Big Data & Civic Engagement

edited by **Nicolas Douay & Annie Wan**

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Credits

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Contents

Abstract

The massive increase of computational data created in the city creates a new urban environment. This new relationship with media and technology does impact conception of citizenship by unleashing myriads of opportunities to participate in politics. Based on the case study of Hong Kong, this introduction questions the 'Smart' in our urban future and presents the four texts of this publication following the conference and an exhibition organized in February 2016 in Hong Kong.

Nicolas Douay, Annie Wan, David Bartel

Big Data in the City. Questioning the 'Smart' in Hong Kong's Future

The watershed currently created by the surge of the web in various aspects of our daily life is yet to be framed and conceptualized. The massive increase of computational data created by every walk of digital life implies need for new fields of computational management that creates a new environment compelling societies and citizens to rethink on a scale never seen before what makes community and motivates public life in cities (Batty, 2013; Mayer-Schonberger and Cukier, 2013; Townsend, 2014; Yang *et al.*, 2015). "This proliferation of information in the digital age has an acute impact on both public opinion and political participation" (Hui, 2016). This new relationship with media and technology does impact conception of citizenship by unleashing myriad opportunities to participate in politics. By the same token it requires the reinvention of the ways and definition of political engagement when the dangers of privatization of daily life loom large. To rethink the nature of citizenship and civic engagement demands a tremendous effort of understanding as it is currently changing the very definition of the political. And it is, of course, a work in progress.

1 | Big Data and Citizenship

Nevertheless, if the conceptualization of the future is by nature uncertain, one can circumscribe the boundaries of this necessary field of reflection around problematic that recently emerged regarding the opportunities – and the possible flaws – aroused by the availability of this ever increasing flow of information – the Big Data – charting our daily habits. This continuous inflow of information allows group or individual profiling to increase reactivity and sharpen adequate solution to problems. If the commercial uses of users' habits and patterns of consumption is evidently the new Eldorado of enterprises, the civic usage of the information is less evident to grasp even if it revolves around clearly identified questions one can sum up as follows. What constitutes citizenship today, when the ancient ways to link communities (church, work, political party, associations…) are meeting with a phenomenon that questions both their institutional structure, but more intensely their very fundamental utility? The new framework of collaboration questions then the new forms and the new reasons why citizens partake in civic activities. So, it is necessary to ask in which ways do new technologies alter, promote or hinder the relationship between individual and society (Thorson, 2014)?

These questions query the impact of digital media and technologies on the evolving conception of citizenship and therefore imply the redefinition of political participation as social networks expand discussion boundaries of creative activism. The developments of traditional ideas about what it means to be public are always under the clouding menace of

individualistic egocentrism, possible niches for political extremism. Behind the diversity of modes of engagement lies the danger of potential fragmentation. In a form of historical hiccup, such questioning echoes the problematic raised by the birth of mass media (press, radio and then television) wondering if media could be tools to inform, or nurture individualistic disengagement, and ultimately, it reframed the question of how a public is constructed (Thorson, 2014). Within this framework of questions lies the issue raised by the collective usage of Big Data in the boundaries of urban spaces to determine new ways to use this ever increasing mass of information to improve planning, decision making, increase transparency and build smarter, more resilient networks (Haisler, 2015). Indeed, it is now commonly accepted that if data and technologies do not resolve urban issues, they enable us – commoners and/or social organizations – to address them faster and better (Bettencourt, 2014).

2 | Politics of big Data

The increasing production and exchange of huge amounts of data sets carries technical as well as political stakes. The specifically urban development of this digital turn indeed creates a new participative imperative along two different paths. Among cyber optimists, Internet is perceived as a possible way to develop a more open society with the objective of developing the means and the processes of a more direct participation in democratic life. Digitalization of socio-technical dispositive should create a more participative turn in urban planning as well as open new spaces to discuss and deliberate urban policies. Numerous experimentations are under way in France, Brazil or Canada. They already show on a daily basis the invention of a 'collective intelligence' to tackle public issues with a kind of feverish proliferation of dispositives in the quest for structuring dynamics aiming beyond traditional diverging political divides (Sadin, 2015).

