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Abstract

For over a decade, human-computer interaction (HCI) research placed a great deal of emphasis on studying interaction, engagement, and appropriative practices in online technology-mediated social environments. Moving forward, however, we see computing systems increasingly designed to support digitally-augmented face-to-face interactions in public settings. As far back as the nineteen seventies, new media artists anticipated this interactive potential of digital public displays to foster new forms of situated interactions in urban space, quite distinct from mobile computing in that they altogether exclude online connections or exchanges. Drawing on examples of practice, this paper discusses and showcases some of the key creative strategies, which panelists deploy in order to remediate interactive screen technology into a platform that has the power to disrupt the ordinary course of our everyday experience within increasingly media saturated cities.

Keywords

Urban screens; media façades; large dynamic digital displays; screen technology; interactive public space installations; urban interventions; design strategies; situated interaction; remediation.

Artists, Digital Screens, and Public Space

Large digital displays are becoming ubiquitous in public space, but their potential for interactivity remains largely unrealized as they are mostly used to deliver content. This typically takes the form of a one-way process where information is simply transferred from one person (sender) to another (receiver), thus following the elementary transmission model of communication theorized by Shannon. [1]

While industry and the public sector are poised to design new systems and applications that will make interactive digital public displays reminiscent of what we have come to expect of the World Wide Web, new media artists have been developing participatory models to support interaction with screen technology for the past fifty years.

For instance, in the 1970s, artist Peter Campus conducted a series of experiments with very large displays to produce a disjuncture between visual perception and proprioception. He did this by showing viewers images of themselves that drew attention to delays, disruptions, and oppositions between their situated body movements and how these are represented on screen. These early electronic art installations were concerned with exploring the degree to which a viewer's sense of bodily awareness intervenes in the relationship between vision and embodiment. [2]

Since Campus's ground-breaking work in the field of electronic arts, new media artists from all over the world have imagined and deployed their own arsenal of creative strategies to transform passive screens into participatory platforms. In doing so, they have also considered the physical environment around these screens. In semi-public and public settings, this means disrupting the way people would usually perceive urban furniture, lighting, ambient media, architecture, and the presence of other people.

Accordingly, this panel presentation was articulated around the idea that taking an artistic approach to digital displays deployed in urban settings implies remediating public space into a platform used to stage new encounters and situated interactions *with* and *through* technology.

Each panelist was invited to showcase their unique approach to making interactive screen-based public art installations and accordingly explain how these creative strategies work to disrupt the ordinary course of our everyday experience within increasingly media saturated cities.

Urban Screens as a Disruptive Platform

In Europe and Australia, the term *Urban Screens* has been used since early 2000s to describe an emerging curatorial network that promotes the appropriation of media façades and dynamic digital displays in urban space for the purpose of community building and artistic creation. In this sense, the *Urban Screens* movement firmly pushes back against the commodification of screen technology in public settings. [3] Now known as the *Connected Cities* global network, this initiative supports the production of cultural content for screen-based platforms, and coordinates exchanges between cities around the world who wish to reclaim public space. Of particular interest is that both the *Urban Screens* and *Connected Cities* projects highlight an infrastructural model that does not focus on profit:

> *The Urban Screen project was initiated in Amsterdam in 2005 with the conference "Discovering the Potential of Outdoor Screens for Urban Society". One of its aims, further explored by the following two Urban Screens events held in Manchester and Melbourne in 2007 and 2008 respectively, was to explore the opportunities of employing the growing infrastructure of large digital*

displays in public space, currently used mainly as a tool to influence consumer behaviour through advertising, and expand them by displaying cultural and artistic content with the purpose of revitalising public space, and generating public engagement and interaction. [4]

The *MediaCity* biennial academic conference is another similar forum. It is concerned with looking at "citizen driven approaches based around ad-hoc practices and prototyping of counter-culture scenarios". [5] Held in Plymouth in the UK, the theme of the 2015 conference was: *Reflecting on Social Smart Cities*. Academics, architects, designers, and new media artists from all over the world presented papers and artworks that critically challenged the role and use of technology being proposed in the dominant – profit-driven – paradigm currently driving the underlying technological infrastructures of smart city agendas. The *MediaCity5* conference program describes this paradigm as "the data-centred optimisation of urban systems". [6]

