READ OR FOLLOW?

DESIGNING WITH MOBILE TECHNOLOGIES AND DIGITAL SPACE

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Introduction

This chapter examines the relationships between mobile technologies and the city environment, with reflection upon my work and experiences in the field of digital choreography. A mediated approach to architecture and planning will be discussed, with a particular focus on how these technologies can complement and enhance the movement of people in the city. With a wealth of information and opportunities for engagement now at our fingertips through the use of mobile internet enabled devices, we are presented with the ability to add an exciting new layer to the geography of our cities.

While the buildings and travel networks expand and grow around us, so the virtual world also develops. With so much of our daily lives now affected by and in rhythm with the virtual world, it follows that the physical world must accommodate the changes in our behaviours and requirements that this elicits. Elizabeth Grosz suggests that the most significant effect of the increased use of the chip and screen in day to day life is the way that our 'perceptions of materiality, space, and information'(Grosz 2002:76) are changed. Each of these aspects are inherently linked to our purpose, use and navigation of the city. How we perceive space and distance will impact decisions about transport, about comfort and security. Grosz asserts that the chip and screen 'is bound directly, or indirectly to affect how we understand architecture, habitation, and the built environment' (ibid).

Navigating the digital.

Taking navigation as an example, developments in technology have fundamentally changed the way many people encounter and explore the city. One behaviour in particular has inspired this chapter, namely the way that people are beginning to look down more than they do up. This behaviour is beautifully illustrated in the anonymous Tumblr blog entitled 'We Never Look Up'(Anon 2014 online) which is a photographic account of society's preoccupation with hand-held devices. The pictures show hunched over figures isolating themselves in their own kinesphere, oblivious to what is going on around them. Amongst the more poignant images there is a couple sat across from one another at a table in a café, each with their eyes and bodies focused intently on their phones. Another photograph depicts a man in an art gallery, his back turned to a sculpture hunched over reading his phone. While these images may suggest a closed minded and unsociable aspect to mobile technology, there is an alternative viewpoint. Taking the gallery image as an example, I have been in a gallery and used my phone to find out more about an exhibit. Our mobile devices can enhance our experiences and many museums and galleries are beginning to make use of this through QR (quick response) code links and augmented reality apps. Augmented reality often uses GPS location or image recognition to display an alternative view or add objects to a camera view. The Museum of London has developed an app called Streetmuseum which allows users to hold their device up to a London street and view the street as it would have been in the past[i]. The multi-functionality of our hand-held devices are

providing more opportunities for their use and in turn affecting our physical encounters with the world. The implications of this are perhaps most explicit in changes in navigation.

Virtual Navigation

We look down.

Into our phones, into tablets, at sat-navs.

Always looking at information in a small frame.

Navigation is now a word more commonly associated with movement through web spaces. The architecture of a website is crucial to how and where it can be viewed and the ease to which it can be used. The success or failure of this architecture is often most evident in the application of Satellite Navigation or 'Sat-Nav'. While we are finding our feet in the virtual architecture, we try to relate the information found to the real world. Two worlds collide – sometimes more effectively than others – but for many of us in the twenty-first century, we look down into our devices in order to navigate. When visiting a new city, our first instinct is to find a Google map or type the post-code into a Garmin. We stare intently at these devices, putting our trust in them and are often left feeling vulnerable or angry when the virtual world does not fully prepare us for the real one!

This virtual navigation trend is completely at odds with how I was taught to navigate and how I learned to explore spaces. I was taught to read the map. The use of the verb to *read* is important. We do not *read* a Sat-Nav, we *follow* it. The former suggests an examination of information and interpretation, while 'follow' implies an unquestioning obedience. The change in verb illustrates the significant change in behaviour. The traditional map provides a representation of the area and relates strongly to the environment. Finding your way using a map involves reading the symbols and using them to position yourself within the real environment. You are required to identify features of the landscape or landmarks and work out where you are, where you want to go and how you are going to get there. This type of navigation is often referred to as 'wayfinding' and it causes you to be continually present and focused on looking up and looking around as well as referencing the map. Compare this to the use of the Sat-Nav and you find we look down and keep looking down and looking at the blue arrow or other icon that tells us where we are. And it is because the icon tracks our location, meaning we don't perceive the need to, that 'paying attention is no longer as present in the user'(Hansen 2009:10). The following action of Sat-Nav use produces a very different behaviour and condition of awareness to that of wayfinding. Hansen further articulates the difference, stating that navigation (using the point A to point B approach of Sat-Navs) follows 'a predefined sequence' while wayfinding creates 'a sequence based on a number of selections' (ibid). Following a Sat-Nav has the potential to isolate the user from the environment, keeping them looking down into the device.