Opposed to this development that reminds us that the web was at first a production of American counter-culture (Cardon, 2010), cyber-pessimists point out that technical development serves a new elite to meet the interests of big corporate groups. Opposed to communicational planning, the rise of strategic planification replaces the search for negotiating consensus by the economic liberal never ending quest to increase results and ameliorate gains. This cooptation of the so-called 'sharing economy' of Internet ecology achieves only a 'platform capitalism', where a minority of people rakes in massive benefits by selling services that were previously private (Scholtz, 2016). This financialization of what used to be social simply kills the emancipatory values of technology in creating a new ownership model for the Internet that is underscored by the worst of neoliberal ideology. It ultimately creates new forms of exploitation, spreading social insecurity and dissemination. Feelings of freedom are therefore transformed in deeply shared anxiety, self exploitation and depression.

The ultimate perspective of corporate platforms is indeed the prospect of the vanishing of the social state, to be replaced by lighter, faster, cyber models, where the free circulation of data and their ownership will modify forever the rules of engagement of the fluid architecture, ever evolving, of contemporary capitalism. And here, the exalting narrative of technical innovation subsumes another more bleak narrative of the economical and political disruption jointly orchestrated by the two ubiquitous poles of our daily life: Wall Street trying to privatize all aspects of daily life; and the Silicon Valley which is inventing a narrative of technological solution to everything, the narrative of the latter having more and more difficulty in shadowing its conjunction with the neoliberal undertakings of the former (Morozov, 2015).

The terms of the alternative create a questioning of the legitimacy of public institutions in the context of neo-liberalization and a cri-

sis in political representation provoked by the weakening of the state and in the Western world by a general fatigue of liberal democracy. These features are so intermingled that it is difficult to tell which or what came first. But, the feeling of acceleration of time – named 'digital disruption' by French digital thinker Bernard Stiegler (2016) – created by the permanent ubiquity of technology innovation added to the fin du monde mood born from the last financial global crisis nevertheless imprints contemporary figures with convergence and contradiction. It generates a necessarily hybrid configuration where urban spaces fashion their own different shapes of post-political modernity where several outlines of 'collective intelligence' can – and should – emerge (Segaran, 2007).

3 | Hong Kong: The 'Smart' in the City?

Within this frame of reflection, at the crossroad of Big Data open usage and new ways to engage in civic commonalities in a sustainable perspective in urban spaces, there emerges the still blurred and moving defined concept of 'smart city' that attaches these contemporary developments to urban spaces. The blurred and moving definition of "smart cities" lies nevertheless within the boundaries of a digital transition connected to environmental transition and tackling the issues of urban durability, sustainable way of living, as well as questions of mobility, energy consumption and waste management. This massive urban digitalization goes with a change in the system of actors engaged in the city fabric. What also make it difficult to define the 'smart' in the city is the foundational and necessarily hybrid value of the term (Douay, 2016). The 'smart' in Dubai is not the 'smart' in Montreal or in Paris. And, for our concern, it is not the 'smart' in Hong Kong. The city, famous as a regional commercial and financial hub has witnessed recent new developments wherein the thirst for political participation and sustainable development has created a laboratory for new experiences in a highly connected environment. What

makes the case of Hong Kong specific is the status of the 7 million inhabitants of the Special Administrative Region (SAR) as a hub of political modernity highly entrenched in an area, East and South East Asia, where civil rights and public participation are highly problematic.

Of course, the increasing limitation and control of usage of the Internet in the People's Republic of China (PRC) is here a main concern as the public relations between the two Chinese entities have deteriorated regularly due to repeated PRC encroachments on civil liberties that put serious pressure on the civil development of an open media sphere in the former colony. As such, Hong Kong's vibrant civil society and concerned citizens (scholars, journalists, and students) have strenuously attempted to develop communities not to let the Big Data issue slip into corporate or government hands without civic supervision. Code 4HK and Codeaholics are only examples of the numerous civic initiatives to keep data a public matter.[1] The situation in Hong Kong can therefore be interpreted as a local embodiment of the global tensions between new technologies and new forms of civic engagements in an open society and the 'dance' they must play with corporate power and political establishment.