Many social sciences and humanities scholars critique the fact that today's infrastructures tend to "over-regulate people and their actions". [7] But the Urban Screen project reminds us that, in the best of worlds, they can and should also be sites of negotiation and compromise to envision possible futures. After all, infrastructures are the context for the design and use of technology as a public good. [8]

With this in mind, for the purpose of this panel, the authors chose to expand the use of the term urban screens to more broadly describe an actual setting in the built environment that includes one or more public media façades, dynamic displays, or screen-based art installations, under the assumption that an urban screen can be any public platforms used as a screen to remediate the city. This is done to propose future potentialities for, as some scholars have suggested, there may be as many instantiations of public space as there are citizens in modern urban society. [9] Accordingly, this panel aimed to engage the audience on how some creative strategies might better support a two-way model of communication that is relational, rather than merely informational. This paper provides a summary of the highlights of this public forum on urban screens.

Questions, Challenges and Opportunities

Transforming urban screens into interactive public platforms present both challenges and opportunities. Questions raised by the moderator and panelists included:

- *What happens when such platforms enable a two-way flow of interactions rather than a one-way flow of information?*
- *How can artists use them to remediate urban space?*
- *How can they change our way of thinking, seeing, and doing? How might this affect people's sense of aesthetics?*
- *How do the different spatial elements influence one another?*

- *What happens when the observer is set in motion inside a space with one or more urban screens?*
- *What are the digital practices that these platforms afford?*
- *How could they be used to facilitate new forms of social, cultural, and political interaction in real public space?*
- *What content is possible? Could urban screens allow us to untap new potentials for content creation?*
- *How does the material blend with the digital to enhance the interactive experience of urban screens?*

Questions raised by the audience included:

- *Do urban screens really disrupt the city when they, in fact, make use of existing infrastructures and thus blend into the mêlée of existing mass media?*
- *What means and tactics might best support disruption in such contexts of production and deployment?*
- *Are such platforms truly open to free speech or must we assume that because they are deployed in public space, they are subject to surveillance, data mining, control, and possibly censorship?*
- *Can they be designed to support appropriation?*
- *To what extent do digital public displays serve some of the needs and support the speech acts of the marginalized and the disenfranchised?*
- *Can we imagine ways that people can be directly involved in making and controlling their own large-scale public displays?*

Engaging Audiences by Using a Research-Creation Approach to Urban Screens

Panelists explained their approach before they showed several exhibited examples of practice. Interestingly, the presentations made by the authors of this paper served to raise more questions than they answered. This is yet another advantage of using a research-creation approach to study and develop urban screen projects: theory and intentions are grounded by illustrative case studies. The following subsections summarize each of the presentations made during the panel session by highlighting salient concepts and arguments brought forth by the panelists. This paper then concludes on the implications of these approaches.

Using Massive Media to Remediate Public Space (Dave Colangelo)

What can happen when buildings become screens?

The new sites of conversation, contestation, and commerce in public culture that emerge from the confluence of building and screen-based technologies have two key characteristics. Firstly, they are big – they are *massive*. As a

Figure 1. *In The Air, Tonight*, **2014, Dave Colangelo and Patricio Davila, video projected art installation, ©2014_DaveColangelo.**

result of their scale they are highly visible and loaded with significance and thus culturally and economically valuable. They *take* space, that is, they take up a significant amount of prime real estate and demand to be considered as public and communal. Secondly, they are communicative and technical– they are *media*. They use their scale, visibility, ephemerality, centrality, and communicative capacities, from data visualizations enabled by programmable LED façades, interaction through sensors and mobile ubiquitous media, moving images, sound, and networked communication, to broadcast their messages and engage on- and offline publics. They *make* space and produce it through interactions both proximal and distal: they mediate. All together, they are *massive media*.

So, when a building becomes a screen via the addition of expressive, programmable lighting (such as LED lighting panels), or large-scale digital projection, the logic of the monument and the logic of the screen are mixed. The solidity and history of a structure, with its attendant hold on the spatial and cultural imaginary of a place (think of the Empire State Building, for example), gets mixed with the attractive ephemerality (and sometimes reactivity or interactivity) of the screen.

The resulting architectonic forms, while situated within a history of architectural lighting and projection, mark a significant shift in scale, expressivity, and malleability of the urban surface. Instances of expressive architectural displays are bigger, more dynamic, and more readily altered and appropriated than ever before due to technologies of encoding and transmission available to the hosts and cultural producers, and the technologies of decoding (and re-transmission) available to the peripatetic audience surfing urban, virtual space, and increasingly hybrid space.

