Digital Sites- Performative Views

Gavin Perin and Linda Matthews

Abstract—Webcam systems now function as the new privileged vantage points from which to view the city. This transformation of CCTV technology from surveillance to promotional tool is significant because its'scopic regime' presents, back to the public, a new virtual 'site' that sits alongside its real-time counterpart. Significantly, thisraw 'image' data can, in fact,be co-optedand processed so as to disrupt their original purpose. This paper will demonstrate this disruptive capacity through an architectural project. It will reveal how the adaption the webcam image offers a technical springboard by which to initiate alternate urban form making decisions and subvert the disciplinary reliance on the 'flat' orthographic plan. In so doing, the paper will show how this 'digital material' exceeds the imagistic function of the image; shiftingit from being a vehicle of signification to a site of affect.

Keywords—Surveillance, virtual, scopic, additive

I. INTRODUCTION

IN this essay, 'Unreal Estate', prominent Australian Architect, Carey Lyon, argues that the post-industrial economy, with its dependence on the image, offers new design methodologies to those traditionally used to design built form[1]. Lyon's focuses on the semiotics of the image, so there is no explicit call to contest the social and cultural significance of the image or to intercede in the technological processes of behind the image. This has the potential to present the designer as a passive communicator of received images.

One uncharted course of Lyon's argument suggests a direct engagement with the performative potential of the technologies of image production and dissemination. Utilising a range of digital technologies, one could coopt the devices that permeate and spatially frame the contemporary city view to construct and release alternative urban images back into the public sphere. Drawing on the investigations and outcomes obtained through design-based research, this paper aims to present the consequences of such an approach. Specifically, the paper will detail how co-opting information gathered from CCTV systems, and processed through a range of analytical and generative softwares, can be used to engender an urban response that works beyond the formal repertoire of more traditional urban design strategies and tactics. Accompanying this exegesis will be the observation that such processes result in an urbanismwhose image exceeds the semiotic framework of postmodern thinking, and thus replaces form as signifier with the producer of 'affects'.

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II. CCTV SYSTEMS

The spatial complexity of the contemporary city makes it difficult for governing authorities to police urban space. Many commentators, often in reference to Foucault's *Discipline and Punish*, posit CCTV systems as the preferred mechanism of social surveillance authorities use to control this space. The significant difference between these systems and Bentham's panopticon is that the technological transportability of the image allows captured 'content' to re-enter the public domain through the interactive capacity of these systems and the transmission of their 'content' back through the Internet. If, after Foucault, the physical capacity to enforce social order is founded on the illusory impression of authoritarian omnipresence, the adaptability of CCTV 'content' means that the technologies of surveillance are now, more than ever, susceptible to 'feedback'. Of course, the surveillant gaze is merely one way in which such disciplinary power is exercised.In the essay ' "Informe" Without Conclusion', Rosalind Krauss, in reference toGeorges Bataille's *The Deviations of Nature*, effectively suggests that any process of social normalisation produces a statistical averaging where diversity is reduced to a set of prescribed idealised forms. Krauss, drawing this time on Bataille's idea of 'excess', outlines how these idealised social forms sustain processes of social homogenisation to 'support the orderly fabrication, consumption, and conservation of products' [2].Driven by Bataille's concept of 'dépense', this system of consumption functions only when unproductive and productive, unclean and 'clean' expenditures are kept apart. Architecturally, social compliance is achieved by providing 'those who could not bear the image of decomposition reflected to them by the slaughterhouses … museums to compose themselves again'[4]. However, as Bataille's notion of 'excess' makes clear, the irreconcilable precipitate of consumption is heterogeneity. For Bataille, 'excess' occurs at the extremities of social order, where the abject lower and sovereign ruling classes form an ironic structure where, according to Krauss, the social elites represent 'the very exception of which the rule is the product' [3].The increasing use of CCTV to disseminate 'ideal' city scenes through the Internet effectively marks a tactical shift away from Foucault's ubiquitous, encircling view towards Bataille's ostentatious architectural form.Of course, both Foucault's and Bataille's systems are founded on the capacity of authorities to construct and promote their preferred version of the 'good citizen'.However, the promotional redeployment of the webcam marks the return of architectural monuments to help expiate individuals''darker urges'. As both a propagandizing and a performative act, this use of the webcam aims to extend the pacifying affect of the architectural monument into virtual space. In so doing, the leisurely act of 'surfing the web' is reframed as a 'clean' expenditure.