Indeed, Hong Kong is not a democracy as defined in Western liberal terms, even if its citizens are enjoying a high level of rights and freedoms, civil servants' legal accountability, an open press, freedom of speech and religion, of association and high standards of protection for minorities. Despite – or maybe because of – all that, Hong Kong faces challenges with its very future at risk. And this future depends on a complex political alternative, a very political choice that indeed echoes the perspective of digital development in the city. The equation can be conceived as a pessimist alternative between two highly plausible but unsatisfying terms. On the one hand, Hong Kong could run towards a more independent development that, to Harvard

Professor Niall Fergusson, would lead to 'economic suicide' considering the tightness of the SAR economical and financial links with the Mainland. While the other term of the alternative would be a total compliance with the 'Beijing game' that would require the abandonment with extreme prejudice of substantial rights and freedoms, and thus radically undermining the city's position towards a smart digital development.[2]

4 | The Digital and the Politics

Nevertheless, if this inauspicious alternative offers a very bleak prospect, it seems to leave out a third possibility wherein Hong Kong's high level of liberty and increasing standards of political consciousness can have a positive influential effect on the future development of its authoritarian neighbor. If the competition seems highly uneven, the grounding of education in Hong Kong's population, the positive influence of the rule of law (including for business activities) and the increasing consciousness that new technological development can lead to new forms of grassroots sustainable participation in the absence of real democracy represents new possibilities to undercut traditional modes of regulation embodied by the state and market. The stakes are political, the outcome may become digital. In this perspective, the roots of the Umbrella Movement that marked in the fall of 2014 the political turn of younger educated generation in the former British colony will remain a landmark in new forms of convergence between the digital 'virtual' world, and the reality of daily politics.

Following the publication by Beijing authorities of a White Paper on Hong Kong's political system insisting on limits to Hong Kong's autonomy, the democratic forces in the city defiantly organized a 10 day referendum questioning the process of nomination of their Chief Executive.[3] The polling process, for the first time, was shared between voting stations around the city, and a possibility to choose between three ways to select candidates to the highest post via the Internet. To the surprise of both the leadership and organizers, the vote drew nearly 800,000 participants, and the Beijing methods were massively repudiated despite cyber-attacks conducted by the pro Beijing camp.[4] This act of defiance led to a widespread contestation that crystallized in the massive occupation of the business districts of the city during three months, in a peaceful movement with social networks and digital media undercutting the voice of official media in very innovative manners. This is to date the biggest social movement since the democratic citizen movement in Beijing during the spring of 1989.

5 | Pre-Digital Politics in a Digital Society

Since then, what is peculiarly interesting in the digital undertaking in HK is the parallel development of the two first alternatives mentioned earlier in very different ways but for a similar objective: to make the SAR a more sustainable place through digital improvement, in other words, to make Hong Kong a better place, where the 'better' requires characterization when top-down policies implemented by a non elected often pro-Beijing government encounter – and sometimes clashes – with bottom-up aspiration of the general public to more civic participation and more political transparency. While the government has signed agreements to build tech hubs on both sides of the frontier,[5] one does not need to be an expert to understand how the very idea of information highway poses a problem in Mainland China where information is perceived as a fundamental means to exert control over population, especially in the various developments of the Internet.[6]

Even if the SAR's politicians were to meet the terms imposed by Beijing and try very hard to co-opt the new media semantics, the general feeling is that they still have to function under a pre-digital mindset and face difficulties – it is a euphemism – to follow the path of the digital civil society.[7] The effort and the dif-

ficulty faced by a volunteer-run group of concerned citizens united under the banner of Open Data Hong Kong to push the government towards more transparency and push it to make the availability of government data 'discoverable, unconditional, structured', has proved by the same token the validity new possibilities of civic engagement on one side, and the affection for a certain amount of 'old school' political secrecy on the other.[8] And if their initiative tends to work with, rather than against the government, they are pushing for a complete opening of government data that is still to come.[9]

And, while closely following Hong Kong politics, we can easily read some ironical contradiction within the leadership that shows unease regarding questions of openness and mass participation. Indeed the first line of the Chief Executive's 2016 Policy Address reads: «Since taking office, the current-term government has focused its efforts on promoting democracy»[10] while in the headlines of local newspaper, the very same person, in the midst of a popular movement claiming for more open election in the Autumn of 2014, declared: «Democracy would see poor people dominate Hong Kong vote».[11]

Quite ironically, such discursive inconsistency casts substantial doubts over the genuine will of power stakeholders to develop the basis of their constituencies, and the transparency of their deeds. At least it clearly exposes the total absence of a political project other than one keeping people at bay for the sake of corporate status quo. Those doubts of course are valid concerning the digital development of Hong Kong.