But when do we look up and see where we really are?

The answer is often when we have to.

There is a car horn beeping at you, you've lost GPS signal or for some reason you don't believe that the Sat-Nav that is telling you turn left is correct because you are knee deep in

Figure 1 – Looking down at a live music event, 2013.

mud. You look up and you ask, "where am I?" because you don't actually know – you have placed all your trust into a 2D rendering of the environment which is a completely different kind of architecture to what you are faced with in reality.

Digital spaces as layers.

The example of navigation sets out very clearly potential problems of using the virtual world to inform our encounters with the real world. However we cannot continue to consider these as discrete when business and social use of the internet continues to grow. The popularity of mobile devices as tools for communication, information sharing and social interaction indicates that the material environment – including the built environment – must learn to accommodate and work with these technologies.

The architecture of the city is no longer simply bricks and mortar, but also levels and layers of content, providing information (such as mapping or local facilities), alternative views, historical context or even role-playing. These layers build a further virtual dimension into our cities. The challenge facing those working in the built environment is how to incorporate the virtual in a way that is inclusive, practical and beneficial.

Michel de Certeau discussed two perspectives of the city in the text *The Practice of Everyday Life* which Hansen articulates as 'from outside through the map or from within as a pedestrian'(Hansen 2009:5). The developing layer of mediated content and interaction in our cities introduces another perspective which, although somehow intertwined with Certeau's embedded and elevated views, doesn't sit comfortably within either category. A virtual view of the city suggests a completely separate world that sits apart from the real, a charlatan if you will. Discussions of virtual reality in the late nineteen eighties and early nineties when the technology first became mainstream seem to focus on a utopian ideal of a separate world space. However this is not what virtual and interactive media has provided for the city. While some do still choose to use the web and gaming technologies as a place to escape to, the mainstream impact of web and information technologies has been in areas that assist or engage with our everyday lives. Lev Manovich suggests that there are currently three main technological applications; 'surveillance, cellspace, electronic displays'(Manovich 2006:220) and that these applications 'make physical space into a dataspace: extracting data from it (surveillance) or augmenting it with data (cellspace, computer displays)'(ibid). The notion of a dataspace suits the current focus of technology and its very nature. Particularly in the city where our needs are often information driven (locating facilities, conducting business, engaging socially), the dataspace pervades every street and building through mobile devices as well as installations. The prevalence of mobile devices presents the dataspace with an even more global reach, almost Certeaulian elevated status as we are no longer dependent on wired, physical links between points. Wifi and Bluetooth technologies are non-linear and have an omnidirectional reach. However the dataspace is not restricted to or defined by its reach and elevated view, it delivers an individual experience as well. Within the microcosm of the personal mobile device the user encounters the dataspace in his or her preferred manner. The development of the graphical user interface (GUI) and particularly touch related control of these interfaces enables the dataspace to become personal, adaptable and accessible. Mark Sample recognises the importance of this, reminding us that, 'the technology of post-modernism is technology that, as Stirling puts it, "sticks to the skin, responds to the touch"' (Sample 2014:76). The tactile interface is perhaps the key in developing relationships to the dataspace that do not isolate it from our experience of physical space and encourage way-finding behaviours.

Designing with the dataspace.

With the emergence of the dataspace comes a whole new challenge for those designing and planning for the city. How can our built and designed spaces accommodate and integrate the dataspace which is both global and personal in a way that works alongside our real spaces rather than continuing this trend of everybody looking down? How can the dataspace be incorporated into the experience of the city? What form should interfaces take in order to maintain both access and awareness? Professor of Film and Television Sean Cubitt raises our awareness of the potential risks in standardisation, suggesting that the result of this is 'a culture that constrains us to innovation within parameters already historically established and steers us away from inventing the disturbing and exciting new' (Cubitt 2014, p4). While technological developments can generally be considered to hold a genealogy born mainly in the name of necessity or accessibility, in looking outside of the existing paradigms we may open up pathways to new experiences and interfaces that foster the relationship between the analog, digital and the virtual. In discussing digital light (we may consider the LCD and OLED screen to be a form of this) a symposium held in Melbourne in 2011 proposed that 'carefully matched workspaces and workflow management [by] these dominant companies… produces a normalisation of visual culture" (Cubitt et al 2012:38). This statement explicitly expressed fears that the current trend for digital interfaces and workflow to be normalised by dominant players in software and hardware industries will impact on the creative application of such technologies.