While there are many aspects of this phenomenon worth noting, I focus on three major areas, answering the question "what can happen when buildings become screens?" in three distinct ways:

Firstly, with large-scale public projection, concepts of montage, superimposition, and apparatus can be used to address and recenter a peripatetic, [10] transversal [11]

subject and audience, while newer tactics such as interactivity and constructing a composite *dispositif* [12] flesh out the expanded cinema practice of massive media, unlocking narrative and associative potentials for the moving image and the city. The cinema and public space are transformed when buildings become screens.

Secondly, large-scale public data visualizations made possible with expressive architectural surfaces such as LED façades, data, and ubiquitous social and mobile media, enable artists to create new telepresent and telematics rituals and opportunities for urban activism and identification by combining screen-based information, communication networks, and monumental architecture. Buildings become dense transfer points for a highly contingent relationality, [13] as well as sites for public data visualizations, [14] when they become screens, again, unlocking narrative and associative potentials.

Finally, the continued presence of curatorial groups and strategies are required to open these new scenarios of massive media to creative and critical use by artists and citizens in contrast to commercial monopolization. This requires networked coordination of sites, negotiation with corporate infrastructure owners, politicians, and city governments, and the conscious development of audiences for the work. When buildings become screens they must be treated as exhibition spaces, and the surrounding city as an urban gallery to enrich mass culture and the public sphere.

Overall, when buildings become screens, that is, when they become massive media, expanded cinema and big data become something that we can, and should, comprehend and contest in new ways; on and offline publics can engage at once with social networked information and images mediated at highly visible and attractive architectural scales. This can be harnessed for commercial purposes, of course, but our focus should be on how and why these spaces should be reserved and developed for art and directed towards larger societal issues such as social justice and climate change.

One such example of creation-as-research in which I have attempted to address this directly is through a project entitled *In The Air, Tonight* [15] completed with my collaborator Patricio Davila. For one month, during one of the coldest winters on record in Toronto, the LED façade of the Ryerson Image Arts Building was animated with a blue wave representing wind speed and direction while an intermittent red pulse was triggered by fluctuations in the use of the hashtag #homelessness on Twitter. By visiting intheairtonight.org people could read and retweet messages from our Twitter feed (@itat2014) or compose their own messages. Every message with the hashtag #homelessness amplified the issue online and contributed to a colour change on the building. Our goal with this project was to foreground a pressing social and civic issue through networks and architecture, negotiating access to both, and providing an interface that allowed people to engage with and contribute to amplifying an area of common concern – to create a participatory public sphere around a specific issue through massive media.

Air(e) Libre: From Individual Bubbles to Full-Blown Public Sphere (Jean Dubois)

Before the twenty-first century, modern conceptions of public space were intimately shaped by everyday life and encounters experienced at street level and in city squares. Today, it may be that the majority of our interactions collectively take place through online social media and this shift may well have radically redefined our understanding of what constitutes public space. The street continues to exist but it is no longer the locus of public life, the place where we share ideas and views. Digital networks now host virtual public spaces rendering them intangible. While online environments support new ways of being together, they also change the stakes and present unprecedented challenges and opportunities. Yet, it is still not completely clear exactly what these are. We have a sense that the public sphere has become a liminal space for public life somewhere between the streets and the complex web of media networks we use, an indeterminate discursive space produced by the interdependency of one and the other.

At each node of these networks are technological devices. Among those, large digital public displays started to become ubiquitous in big cities around the world at the same time as urbanites began to routinely carry with them mobile phones embedded with miniature displays. Notwithstanding their screens, they have little in common since they are of entirely different scale and fulfill competing purposes. While the former serve the function of placards that broadcast the spectacle of advertising, the latter are used as reading tools, which like a book, lend themselves particularly well to cocooning. Still, one wonders whether a new ontology of public space might emerge from the interplay between the two. Could it engender unpremeditated encounters or spontaneously elicit the spirit of community and a sense of solidarity among strangers? How might it induce embodied experiences that are equally as stimulating to the senses as they are to the mind? Might it channel a harmonized voice distinct from the usual hubbub or the communal sound of the choir?