The promotional use of the webcam indirectly creates new prime 'saleable' sites that effectively re-orientate the 'address' of built form. This alternative formal and commercial imperative modifies the traditional physical logistics underpinning city form. In fact, initial design-based research[1] showed how considering the market potential of the camera view against the social import of the site could lead to new urban forms that respectively dominated or evasively 'haunted' this new viewpoint.

The webcam has other performative capacities, especially given its 'content' can be so easily co-opted and used within secondary promotional virtual sites like 'YouTube'. Facilitated by the Internet, these views can operate as spaces to curate events and happenings. For instance, the New York's *Surveillance Camera Players* use high visibility CCTV camera views to stage plays. This demonstrate show easy it is to subvert the surveillant intent of these systems such that the camera view, literally transformed into a performance venue, permits individuals to become producers, rather than consumers of content.

The immersion of the user into virtual space, either as viewer or maker, creates a very different mode of engagement with public space. Mark Hansen, whosees this technology as a projected 'prosthesis' of human expression, outlines the significance of this mode of engagement. To quote Hansen from *New Philosophy for New Media*: 'new media art…[channels] perception through the computer, not as a technical extension beyond the body-brain, but as an embodied prosthesis, a catalyst for bodily self-transformation' [5]. For Hansen the Internet instigates a cycle where the user's engagement with the virtual world, via a digital system, functions to 'virtualise' the body. 'The body, in short, has become the crucial mediator or "convertor" (Ruyer) '*between information and form (image)*' [6]. In these scenarios the projective mechanism of the scopic logic of digital space is performative (the doing of something) rather than projecting form from without. In this new visual model, the capacity of the Internet user to selectively engage in public space from this 'embodied' perspective is made possible because, as previously mentioned, individuals become the producer, rather than the consumer, of content. The ensuing impact on public space is that the Internet user, as the 'embodied' site of meaning, operates through a feedback loop that is driven by engagement and affect. Accordingly, the accessibility of the Internet image through the Internet, in combination with its adaptability in both real and virtual space, can be said to represent a new *modus operandi* where the bodily engagement of the user shifts the visual paradigm from signification to affect.

III. THE CIRCULAR QUAY FORESHORE PROJECT

The webcam view of the East Circular Quay precinct is a prime example of the way CCTV technologies are used to promote the city. The camera, aCanon VC-C501, is operated by the Sydney Harbour Foreshore Authority and captures a 270-degree view of Circular Quay Precinct. This view incorporates the Overseas Shipping Terminal in the foreground, Circular Quay in the mid-ground and the Sydney Opera House-East Circular Quay retail and residential precinct in the background.

This is an iconic city view and the desire to control the built fabric has been formalised through a range of regulatory controls applied by local and state government bodies. Consequently, not only does the City of Sydney have strict precinct regulations, but any new development must also receive 'minister's consent'. The level of control also has a virtual parallel, as evidenced by the closure of the webcam to the public viewing during the 2007 APEC Conference. These restrictions underline how the function of the system is integral to the production of a particular scopic regime. They also show how a small section of the community, or what Bataille would label as the sovereign ruling class, are responsible for constructing and maintaining the visual appearance of the site.

For this reason a design-based project was conceived to contextually transform the visual consequences of these regulatory controls as they appear through the webcam 'precinct view'. New built form, to be placed within the unbuilt areas of the site, aimed to alter the site's visual hierarchy in such a way to also support its programmatic reconfiguration. Crucially, the linkage of image quality and program meant programs would have to operate on the same twenty-four hour, seven day a week basis as the webcam itself. This suggested a programmatic mix of newperformance functions, including an experimental theatre, a karaoke bar/private dining venue, an open-air performance venue and an accompanying underground car park.

Finally, the capacity of the Internet user to rotate and zoom in and out of the viewmeant a set of further formal and material issues had to be taken into account. This required an understanding how a shift in the view recalibrated the formal and material reading of all new interventions.