Amid a proliferation of companies offering intuitive, what-you-see-is-what-you-get products it is easy for the designer to select the market favourite, or normalised interface. When faced with a population that has adopted mainstream, prescriptive products such as the iphone or facebook, how do we offer or create new experiences of our city that can transcend the boundary of the screen?

Lev Manovich talks of an 'augmented space' which is 'the physical space overlaid with dynamically changing information'(Manovich 2006:223). The most obvious example of this is the use of large display screens on buildings. But there is the potential for this augmented space to include the mobile devices, wearable technology and built in technology that is beginning to fill our daily lives.

Mobile technologies in particular can provide an essential interface and a new way for us to navigate the architecture of our city. They can offer different experiences and opportunities in navigation from Sat-Nav or traditional maps which use cartographic symbolism and representation. Through digitally embedded opportunities for interaction, digital 'tactics' (to use Certeau's term) could enable the user to 'escape the control of material and abstract institutions and create their own interpretations or writings of the city'(Jensen and Ulv in Hansen 2009:7). By integrating the dataspace into design the personal experience of the city can become even more tailored rather than generic. Advertising companies are already taking advantage of the personalised dataspace. You need only to look at the relationship of the banner ads you see to your browsing history to see this in action. As we design spaces and encounters within our cities, can we find ways to embrace and cultivate not only the personal dataspace, but also the social dataspace. Though it can be argued that the microcosm that the personal device creates is an alienating space, there are ways that these personal dataspaces might be choreographed to provide opportunites for social or business encounters for example.

Virtual Reality (VR), Augmented Reality (AR) and applications with a similar interactive approach can open up new methods and methodologies in engagement with the city through targeted content. They also provide a new creative medium for artists across many disciplines including, but not limited to, film, gaming, dance and performance. Randall Walser saw the potential for mediated spaces suggesting that; 'Print and radio tell; stage and film show; cyberspace embodies … The filmmaker says, "Look, I'll show you." The spacemaker says, "Here, I'll help you discover."'(Walser in Rhinegold 1991)

The opportunity for the spacemaker to facilitate discovery is an exciting one and through mobile technologies and the dataspace we have the tools to create spaces that are multidimensional, not just physically, but also digitally encouraging layers of experience where the visitor may simply pass through or choose to engage with the space at a different level. These mediated spaces allow for

dissemination of multiple visual and information layers, a truly augmented space in Manovich's definition.

The many spaces within the city can be discovered or augmented through technology. Shelley McNamara and Yvonne Farrell assert that 'What we build as Architects is in fact the New Geography'(Farrell and McNamara 2011, online), drawing on notions of persistence of the built environment and legacy. In the growing area of Information Architecture we see a 'new geography' and alternative opportunities for navigation evolving in the content and usage of the world wide web.

Furthermore, as we begin to better understand the ways information within the dataspace can travel, the planner has greater tools at their disposal for choreography of movement within the city. GPS enabled apps allow for the tracking of crowd movement, authorised persons and even the occupants of a building. Utilitarian uses of this information include development of safety and security provisions and energy saving procedures. The dataspace is directly informing and changing the physical space and as we further understand and explore the potential uses of this pervasive dataspace we can build a more integrated relationship between the spaces of our cities.

The language and nature of this relationship is constantly shifting. The bidirectional nature of communications technology has expanded exponentially with the advent of social media such as Twitter and Facebook. Utilising a multi-platform approach advertising and promotional campaigns have been able to reach an even larger audience and interact with them receiving instant feedback, interest and responses. As designers, being able to respond to these opportunities for development and cultivating an explorative attitude enables the users of the city to contribute and feed the experience of our spaces. If we fail to embrace and direct purpose of these opportunities we risk our spaces becoming out of sync, or even relevance to our users. Elizabeth Grosz suggests that;

> The Net not only speeds up and enhances information storage and retrieval and communications structures, but it threatens to disrupt or reconfigure the very nature of information, communication, and the types of social interaction and movement they require. (Grosz 2002:86)

There are many pressures that the Net or the dataspace places on the architecture of our city, but there are also many opportunities. The opportunities to engage with mobile device users and enable a greater level of interaction with our city promise to enrich communications, business and social paradigms. Within my own field of the arts, the possibilities are seemingly endless.