At the other side of the spectrum of the city's digital development, tremendous amount of novelties and civil initiative are pulling the rope in the exact opposite direction. Democratic aspirations in Hong Kong are an increasing tide within the youth activism expressing concerns for public and developmental affairs. Their challenge to the ruling elite and government representatives shows clearly the ambivalence of the 'smart' in the future development of the city. On the one hand, 'smart' means more business fluidity towards commerce and profit; while on the other hand 'smart' regards simply more democratic institutions toward a more open society. An ambivalence that echoes the optimist/pessimist global debate mentioned earlier in this paper. The future is hard to predict, but Hong Kong academia strives hard to tackle these issues on a non partisan ground by regularly organizing seminars and conferences. And the difficulty of having a fixed image of an ever moving phenomenon often calls for artists and digital artists, to explore the unutterable in the present.

6 | Big Data & Civic Engagement: A Conference

It is with these issues in mind that Hong Kong Baptist University (HKBU), the C-Centre of the Chinese University of Hong Kong (CUHK) and the French Center for Research on Contemporary China (CEFC), jointly organized a conference named "Big Data & Civic Engagement" in March 2016 in Hong Kong, lining up a few renowned experts on the question as well as some more direct protagonists involved in the 'smart' development in various areas of the region.[12] The four texts proposed in this volume are the results of this meeting, and hope to offer an overview of the complex issues. Following the conference, an exhibition was held to propose a side track to academia and to envision how a new breed of digital artists seize the new possibilities offered by the ongoing processes of redefinition of civil participation through digital information. An overview of their work is presented as an appendix.

How to rank the web? Competition among metrics of digital information

Dominique Cardon opens the collection by directly going beyond the new spaces of mediation offered by new information technologies to tackle the core of their structuring power, the algorithm. For him, algorithms are a key to understanding the contemporary

structuring of Internet usages. He calls them the new 'gatekeepers' of public digital space. Against the critical trend that accuses algorithms to be a tool of corporate strategies, he wants to explore the technical and statistical properties of these computational devices to rethink differently the production of power and hegemony on the web, and the ways it shapes and orients information online.

Platform Cooperativism vs. the Sharing Economy

Trebor Scholz makes the proposition against the current trend of cooptation of the 'sharing economy' by the dominant extractive economic models of the platform economy. This corporate digital world, behind the semantic hold-up on the 'sharing economy' narrative, eliminates democratic values like accountability, dignity and workers' rights. Its project of 'platform cooperativism' proposes nothing less than an alternative model of worker ownership and online governance of online labor platforms to decrease the ballooning, world, of low wage service sector, contract work, temp labor and underrated freelancing.

Space Juxtaposition in Arts

Annie Wan suggests a modular structure configuring digital artwork in relation to spatial practice. She discusses the discourses of site-specific art oriented toward cultural specificity and spatial practices in an artwork that characterizes locative artworks with the will to reassert the relation between spatialized narrative and its locative space, the temporal shift in multilayered space, and the significance of modularity to artwork. She proposes then to 'de-virtualize' digital artistic practices in attaching them to spaces and discourses.

Edit the City by the Digital Practices

In relation with the project "City Telling" developed by *dédale*, an agency of urban and social innovation, Nicolas Douay questions the citizen contribution to civic life by structuring urban spaces in bringing digital and physical territories, therefore creating an in-

formational continuum where users can have access to a set of services aimed at enriching, increasing and controlling its mobility. In blending virtual and spaces, he believes that the evolution of digital mobility contributes to shifting the time-space relation of citizens to urban territory. This evolution pushes forward changes in individual and collective behavior and is changing significantly territorial perception, use and planning. The potential in terms of mediation and valorization of urban territory, but 'enriched' cities, argues Douay, cannot happen without a creative and participative use of technologies.

Notes

1 Facebook page Code 4 HK, [https://www.facebook.com/code4hk/]; Facebook page *Codehaholics*, https://www.facebook.com/codeaholics/ [accessed June 6, 2016].

2 Niall Fergusson, "Economic Suicide or Accept the Bejing Game – Harvard Historian Paints a Bleak Picture for Hong Kong", *South China Morning Post*, 13 May 2016, http://www.scmp.com/news/hong-kong/article/1944651/economic-suicide-or-accept-beijing-game-harvard-historian-paints [accessed June 6, 2016].

3 Chester Yung, "China Reminds Hong Kong of its Control", *The Wall Street Journal*, 10 June 2014, http://www.wsj.com/articles/china-reminds-hong-kong-of-its-control-1402411342 [accessed June 10, 2017].

4 Jonathan Kaiman, "Hong Kong's Unofficial Pro-Democracy Referendum Irks Beijing", *The Guardian*, 25 June 2014, https://www.theguardian.com/world/2014/jun/25/hong-kong-unofficial-pro-democracy-referendum-beijing [accessed June 10, 2014].