IV. DESIGN PROCESS: CONTEXTUAL COLOUR RENDERING + OPEN SOURCE SOFTWARE

The reconfiguration of East Circular Quay's visual field began with a qualitative investigation of the site through webcam images 'captured' over a twenty-four hour period. Using, *ImageJ*, a public domain java script medical imaging data processing program, these still images were imported stacked, sliced and reconfigured to produce a site colour rendering profile. An added benefit of this process being that it can be used to test how new built form alters the existing profile. This effectively means the designer can strategically and deliberately respond to any sort of contextual visual information.
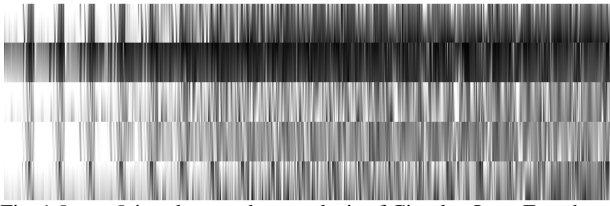
Fig. 1 *ImageJ* time-lapse colour analysis of Circular Quay Foreshore

V. COLOUR ZONES + IMAGE ANALYSIS

The *ImageJ* analysis of Circular Quay revealed a tertiary colour profile that sat within the purple- blue tonal range. The recessive and passive qualities of these colours suggested that any intervention should favour blue and yellow- the most visible and luminous colours of the spectrum. Anytechnical assessment of the ensuing colour performance would, of course, have to accord to the additive RGB colour model used within digital environments. In this modelsecondary colours are obtained by combining two primary colors of equal intensity. Cyan involves the addition of green and blue, magenta, the addition of red and blue, and yellow, the combination of red and green. As every secondary color is the complement of one primary colour, the combination of the primary and its complementary secondary color results in white. Hence cyan complements red, magenta complements green, and yellow complements blue.The selection of blue and yellow, therefore, increased the whiteness and brightness of the image- an effect most potent when viewing the screen at night, the time when most 'virtual tourists' are likely to visit the webcam site. Irrespective of the colour selection, the intensity 'on the screen' fluctuates as light conditions change in the 'viewed' space. The impact of these variations in environmental conditions on intensity and luminosity can be addressed by deliberately exploiting the camera's focal length in conjunction with the materiality, size and distribution of façade elements. Clearly, this relationship is least significant in daylight because the light quality ensures the delineation of the façade elements increases in parallel with an increase in focal length. Even when the façade unit size is comparatively small and the camera is at its shortest focal length, the relative intensity of blue to yellow fails to alter the fact that blue, as yellow's visual counterpoint, recedes as the more luminous and visible yellow thrusts forward. For these reasons any yellow element will remain visually dominant in daylight.

The relationship between a camera's zoom function and the colour intensity alters dramatically at night when the intensity of yellow reduces and, therefore, reinforces the site's existing darker, purple profile. Depending on the scale of the façade elements and camera resolution, this effect would be more pronounced as the focal length shortens because, unlike in daylight where blue and yellow wavelengths combine to produce a lighter, white profile, such a combination of colours would, at night, serve only to accentuate this innate dimming effect. Clearly, altering the transparency or lighting of yellow façade elements would modify the intensity differential and thus the colour profile. This material relationship implicitly suggests a link to program where temporal activation of a

façade element could strategically coordinate colour, luminosity and brightness to produce a specific change in an existing colour profile. Hence, any alteration East Circular Quay's tertiary colour profile, instigated by the selection and distribution of program, would need to optimize the intensity differential between yellow and blue at night. For this reason, the primary dominant programs would be aligned to the yellow façade elements, leaving the secondary, less active programs, to be positioned behind the blue façade elements.

VI. PATTERN AS FORM GENERATOR + PROGRAMMATIC AND SPATIAL DELINEATION

Clearly there is nothing in the previous discussion on façade surface colour that determines the actual arrangement and scale of the façade elements. Keeping in mind the interactive operability of the camera, and returning to the two-dimensionality of CCTV image, it seemed logical to scale the façade elements to the webcam pixel grid. [7]
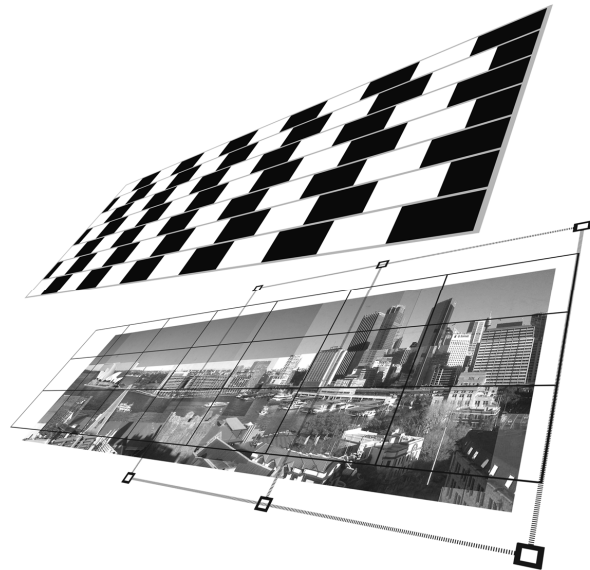