Choreographing with mobile technologies.

As a choreographic artist my own interest and engagement with mobile devices has helped me devise a teaching strategy that challenges my students' ideas about choreography and movement. Through analysis of the small screen and mobile internet as a performance space, notions of perspective, space, time and privacy can be discussed. Pertinent issues both in personal and social spheres. What the mobile device seems to provide is an opportunity to explore the dataspace through a lens which allows both a micro (personal) and macro (social) viewpoint. In the summer of 2013, I worked with a diverse group of dancers on developing choreography harnessing the small screen and the use of mobile technologies. The resulting works presented an array of different experiences and means of connecting with the environment and movement through the mobile device. The process began with an exploration of the issues and themes that surfaced when considering the multifunctional use of the mobile device. The key issues raised included privacy, information, entertainment and time. Each issue was investigated by a different group. How these projects developed illustrates the various opportunities the dataspace provides for engagement and exploration at a macro (social) and micro (personal) viewpoint. One group investigated a way to portray the history of a particular room on the University campus. The room E124 had been a command centre during the D-Day landings and the choreographic response by the group involved dense research coupled with a personal response – a

marriage of macro and micro viewpoints. The project culminated in an interactive space installation where visitors were invited to explore - and more importantly experience – the research (figure 2).

The space was laid out as though it were the remnants of an explosion. Scattered papers, photographs and objects, suggestions of the space that had been. Among the debris were a number of QR (Quick Response) codes which linked to sound-bites, images and movement footage created by the group, which visitors were encouraged to scan and discover through their mobile devices. When the space was full of visitors, if you stepped back for a moment, the combined effect of all the mobile phones playing back the sound bites created a dense soundscape which was incredibly evocative. When you yourself were engaging with the codes and the information, the nature of the small screen and the handheld device made the information somehow more intimate and invited a more personal response. It is easy

Figure 2 – Choreographic installation in development, 2013.

to see how such an interactive environment might be used in a museum or exhibition environment. However, the concept of creating a macro and micro dataspace with the potential to offer social and personal experiences of a space, topic or entertainment can be carried across into the design of other spaces within our city environment.

Both in my teaching and my research area of technology and movement, I have found that a phenomenological approach, privileging bodily experience often facilitates the meeting of the digital and analog. The importance of this is iterated by Professor of Communications Brian Massumi, who suggests that, 'digital technologies have a connection to the potential and the virtual only through the analog' (Massumi, 2002:138). The potentials of augmented realities and dataspaces within our city spaces rely on the interfaces and interactions with the physical spaces and the analog in order to be realised.

Experiencing the digital

My most recent practical research project involves the potentials for interacting and interfacing with digital light in performance and architectural applications. In seeking to develop creative methodologies for working with digital light that does not reply on or become shaped by the normalised industry practices, I have begun by exploring the experience of digital light sources. Focusing on LED (light emitting diode) sources, the practical exploration of this type of lighting has required the use of software and mobile devices. However, working with dancers from Drift Dance Company (fig. 3 & 4), an experience-led approach has sought to question where differences lie in our relationships to digital light when compared with traditional tungsten-halogen lighting.

