

Annotating the world

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Abstract

Augmented reality is generally understood to be a direct or indirect view of the world supplemented by additional information, data or graphics. It provides an enhancement to our perception of reality, usually in real time. This paper examines how digital photography, with its image-creation based overlays and information, may be understood specifically as a process of perception enhancement. This approach, differing from previous understandings of photography in the analogue age, may offer a new account of how the world is mediated and interfaced.

Digital photography and the resultant convergence of the camera with the cell phone, has created the conditions for exponentially more images to be created. This proliferation of photographs and the ease with which they can be shared across a network has, in turn, radically altered our experience of visual culture and visual communications.

The focus of this paper will be to explore the doxa of image-making interfaces built into the devices we use to produce digital photographs. I argue that these controlling augmentations force us into a perception of the world as being simultaneously a visible reality and a representational object. With the subsequent addition of geo-tags, meta-data along with online social and user generated interactions, digital photographs are no longer simply representations of reality but are perhaps better seen as annotations of a particular kind of imaged reality.

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The direct or indirect view of the world supplemented by additional information, data or graphics is generally referred to as augmented reality. The enhancement to perception this type of technology brings, which happens usually in real time, shifts how the world is seen and understood. Reality, when it is perceived in this way, is directly overlaid with additional data and information. It therefore becomes an enhanced, hybrid reality. As Henri Bergson [Bergs10] noted in his book *Matter and memory*, perception itself is not simply a direct contact of the mind with an object; rather it is impregnated with memories-images. In augmented reality the supplementary layer of information, situated virtually between object and viewer, broadens Bergson's account of perception - an account which in itself attempts to distinguish between the 'virtual' (memory) and the 'real' (objects).

In this paper I shall specifically look at how digital photography, with its image-creation based overlays and information, may be understood as a process of perception enhancement. This examination of photography – as a practice that makes use of layers of augmenting information – situates itself between arguments that frame photography as either a sociotechnical practice or those that place attention on the discrete aesthetic object it produces. Two positions have tended to polarise opinion around photography: the photograph as aesthetic object approached most usually through a semiotic framework and photography as a historical, cultural practice or representational form. This has resulted in an underlying “tension between aesthetic object and sociotechnical practice” [Frosh15]. However, this is not attempt to take a position on one side or other of a binary oppositional argument (aesthetic object vs. sociotechnical practice); instead I consider how photography has the capacity to be both and many more things simultaneously.

Frosh [Ibid] suggests that in contemporary theory, we might consider the networked image [Rubin08] as aesthetic object and situate this in opposition to a sociotechnical practice of algorithmic photography [Uricc11]. However, I argue that the networked image is invariably also situated *within* and formed *from* the underlying logic of the algorithm. In joining these positions together I hope to express an argument toward an interdependent, ecology of photographic theory. My argument, which begins with exploring how technology shapes how we perceive the world, develops to suggest photography is not a process that captures a reality. Instead, reality is perceived and mediated photographically. However, photography here is not understood as simply a representational form, rather what structures photography is also what structures and explains the uncertainty of the world.

Following David Rodowick [Rodo07: 42], I claim the instrumental qualities or ‘automatism’ of technology not only binds or limits subjectivity or creative agency but also fundamentally alters how we perceive the world as photographed. Technology helps shape the types of photographs we take and the ways we can take them. It determines the distinctiveness of digital photography, since the aesthetics of its representation are “driven by device functions” [Frosh15: 1607]. Furthermore, technology re-orientates the relationship between photographic theory and our usual understanding of terms such as composition and indexicality.

The choice of equipment and its technological features largely influences how photographs are composed. Different cameras or different camera applications produce different types of images. They may determine a viewpoint, a position even perspective. In addition, operational functions may assist how images are constructed. For example, a camera viewfinder grid overlay helps to organise and structure the space of the frame. This structuring takes place according to an understanding of ‘harmony’ and ‘balance,’ terms commonly associated with the picturesque. Equally, arguments associated with indexicality - the connection between a sign and its referent - are further problematized when what we see is supplemented through layers of additional information. When augmented reality features directly connect information together their creation of a new relationship is often contingent on a range of variable factors. This may include a user’s contacts or their current location. Since the disagreements around photographic indexicality usually concern themselves with visual similarity, with resemblance, they have rarely taken into account the extra information or meta-data that may be attached to, reside within, is captured by or somehow influences the creation of digital images.

Fundamentally, I suggest that technology largely governs how we take the photographs we take. But it is also the bridge between aesthetic object and sociotechnical practice. It mediates between the viewing subject and the viewed object, structuring how we see what we see. Looking becomes a complex act, which is often technologically determined and navigated toward *significance*. However, technology not only frames how we look it also helps shape subjectivity, as Rubenstein and Sluis argue: “it is not the subject who masters technology, but technology that produces the cultural and linguistic forms that construct subjectivity” [Rubin08].

