identities and the Construction of Sexual Boundaries in the World War I Era." In *Hidden from History: Reclaiming the Gay and Lesbian Past*, ed. Martim Baum Duberman, Martha Vicinus and George Chanucey. New York: Penguin.
- Cheney-Lippold, John. 2011. "A New Algorithmic Identity." *Theory, Culture, and Society* 28(6): 164-81.
- Day, Ronald E. 2006. "'A Necessity of Our Time': Documentation as 'Cultural Technique' in *What Is Documentation?*" In *What Is Documentation? English Translation of the Classic French Text* by Suzanne Briet, trans. and ed. Ronald E. Day and Laurent Martinet with Hermina G. B. Angheliescu. Lanham, MD: Scarecrow.
- Day, Ronald E. 2011. "Death of the User: Reconceptualizing Subjects, Objects, and Their Relations." *Journal of the American Society for Information Science & Technology* 62: 78-88.
- Dervin, Brenda 2003. *Sense-Making Methodology Reader: Selected Writings of Brenda Dervin*, ed. Brenda Dervin and Lois Foreman-Wernit with Eric Lauterbach. Cresskill, NJ: Hampton Press.
- Nahl, Diane and Leon James. 1996. "Achieving focus, Engagement and Acceptance: Three phases of Adapting to Internet Use." *Electronic Journal of Virtual Culture* 4 (1).
- Keilty, Patrick. 2009. "Tabulating Queer: Space, Perversion, and Belonging." *Knowledge Organization* 36: 239-48.
- Keilty, Patrick. 2012. "Sexual Boundaries and Subcultural Discipline." *Knowledge Organization* 39: 417-31.
- Laqueur, Thomas W. 2003. *Solitary Sex: A Cultural History of Masturbation*. New York: Zone Books.
- Lingis, Alphonso. 1993. "Bodies that Touch Us." *Thesis Eleven* 36: 159-67.
- Manning, Jill C. 2006. "The Impact of Internet Pornography on Marriage and the Family: A Review of the Research." *Sexual Addiction and Compulsivity* 13 nos. 2/3: 131-65.
- Maurice Merleau-Ponty. 1964. "The Philosopher and His Shadow." In *Signs*, trans. Richard C. McCleary. Evanston, IL: Northwestern University Press.
- Munster, Anna. 2006. *Materializing New Media: Embodiment and Information Aesthetics*. Hanover, NH: Dartmouth College Press.
- Murray, Timothy. 2008. *Digital Baroque: New Media Art and Cinematic Folds*. Minneapolis, MN: University of Minnesota Press.
- Paasonen, Susanna. 2011. *Carnal Resonance: Affect and Online Pornography*. Cambridge, MA: MIT Press.
- Patterson, Zabet. 2004. "Going On-Line: Consuming Pornography in the Digital Era." In *Porn Studies*, ed. Linda Williams. Durham, NC: Duke University Press.
- PornHub Insights. 2015. "2014 Year in Review." Retrieved September 23, 2015 from <http://www.pornhub.com/insights/2014-year-in-review>
- Sobchack, Vivian. 2004. *Carnal Thoughts: Embodiment and Moving Image Culture*. Berkeley: University of California Press.
- Spink, Amanda, H. Cenk Ozmutlu and Daniel P. Lorence. 2004. "Web Searching for Sexual Information: An Exploratory Study." *Information Processing & Management* 40: 113-24.