Fig. 2 Webcam view with grid and pattern overlay

Once the site had been scaled to the abstract spatial unit of the pixel, it was decided to select a pattern that not only enriched the optical qualities of the image but also helped differentiate materiality across the whole site. The Münsterberg pattern, discovered by Gregory and Heard in 1979, was selected not only because it satisfied the secriteria but also because it gives the illusion of a skewed pattern such that parallel lines appear to diverge in alternate directions. A result of 'border locking', this pattern exploits eye's difficulty in edge detection when simultaneously attempting to register space and colour information. Experientially, the optical effect of this pattern paradoxically draws the attention of the Internet user while preventing any clear legibility of the form 'in the image'. Unable to be resolved by modifying the camera position, the pattern is as equally disruptive at street level. The generation of three-dimensional form from the Münsterberg pattern used the heightfield displacement command in the

modelling program, *Rhinoceros*. As shown in figure 3, this command allocates different heights to different colour information. This done, the realignment of the three-dimensional displacement to the original pattern reinforced the approach to program where primary and secondary programs were aligned to light and dark areas respectively.
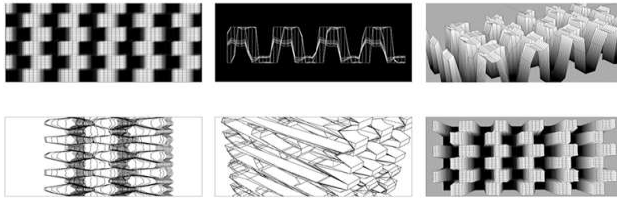

Fig. 3 Development of form from pattern using *Rhinoceros*

The final step in the form making process was to re-orientate all facades to be perpendicular to the webcam lens.

Conceived as a way to maintain the flatness of the webcam image, this reorientation of the façade surface opened an experiential difference of form between real and virtual views. Thus, the apparently flat façade in the camera view would in fact be highly articulated in real and virtual street views. These viewing discrepancies reinforce how the camera view is only one part of a more complex set of viewing experiences.

Obviously, the deformation caused by the re-orientation of the façade establishes a direct relationship between the extent of twisting and the angle measured in plan between the perpendicular of the camera lens and the site location. This in turn significantly effects spatial distribution, size and arrangement, because that the greater the twisting the more intimate the spaces produced. As in-depth formal studies showed, building form located at more acute angles opened the building mass around its entire vertical axis. In contrast, those buildings with less twisting underwent less spatial deformation, making them better suited to the larger, more public, program types. This represents a fundamentally different way in which to determine the relationship between building location and program type, but it remains only a general principle. A study of the building almost perpendicular to the camera lens showed how significant programmatic adjacencies enforced a modification of the relationship between deformation and site location. Consequently, in order to fulfill its brief as a performance venue, the initial façade pattern density was doubled, which opportunistically created further spaces suitable for outdoor entertainment.
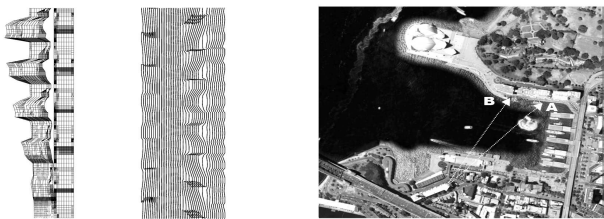

Fig. 4 Formal deformation in façades. The far left image shows an acute twisting of the façade while centre image shows afaçade perpendicular to the lens. The right image is an aerial view showing respective site locations of these buildings
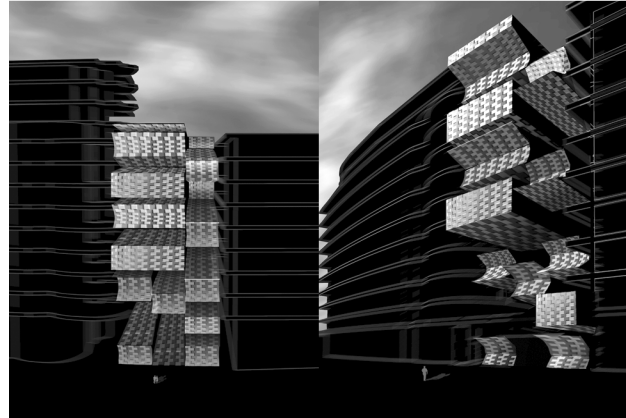