Throughout this paper I shall attempt to move beyond ideas associated with ‘photographs as a representational surfaces’ to a consideration of ‘photographic images as material *and* virtual objects of data and information.’ Such a move away from understanding photography in only representational terms challenges a position that situates and guarantees subjectivity is at its centre. It also creates a distance from the idea that the world is encountered as a photograph, an image or a picture. The opposing position considers photographs as non-representational objects, expressing something of the temporal characteristics of the network. It reflects on their role in spatially configuring environments and reinterprets how they may articulate a possibility of a non-subjective experience. Ultimately, a non-representational view of the photograph opens up the opportunity to consider and re-evaluate more closely the structures and forces that produce, configure and distribute meanings. Since these forces ultimately shape our worldview, and organise our relationships they also come to define the coordinates of our own agency. It is in this sense that through photography, the world is annotated. As Rubinstein has noted, photography is not “another visual form of representation, but an immersive economy that offers an entirely new way to inhabit materiality and its relation to bodies, machines and brains” [Rubin15], it is this new, emerging and complex photographic ontology that arises from the layering of representational practice with information and data.

Rather than view the photograph simply as a signifying surface [Fluss07] it may now be more useful to consider photographs as being a part of a process that organises information [Rubin15]. It is this organisational function, as Rubinstein argued, which suggests photography operates not through its ability to create representations but rather as a means to ask questions about seeing. In this way photography presents a critique of the relationships between humans and objects. However, the acknowledged difficulty in considering photography as a non-representational force is how it can be conceptualised through the existing photographic discourse. It may therefore be valuable to approach this problem by considering the processes through which the camera annotates a passive world of objects by examining the relationships between image creation, transmission and display. These relationships are not necessarily discrete and may be outlined as follows.

Firstly, at the creation stage, a form of image is likely to be already viewable on a screen. This screen is possibly similar, if not identical, to the one that will display it later as a separate image (this is especially the case when considering cell phone cameras). In the creation state, the screen image may well be layered or augmented with a range of image-making information. Such informational prompts

act as guides or controls in the image-making process. For example, these settings may prevent a photograph being taken unless part of the image is correctly in focus. They may also indicate faces, through facial recognition features or show areas of darkness (under-exposure) or lightness (over-exposure). Fundamentally, in digital photography, image creation and image display often occur simultaneously. The camera is therefore not only an image-making device; it is also capable of image viewing.

Secondly, the increasingly instantaneous link between image creation and image transmission is largely facilitated by mobile devices, networks and data connections. Creation and transmission, in this sense, become a singular event. The transmission or the broadcasting of images in real time has now become a standard feature of social media. Once shared, images may then gain new information and significance through time coding, tagging or social media interactions. As well as broadcasting devices may also receive information such as geo-positioned data. These additional layers of information may ultimately reinforce indexicality, the 'being there then' part, of photography.

The processes of creation, transmission and display are clearly entwined together creating a state of potential immediate and mediated interaction. It is their instantaneous nature that underwrites the relationship which binds them together. The prompts and constraints imposed on our interactions with creation, transmission and display are invisibly structured and organised by hardware and software. Both of which are deliberately designed to appear to facilitate processes rather than to control them. Nevertheless, how we look, what we share and what images we consume are in essence algorithmically governed by software. In a process of mediated looking, through the camera or any other device, there is now only a limited possibility of unaware or unintended exploration. Any agency of seeing is guided and modulated by software commands, information and data instruction. The motivation for this functionality is to add value to the seen object and to append what is being looked at with a layer of additional augmented content. In photographic terms, this works in order to create formulas for endlessly replicated images. In a similar way it also helps to distribute these to those who wish to consume or 'like' similar or identical images.

The production, distribution and consumption of images has been largely facilitated through developments in camera technology, the continuous growth of the Internet and the speed of the broadband connections that join the network. Such developments in technologies, resulting probably

most significantly in the convergence of the camera with cell phone, have created a set of conditions that allow for exponentially more images to be created transmitted and shared. It may well be that the subject matter of photography has changed very little over the decades of its existence. Nevertheless, the volume of images produced has, in recent years, substantially increased and how they function has evolved. In *Ubiquitous Photography*, Martin Hand [Hand12: 12] argued that in the digital age photography has become interwoven into society and its *radical pervasiveness* means that it is embedded into multiple and diverse social, political and cultural forms. Mobility and portability have also no doubt contributed to the pervasiveness of digital photography.