The main objective of the *Air(e) Libre* research-creation program was to consider these questions through the production of a new kind of public artwork that would strive to forge new relationships between the urban landscape, telecommunications, and intimate space. [16] The approach developed in the context of this creative process is best exemplified by three artworks. Each of these invites passersby to first dial a special telephone number, and then blow into the microphone component of their personal devices. By doing so, people in the city can animate the giant images on digital public displays fortuitously encountered in the city. This mode of interaction aims to support a direct, embodied connection between the intimacy of the body and the monumentality of architecture.

À Portée de souffle (By Means of a Sigh) represents a tight close-up framing a lateral view of a man and a woman's face gazing into one another's eyes as they symbiotically breathe the same air from the single bubble they blew from chewing-gum. Passersby are invited to enter into the

Figure 2. *À portée de souffle*, 2012, Jean Dubois and Chloé Lefebvre, interactive art installation. ©2012_MartineDoyon.

couple's intimate bubble by blowing out air right into the microphone component of a portable phone connected to the screen. From the bubble's incipient formation to the different stages of its expansion and retraction, the spectator actively engages with the artwork by gradually bringing the bubble to its breaking point. This puts an end to the telephone call linking the interactant with the large public display, and by extension, to the encounter with the couple.

By contrast, the spectator's exhalation becomes consonant with a gust of wind in *Tourmente (Turbulence)*. In this work displayed on a large digital screen, we first see a series of portraits of people who appear to be in distress. A message invites passersby to find out more about why the sitters have this air of torment by calling a special telephone number. Once the phone is connected to the screen, a second message explains that the atmosphere in the picture can now be changed if the interactant blows into the portable device's microphone. When this happens, a soft breeze immediately kisses the face of the sitter displayed on the screen. But then, the wind rapidly changes into a blast that dishevels the sitter's hair and deforms their face. Once the interactant runs out of breath, the telephone connection is automatically interrupted, thus suggesting to spectators that such interactions are what had caused the
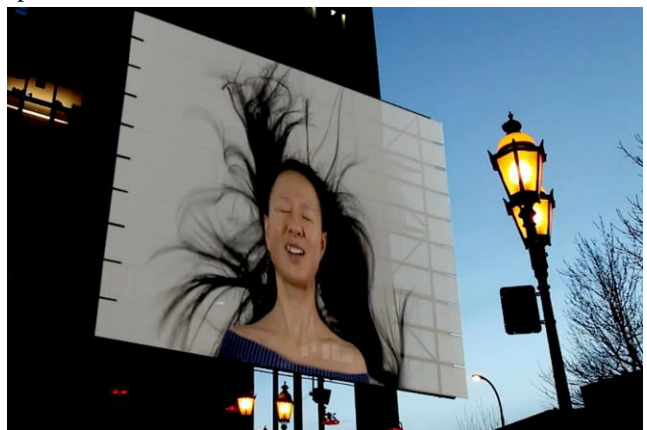

Figure 3. *Tourmente*, 2015, Jean Dubois, interactive art installation. ©2015_JeanDubois.

sitters to appear troubled at first. Here, it is a personal device that gives one access to the public realm within which private space is defined by the boundary of a large urban screen; this artistic strategy effectively inverts conventions of what currently constitutes public space vs. private space.

In *Le Circuit de Bachelard (Bachelard's Circuit)*, public displays come in the shape of a series of luminous translucent tubes set up all along an underground passageway, which offers pedestrian access between two campus buildings. The light installation visually references the electrical and hydraulic pipes and fittings typically found running along the ceilings and walls of building basements. In this interactive artwork, the interactant's exhalation causes fluctuations in the motion of the light flow along the tubes of the installation. During the *White Night Festival* that took place in Montréal in 2015, the design team organized a series of "tug of war" type of competitions: the collective breathing effort of one team competed against another's to modulate ambient lighting inside the underground tunnel.

It is not without significance that breathing was the strategy used to interact with urban screens of commanding scale, especially considering that the input interface – per-

Figure 4. *Le Circuit de Bachelard*, **2014, interactive art installation. Photo credit: Maxime Boisvert. ©2014_JeanDubois.**

sonal mobile devices that have become increasingly part of our everyday – are of miniature size in comparison. Indeed, this interaction modality makes manifest an invisible, but vital connection between individuals and the civic infrastructures that surround them. Breathing is probably one of the most inconspicuous acts that all of us do day and night. Although the reach of one's breathing spans no more than a few centimeters, it nevertheless circumscribes the boundaries of our physical privacy. Giving one person's breathing architectural magnitude works to challenge preconceived ideas about how authority and agency conventionally play out between individuals and institutions.