Deliberately avoiding a prescriptive approach to the explorations, the initial workshops involved way-finding techniques, asking the dancers to make their own discoveries and associations based on their experiences of light and their intuitive responses. The group all had tendencies toward playful interaction, an approach that appears to support the findings of performance and technology researchers such as Sita Popat and Scott Palmer, who propose that; 'playful interaction between the technological and the artistic should, in theory, lead to understanding and synthesis in the creative product' (Popat & Palmer, 2005:50). Through initially exploring the lighting technologies and the lit
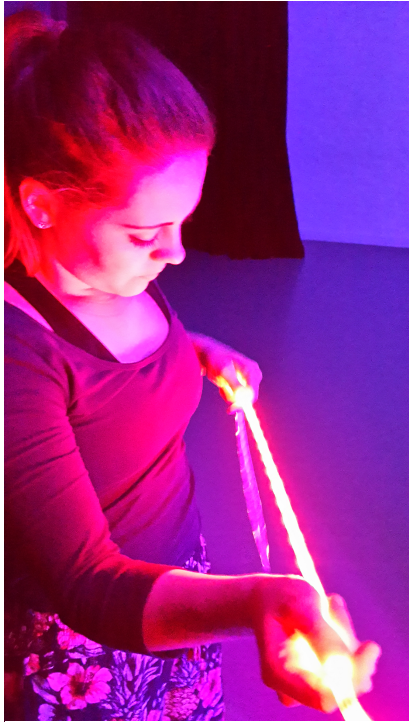
Figure 3 – Drift Dance Company working with LED lighting, 2015

environment without any form of control interface, the dancers revealed their instinctual associations and bodily responses free from prescribed modes of interaction. Performance theorist and practitioner Susan Kozel works extensively with a phenomenological approach to technologies and states that, 'A role for the tangible, the tactile, the haptic, is essential for any account of our physical encounter with digital media' (Kozel, 2007:38). This was very much found to be the case with Drift Dance Company's exploration of LED lighting. Although control interfaces were not used in the early workshops, the dancers responses revealed that notions of texture, proximity and an ability to move the light source were pertinent to their relationships with the technology. The dancers noted in particular that they were aware of trying to create the space or define it themselves when improvising with LED light, while more focused tungsten-halogen fixtures dictated a space for them in a beam that seemed more tangible. The privileging of experience and way-finding as an approach to technology highlights our instinctual needs with regard to interfaces. So often our normalised workflows dictate that we should have certain buttons or controls, but perhaps the mobile device could help facilitate the experience of space through an approach that focuses on experience and way-finding? Kozel suggests that 'we can regard technologies not as tools, but as filters or membranes for our encounters with others' (Kozel, 2007:70). My workshops with Drift Dance Company have encouraged me to design a mobile device based interface for future explorations between dancers and lighting, rather than use existing applications for this very reason.

Mobile devices and experience of space

Existing applications for the control of lighting and sound in environments are predominantly single-user orientated. There will be a designated person who programs or activates the program to effect changes in the environment, be it intensity, volume or content. This has developed directly from the normalised workflow and software developed for these industries. However, the mobile device offers the potential for wider encounters and group experiences due to its ability to create and interface within both personal and social spheres, micro and macro environments (as previously discussed).

Figure 4 – Drift Dance Company working with LED lighting, 2015

We are beginning to see the social potential of mobile devices as interfaces for experiencing lighting through systems such as PixMob and the mass pixel-mapping of the London Olympic Stadium by Tait Technologies and Avolites Ai in 2012. PixMob use the tagline: 'Connect crowds. Reinvent rituals' (PixMob, 2015) on their website, which succinctly describes the aim of their interface which provides control of LEDs within bracelets or other wearable devices that can be used to create mass lighting effects within large groups of people. First brought to mainstream attention by the band Coldplay who used the system for audiences attending their Mylo Xyloto tour in 2012, this technology foregrounds

the experience of being part of a mass cultural event. The wearer becomes an integral part of the lighting design, joining thousands of others in becoming part of a collective creating a unique environment of lit space and movement. Susan Kozel's exploration of phenomenology as a dynamic to open up our encounters with technology brings her to consider Merleau-Ponty and the notion of the 'seeing-seen'. This idea resonates strongly with the experiences discussed here, where the wearer of the LED device is both spectator and participant, seeing and seen. Kozel articulates that, 'this dynamic helps rework the relation between bodies and media technologies by overturning the suggestion that the digital image is merely a visual representation of the world' (Kozel, 2007:36). In this case the digital image that is mapped across the devices cannot be expected to generate a representation of a coherent image, due to the movement of the crowd and the continuous flux of this body or surface. The digital content is shared and re-envisioned by the analog space, the dataspace working with the physical space in order to create a unique shared environment. Movement is a key player in this environment and as cultural theorist Nicolás Salazar Sutil suggests; 'technological intervention transforms the representation of movement; representation in turn transforms the way we move or what we understand by movement' (Salazar Sutil, 2015:1). The choreography of the lit space – including the light that emanates from mobile devices such as smart phones and tablets, is a choreography only beginning to be explored. It is complex and involves analog, digital and virtual spaces. The resonance of the movement interacts with and defines the present physical space, but also has the potential for further reaching temporal and environmental repercussions.