Fig. 5 Webcam view (left) and street view (right) of intervention perpendicular to webcam lens

VII. SCALE AND MATERIALITY

The application of the two-dimensional Münsterberg pattern pixel 'unit' to real three-dimensional space establishes a direct scalar relationship between pattern and facade element. While this size varies according to the actual site location, the minimum size of the facade unit in the background of the image was forty square centimeters. This unit, which, when assembled, easily aligns to standard floor and wall division spacings, allows the pattern to seamlessly scale up and down irrespective of the camera focal length. This is the most obvious interpretation of the scalar relationship between pattern and facade element. Patently, any façade 'unit' could just as easily be subdivided into smaller panels. In fact, by exploiting the colour combination characteristics of the RGB model, a façade unit can be broken down into smaller coloured panels in such a way that, when viewed at shorter focal lengths, they optically combine at the scale of the pixel to reproduce the black and white' colouring' of Münsterberg pattern. This means any façade unit, irrespective of its size or location, can be assembled to respond directly to any specific camera focal length setting. This means that any façade can be configured to respond to any given programmatic and spatial distribution or and subdivision. The ability to alter the relationships between scale, colour and pattern across a range of'viewing scales' means this system can be adapted to a diverse set of programmatic requirements.

In the case of this project the delimiting factor is the desire to achieve specific colour and pattern variations between light and dark zones over a twenty-four hour period. However, while the luminosity and extensive colour and texture range of a material like synthetic translucent methacrylate make it an ideal choice for achieving the desired tonal variations, its efficacy remains linked to the activity 'level' within the interior spaces.

The need to group program to provide a consistent level of luminance ultimately means materiality is driven by the temporal activation of program.

VIII. Conclusion

The East Circular Quay project shows how the adaptation and diversification of digital systems modifies how we receive, perceive and engage with the urban environment. As the paper shows, the coexistence of duplicate interdependent virtual and real-time sites produces unexpected discrepancies between the camera view and the experiential street view. This opportunistic exploitation represents a new urban design strategy that introduces a temporal framework to guide formal intervention.

It also allows the implied three-dimensional space of the image to subvert the instrumentality of the two-dimensional orthographic plan. Representing a procedural inversion in the respective roles the plan and perspective play in traditional urban processes, this change has significant formal implications for the organization and delineation of program.

In light of this, the recruitment of the CCTV system as an agent to invert social extremes within the public domain opens a latent social opportunity. Fulfilling dual functions, it enables, on the one hand, a performative diversification that answers Bataille's proposal for facilitating 'excess'. On the other, the pluralistic visual capacity of the process institutes an approach to design that encompasses the juxtaposition of opposites and embraces Bataille's notion of 'dépense'. Hence, the diversification in the technical instrumentality of CCTV systems has profound implications for the 'use value' of images because they attain a performative potential to configure urban space. Just as Bataille's theory of 'excess' produces social heterogeneity, the use of the image in this project opens the image to other programs that work to liberate, as Krauss puts it, 'our thinking from the semantic, [and] the servitude to the matics' [8].

In the introduction to *Formless: A User's Guide*, Yve-Alain Bois comments that social change must take place at a systemic level. The East Circular Quay project reveals one way in which the virtual provides a technical and systematic springboard by which to intervene in the urban context. Differing from traditional urban design methods, the image here trades in its role as signifier, to become operative and performative. This change is significant because, as Bois reminds us, 'it is neither the "form" nor the "content" that interests Bataille, but the operation that ensures that neither one is any longer in its place' [9].

In these ways the transformation in the role of CCTV from surveillance to the imagistic promotion of city form not only asks the designer to relinquish the more traditional design strategies for city making but also demands a vastly different, more public mode of engagement with urban form. This opportunity comes about through the accessibility to webcam 'content' and a vast array of new procedures. It also requires a performative and generative, rather than passive, relationship to the image.

The ensuing meeting of the body and the digital image allows one to avoid the pitfalls associated with signification because the effect and affects of these technologies transform our engagement with the image into a qualitative and experiential one.

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