Beyond creating a user-friendly context for playful interactions, the three artworks described above also aim to suggest that we, as individuals, need not only be the spectators of monumental public art. By interacting with these works, we are meant to become aware that their overpowering presence in public space carries a great deal of political weight. Breathing as an interaction modality is pro-

posed here as a means to reclaim the dignity and nobility of the subject's body in the city by temporarily reversing the power imbalance between its modest scale in reference to the imposing stateliness of the *polis*.

Ancient Insights on Interactivity: Using a Media Archaeological Approach to Study Urban Screens (Claude Fortin)

Huhtamo argues that, as elements of visual media culture, public displays have been a common fixture of the *polis* since ancient times [17]. Applying his media archaeological approach to urban screens also reveals that large screen surfaces in private, semi-public, and public space have an equally far-reaching history of being *interactive*.

A case in point are the dialogical wall writings found in Pompeii. Since the eighteenth century, archaeologists have been excavating the Ancient Roman town-city that lay buried in pumice stone after the eruption of Mount Vesuvius in 79 A.D.. In these ruins, they found that the interior and exterior façades of public buildings, stores, and private homes were often marked with *graffiti* and *dipinti*. A *graffito* is an inscription – a writing or a drawing – produced by scratching into a painted or plastered surface that hides a different coloured ground; a *dipinto* is a similar inscription painted over this surface with ink, paint or charcoal. [18]

Figure 5, for instance, shows such graffiti in context. Here the excavation site is a city street with a small commercial building known as Asellina's Tavern. Some of the cursive dipinti seen on the frontal façade are painted notices that have been identified as electorial slogans and advertisements serving as political placards. Along with similar *programmata*, it would not be unusual to find in Pompeii announcements for beast-hunts or gladiatorial games. [19]

Further, archaeologists found that in the ancient Roman world, graffiti was a respected form of writing which existed on the façade of most buildings, including inside people's homes. For instance, one luxurious home in the Bay of Naples had greetings from friends, carefully incised around the edges of frescoes in the home's finest room and a stairwell in which people took turns quoting popular po-

Figure 5. *Thermopolium of Asellina* **in Pompeii, Italy, c. 79 CE, Ancient Roman Empire. Reproduced from ArtStor.**

Figure 6. Frescoes inside the *Casa degli Amorini Dorati* in Pompeii, Italy, c. 3rd century CE to the 1st century AD, Ancient Roman Empire. Reproduced from ArtStor.

ems and adding their own clever twists. In other areas of that home, the graffiti included drawings: a boat, a peacock, and a leaping deer. [20] According to Rebecca Benefiel, the clustering of graffiti in this house showed that this practice was not the domain of the individual; they were typically social and interactive in nature, often the work of many people responding to each other. [21]

The results were a motley collection of asynchronous conversation threads and images. Figure 6 shows the interior of another home in Pompeii. Here formal decorative frescoes executed in the First and Third Pompeian styles co-exist with personal inscriptions. With these graffiti and drawings, the walls inside Pompeii homes and on Ancient public façades could be construed as media platforms for free speech, creative expression, and more specifically, for people to engage in dialogue in public space. Aside from graffiti and street art, obvious examples of such interactive writings today are found on the virtual public spaces of chat rooms, blogs, and social media sites (i.e. Facebook™).

Perhaps more interestingly, onsite observations in the town-city of Pompeii shows that the practice of graffiti was actually widespread among all social classes and in all types of buildings, including basilica walls, which were found to have collections of poetry and prose as well as "extended conversations about the nature of love, scratched by a variety of different hands", while in other pedestrian sites, one could read graffiti of "legal and commercial rhetoric, improvised and crafted poetics compositions, dramatic performances and public readings". [22]

What this research suggests is that the town-cities and city-states of the Ancient world may have been interactive public spaces in their own right. As the first *res publica*, Rome in particular offers an early example of a participatory city in which the public realm is made to appear and disappear through public displays of speech and action. Indeed, one could even say that since the dawn of civilization, cave walls and building façades have more often than not been transformed into media sites. The question here is in what way are such private and public sites interactive?