Participation in a mediated event such as the Coldplay concerts is not only a unique experience at that time, but becomes a creation shared by those present that can provide a talking point and reference for further social media interactions for time to come. PixMob's website provides examples of the Twitter traffic generated by those who have experienced events that used the companies technology, demonstrating the social, geographical and temporal impact.

Engaging and Objective Relationships.

In its ability to be both personal and social, the dataspace creates a unique opportunity for both engaging and objective relationships. I would like to consider this property as a development of Certeau's embedded and elevated views. The dataspace is primarily concerned with communication – it exists as transference of information – and as such the perspectives available to us dictate the nature of our relationship with it. Engaging and objective viewpoints echo the embedded and elevated, but make concrete the existence of an information based relationship. And as the technologies associated with the dataspace develop, Grosz's belief that, 'It is central to the future of architecture that the question of time, change, and emergence become more integral to the process of design and construction' (Grosz 2002:xix) becomes all the more pertinent.

Through a consideration of the bodily experience of the dataspace, these concepts can be elucidated and used to inform a practice of interactivity that can enliven spaces and our relationships with them. Art historian Katja Kwastek has written on the aesthetic and nature of interactive digital art, considering methodologies for creative relationships with technologies, exploring both the artist and participant's contributions. She notes that; 'The recipient has the task of realizing spatiality within the structures provided by the system. When such a realization takes on manifest, physical form, it immediately acquires the quality of a performance' (Kwastek, 2013:104). This makes clear the relevance of interactive technologies to the arts, but does an experiential, way-finding approach to the dataspace have relevance to our everyday encounters with the city? Through my own research I have made clear connections with the need to foreground awareness of the bodily response to technology in order to gain understanding of the potentials of technologies. Although my practice means that I approach my research from a choreographic and movement informed perspective, I agree with Kwastek's recognition that 'the virtual becomes one domain among others that can be rendered perceptible through bodily sensitized action' (Kwastek, 2013:61) and that experience based practice has much to offer the creative development of technologies. In considering the writings of Michel de Certeau, Kwastek identifies his understanding of the 'activation of certain places by means of

presence, and in the construction of relationships between places and spaces through one's own movement' (Kwastek 2013:104). Again highlighting the importance of movement to relationships with space. With our mobile devices not only capable of moving with us, but also providing other layers of movement such as locative operations, virtual tours and movement of text, image and light, these devices offer much potential in the embodied and cultivated experiences of our city.

Conclusion

Manovich suggests that one of the largest issues with creating a completely augmented space is how to 'incorporate different symbolic systems in one spatial construction'(Manovich 2006:231). The multiple languages and semiotic paradigms that are present in multi-media and multi-period spaces are potentially conflicting. But perhaps rather than seeking to find one overarching language and becoming trapped by normalised workspaces we should be accepting of the different times and spaces that collide in our city and seek instead to facilitate conversations between them? Some of us are more at home in a large space than a small one, some of us are happier using text than skype. Could the key to a mediated city lie in acknowledging the prevalence of not one but several 'spaces' and developing the interfaces between them? In which case I would suggest that mobile technologies are perfectly placed to act as an interface and movement based practices a medium for developing creative approaches. Mediating between the social, business and communications requirements of our lives, these devices are capable of navigating the large and small journeys, conveying information about locations and providing a window of access to data supporting our knowledge and enjoyment. They also impact our behaviours, movement and experiences both on a macro and micro level.

In conclusion, mobile technologies and their associated information architecture are not only utilitarian in purpose, but can also help us to explore and discover spaces, be they physical, social, temporal or personal, through a mediated approach to the spaces within our cityscape. Through consideration of the engaging and objective experiences of the dataspace, as illustrated in my own work with choreography students, an environment (or perhaps a geography?) may be created in which the movement of the space-user can be affected by, or may itself lead, changes in the data. Thus making the space an environment that may be experienced as well as observed, found as well as navigated. And through the discussions that this exposes promote a more sociable and experiential engagement with the mediated city than the constant looking down.

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