As Sarah Pink [Pink11] has suggested, when re-thinking the meaning and values of the image we should also take account of concepts of movement and place. The image, she suggests, is produced and consumed as we move through environments. Her argument, which emerges through Ingold's critique of the anthropology of the senses and network theory, claims to undermine the supposed dominance of the visual, placing images into the realm of an experience of environments. Pink proposes images as being interwoven in 'everyday movement' giving them a central role in 'perception' and 'meaning making.' An example of how perception may be altered can be seen in Google Street View. As a consequence of the amalgamation of photographic and geo-locational data, time and place are reconfigured into a new organisational system. As Francesco Lapenta suggests, the "shift in organisation of the representations of the world can be interpreted as a paradigmatic shift that transforms the new synthesised images of the world into a new socio-organisational principle" [Lapen11: 19]. Such a mapping of the world onto the virtual space of the computer screen creates a new virtual place. Even the method of user interaction abstractly represents everyday movement through a mediated data and information environment. Within this technological organisation and representation the basis of information regulation and control are established. While the aesthetics and presentation of Google Street View is clearly an attempt simulate reality, in fact it bears little resemblance to the random and arbitrary world as it is usually perceived.

Viewing the world through a camera may show technical data relating to camera settings, facial recognition overlays, focus points, contacts, GPS, time and date information. Depending on how it is then distributed, an image may also go on to include a variety of tagged information such as the names of the people depicted in it. It may attract 'likes' or comments or other social media interactions. It is this mixture of representational and informational data that differentiates digital photography from its

analogue counterpart. Photographs attempt to explain not only the visual world; they also order the circumstances in which we encounter the randomness of the material world.

In this sense perception is divided into at least two clear simultaneous experiences. One is the visual object, the other an overlaid, informational enhancement augmenting our phenomenological experience. The digital overlays may appear to bring into being richness and a depth of experience but supplementary data is invariably mediated through the doxa of the camera, the computer screen and software. These controlling interfaces model and organise the world rather than accurately represent its underlying disorder. Therefore to see digital photography only in representational terms is to overlook its computational ground and the pattern of its algorithmic foundation.

Felix Guattari developed the concept of metamodelling as a critique of the existing notions of the model by proposing that they are “reductions of diagrammatic space made of intersections and disjunctions, operated by abstract signs and symbols” [Parisi 14: 04]. Metamodelling is a diagrammatic account of signs and symbols rather than a hierarchical one. It proposes that the relationship between signs and symbols is one of layering rather than of direct correspondence. The model – or the direct French translation of ‘pattern’ – may be understood in two distinct ways: one as a form of behaviours learned and inherited through and from institutions and social apparatus such as the family, education, socio-political structures. The other is where there is a direct mapping of configurations and processes.

I suggest the overlays we experience on digital images are of the very nature that Guattari proposed for metamodelling, in that they do not represent objects but they ‘diagram’ a behaviour, pattern or information. Such models of information function relationally and perhaps, most significantly, create a direct association between patterns of visual objects and data. Moreover what is seen in representational terms may also be expressed through its correspondence with informational data. The chaos of the world is therefore seen simultaneously as configured and organised from and through both its visual representational patterns and its structuring data. This produces photography that may be a socio-technical object underpinned by a layer of image-making interface. It also means that digital photographic agency and vision are a part of a process that organises our perception of reality. Any perception of agency is therefore regulated through the alignment of a set of technologies, uses and practices.

There are many changed responses and interactions to what and how we photograph. For example, geo-tagging and date tagging may help organise and curate photographic collections but these features may also be used to directly inform why, where and what we photograph. In this sense the gathering of random un-associated data may be more important than any representational form - the where or when images were taken being of more value than what they visually show. Similarly, enhancements in camera interactivity such as touch screens and real time interaction provide forms of direction and guidance. They also encourage people to take certain types of photographs. An example of this is the Apple iPhone Panorama function in which an arrow on the screen guides the movement of the user toward the next visual point in order to create a seamless image. The arrow itself attempts to govern horizontal and lateral movements, choreographing photographic behaviours and resulting in interchangeable panoramic visual forms. Since the panorama itself is seen as the quest for a complete view, the structuring use of information to augment seeing and creation governs our perceptual interaction with space.

If photographic augmentation changes what we see and how we behave then it is because images “frame, configure and enact the power relationships in the digital age” [Rubin15]. Placing an additional layer of informational data onto images reveals their and our own more pressing association with a structuring network of software and databases. To annotate the world is to transform it into information and to situate the subject, not at the Cartesian centre of all things but rather to become an arbitrary node within a network (or as Tim Ingold has expressed as a ‘meshwork’). It seems as though representational patterns are no longer adequate or useful for explaining the world in terms of its form. Instead, if both camera and photograph are the very foundations onto which information is overlaid, then what is needed is a new conception of photography. A conception of photography that is sufficient to create different images from data. One which can explain a changed world to the world by describing and annotating not our traditional ideas of form but the chaotic and random form of ideas within the network.

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