This, in turn, raises the problem of what exactly constitutes an interactive public display? Looking at stencil-like proto-graffiti made with human hand prints on cave walls, as seen on Figure 7, for instance, one might ask in what way could this have been interactive? Contemplating this question can open up new ways of thinking about the design of urban screens because it forces us to think of interactivity in ways that we might not be accustomed to. In fact, this historical approach invites us to interrogate the relationship between form and content that supports interactivity as a process. For example, one could argue that there may be a biochemical interactivity happening over time on the cave wall, for surely, the colors, shapes, and textures of this palaeolithic artwork must have been subject to constant transformations over the years. Such a conception of interactivity is in fact closely aligned with Nicholas Negroponte's recent claim that "bio is the new digital" [23]

By linking a form from the past to one from the present, we create a *topos*, which Huhtamo, in the context of the media archaeological approach, defines as:

> *...a persistent cultural formula that appears, disappears, and reappears, gaining ever-new meanings in the process...Topoi are building blocks of cultural traditions; they manifest both communities and transformations in the transmission of ideas. [24]*

Huhtamo situates this scholarly practice well within the tradition of the humanities, that is, its purpose is mainly philosophical and discursive. But one could argue that, for many artists, designers, and practitioners, it is also intrinsic to research-creation. Have artists not always referred to visual sources as a source of inspiration and as a tribute to the legacy of culture itself for as long as we remember? Further, by using historical sources to challenge current conventions of what constitutes an interactive digital public display, we can also evoke ways of reimagining them.

Another case in point is the observation that the electronic billboard aesthetic, which emerged at the turn-of-the-century in cities such as Seoul, Hong Kong, Tokyo, and Times Square, is actually nothing new. As McQuire argues, its origin is the electrical sublime. [25] Indeed, in reference to public displays, it is especially a remediation

Figure 7. Stenciled hand prints in the Cosquer Cave, France, Palaeolithic Period. Reproduced from ArtStor.

of how architectural lighting started to be used in metropolitan urban space in the 1920s when very large advertising billboards were being designed with light embedded in them as a design material, to then be integrated as media architecture in big cities. Neumann, who examines lighting as a design art, refers to this visual practice as the twentieth century tradition of designing "nocturnal modernity…[whose] roots could be traced back to the theatre". [26] Figure 8 illustrates this urban phenomenon. It is a diptych showing, on the left, a view of Times Square in 2006, and on the right, the same street view taken circa 1930.

More importantly, this last visual argument suggests an essential idea. One could say that digital public displays and media façades might draw on all three of these historical examples, with the exception of one key factor, substantiated only by Figure 8: the medium-specific material that defines the form and content of digital public displays is light. Above and beyond that technical requirement, artists and designers arguably have a great deal of freedom in exploring the different forms that they can take, and by extension, the modes of interactions that they can support.

For this reason, a media archaeological approach to the study and design of urban screens can provide a grounded context for the research-creation process in that it reminds us that what makes the city come to life is human activity, not technology. Technology can enhance, extend, and augment our communicative powers or our senses, but it is civic life, and thus people and their actions, that constitute the pumping heart of a participatory city. It offers evidence which suggests that cities were already smart before big data and the digital revolution. It further shows that the exchange of information is not enough; creativity, social intelligence, and embodied intelligence are also needed.

Figure 8. Diptych of Times Square in New York City, NY. *Left*: **30 September 2006. Photo credit: Willem van Bergen. ©2006_ WillemvanBergen Reproduced from Wikimedia (creative commons license).** *Right*: **circa 1930, Neumann [26], 13.**

Conclusion

For the benefit of ISEA 2015 audiences, the three panel presentations described in this paper each highlighted a different approach to the design of urban screens. While Colangelo's research-creation approach placed the empha-sis on the formal character of public displays as elements of media architecture, Dubois' explored the artistic possibilities afforded by one peculiar mode of interaction to blur the boundaries of what separates private and public space. By doing so, their work called into question conventional notions of spectatorship, intimacy, agency, and power differentials between the individual vs. the collective, the citizen vs. the state. In keeping with a humanities-based research tradition, Fortin took a philosophical stance by adopting a media archaeological approach, which aims to show that such conventions mainly exist as cultural and discursive constructions; a focus on materials and processes further suggests that the potential to reimagine public displays in computational media still remains wide open.

All three, however, somehow echo key aspects of what shaped the *post-photographic condition* brought on by the digital revolution. As Fontcuberta writes, we are now in:

an era characterized by the mass production of images, endless accessibility, immateriality, and vertiginous dissemination…an era in which the image has become promiscuous and the gaze infinite…concerned with how our relationship with images have changed…[27]

In comparing past and present, it is noteworthy to see how some of these phenomena echo one another across the ages: the proliferation of signs of variable scale in public space is not necessarily specific to the digital age. Indeed, a historical approach to the study of public media displays suggests that cityscapes have always been sites of representation, inherently generative of all kinds of discursive forms of expression and interactivity. Further, their materiality has never been entirely fixed, except perhaps in their photographic representations (see Figure 7). It may be that that public spaces are fated to be disruptive palimpsests.

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16.   *Air(e) Libre* was conceived and produced by Jean Dubois, Professor at l'École des arts visuels et médiatiques of Université du Québec à Montréal, in collaboration with Ghyslain Gagnon, Professor of Electric Engineering at l'École de technologie supérieure. Dubois received funding for this project from the Fonds de recherche du Québec – Société et culture program that finances media art and technologies, and technical support from Hexagram's Centre interuniversitaire des arts médiatiques (CIAM).

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18.   Jennifer A. Baird, and Claire Taylor (Eds.), *Ancient Graffiti in Context* (New York, NY: Routledge, 2011), 3.

19.   Ibid., 167-168.

20.   Kristin Ohlson, "Reading the Writing on Pompeii's Walls," *Smithsonian.com*, July 26, 2010, accessed April 30, 2015, para. 7-8. http://www.smithsonianmag.com/history/reading-the-writing-on-pompeiis-walls-1969367/?no-ist

21.   Rebecca R. Benefiel, "Dialogues of Ancient Graffiti in the House of Maius Castricius in Pompeii," *American Journal of Archaeology*, Vol. 114, No. 1 (January 2010): 65-68.

22.   Baird, and Taylor [18], 171-177.

23.   Nicholas Negroponte qtd by Joi Ito, "SIGGRAPH 2015 Keynote," (talk presented at the Los Angeles Convention Center, Los Angeles, California, August 2015).

24.   Erkki Huhtamo, *Illusions in Motion: Media Archaeology of the Moving Panorama and Related Spectacles* (Cambridge, MA: The MIT Press, 2013), 15-16.

25.   McQuire [13], 113-122.

26.   Dietrich Neumann (Ed.), *The Structure of Light: Richard Kelly and the Illumination of Modern Architecture* (New Haven, CT: Yale University Press, 2010), 12.

27.   Joan Fontcuberta, "The Post-Photographic Condition," (curator's statement in the exhibition program of *Le Mois de la Photo à Montréal*, Montréal, Canada, 2015), 5.

Panel Participants and Author Biographies

Jean Dubois   panelist

Jean Dubois creates installations that, both poetically and critically, tackle interpersonal relationships, combinative textuality, and reflexive situations through media interfaces that incorporate the spectator's body. He teaches at Université du Québec à Montréal's School of Visual Arts and Media Arts. His creations have been presented in a number of countries, including Canada, Poland, China, the United States, Brazil, Japan, and Luxembourg.

Dave Colangelo   panelist

Based in Toronto, *Dave Colangelo* is an artist, academic, researcher, and consultant. His research investigates and engages massive media (urban screens, reactive architecture, and public projection) as a means to support critical and creative engagements with the city, public space, and information. Colangelo has exhibited his work at a number of galleries and sites in Toronto. His writing has appeared in *C Magazine* and *Street Signs*. His work with collaborator Patricio Davila has been exhibited and published in Toronto and internationally at 2014 Media Architecture Biennale, the International Symposium for Electronic Art (ISEA) 2011 in Istanbul, ISEA 2013 in Sydney, the 2013-14 Biennale of Architecture and Urbanism in Shenzhen/Hong Kong, and in the *Leonardo Electronic Almanac*. Colangelo holds an MA in Cultural Studies and Interactive Media from Goldsmiths College, University of London. He recently completed a PhD in the York-Ryerson Graduate Programme in Communication and Culture.

Claude Fortin   moderator

An interdisciplinary scholar, Claude Fortin is a doctoral candidate and researcher at the Making Culture Lab, an applied design research lab affiliated with Simon Fraser University's School of Interactive Arts & Technology (SIAT). Her engagement with public interaction through technology builds on academic studies in the humanities, social sciences, and fine arts. Claude is interested in finding new ways to unleash the interactive potential of screen-based systems at the scale of the built environment. Trained in multi-sited ethnography, her research agenda aims to bridge the gap between the top-down prescriptive design approach of experts and the bottom-up appropriative digital practices that shape usages of urban technology.