5 Alice Woodhouse, Catherine Wong & Nikki Sun, "Joint Mainland-HK Smart Cities Deal Signed Off," *South China Morning Post*, 13 April 2016, http://www.scmp.com/news/hong-kong/economy/article/1935815/joint-mainland-hk-smart-city-deal-signed [accessed June 9, 2016].

6 Charles Arthur, "China Tightens Great Firewall Internet Control with New Technology," *The Guardian*, 14 December 2012, https://www.theguardian.com/technology/2012/dec/14/china-tightens-great-firewall-internet-control [accessed June 6, 2016].

7 HK Government website page: "Government's ICT Strategy & Initiatives", http://www.gov.hk/en/residents/communication/government/governmentpolicy.htm [accessed June 6, 2016].

8 Open Data Hong Kong website: https://opendatahk.com/ [accessed June 6, 2016].

9 A short discussion on the issue: https://opendatahk.com/2013/07/waltrault-ritter-rthk/ [accessed June 6, 2016].

10 The integrality of the policy address: http://www.policyaddress.gov.hk/2016/eng/p1.html [accessed June 6, 2016].

11 Agence France-Press, "CY Leung: Democracy would see poor people dominate Hong Kong," *South China Morning Post*, 21 October 2014, http://www.scmp.com/news/hong-kong/article/1621103/cy-leung-democracy-would-see-poor-people-dominate-hong-kong-vote [accessed June 6, 2016].

12 The announcement of the event on the CEFC website: http://www.cefc.com.hk/event/big_data_and_civic_engagement/ [accessed June 6, 2016].

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Abstract

This article is based on the study of the *City Telling* project and its "editorialisation kit" of the territory which proposes superposing on traditional experience of urbanity the experimentation of new digital devices. We question the development and the experimentation of original socio-technical devices to create a narrative of the territory experimented in Paris between 2012 and 2014. Three digital editorialisation devices for the *City Telling* project area analysed: *Smart Map, Heritage Experience and Urban Explore*.

Nicolas Douay

Narrating the city digitally: the case of spatial editorialisation with the *City Telling* project

Keywords: Information Technology, Heritage, Culture

Introduction

Imagining the digital (Wachter, 2011) or even the 'Smart City' forms an integral part of dominant representations of future cities. In fact, contemporary evolution of cities and spaces, given the growing power of the digital world and advent of enhanced spaces, has led to a total overhaul of the way in which humanity confronts cities. The constant and rapid availability of information, images and videos has consequences on people's psychological and moral development, on the structure and functioning of socities, cultural exchanges, perception of values and convictions, all of this finally changing residents' experiences with the help of digital tools (Bailleul 2008; Bailleul and Gibon, 2013; Douay 2014). Quite often, the digital interface will take the form of a visualisation (Al-Kodmany, 1999; IAU, 2013) through more specifically a collaborative and spatialised arrangement. For example, participatory maps (Douay and Prévot, 2015; Joliveau *et al.*, 2013; Noucher, 2013; Palsky, 2011 and 2013) remind us that the map is a powerful instrument that could facilitate a dialogue between experts' discourse and that of residents' knowledge. Such discourse production leads to new forms of online contribution (Proulx et al., 2014) which can be concretised through a

form of digital editorialisation of the city. With the help of varied socio-technical devices articulating digitally and non-digitally, (Blondiaux and Cardon, 2006; Gandy, 2005; Ozdirlik and Vardouli, 2010) it becomes a narrative of an 'enhanced' city. This then superposes a virtual model affording a classical experience of urbanity[1] and the perception we naturally have of reality while offering the user the possibility of being immersed in a mixed environment in real time. This enhanced city thus questions contemporary forms of urban citizenship by changing individual and collective experiences of connected users. Beyond urbanity/residentship, there is the challenge of urban citizenship and its effectiveness in the digital context (Cardon 2010; Macintosh, 2007; Rodota, 1999).

Faced with these evolutions, the main issue is the digital's role in the narrative of the city and in the experience of new forms of urbanity: Through what devices? With what articulations between on-line and off-line experiences? Which individual and collective processes? With what capacity to build a community or public (Dewey, 2003; Zask, 2008) and above all for what transformational capacities?

To deal with these questions, this essay[2]

relies on the study of the *City Telling*[3] project and its 'editorialisation kit' of the territory which proposes superposing on traditional experience of urbanity the experimentation of new digital devices. In this perspective, the project is a modest contribution to the advent of enhanced spaces through the digital editorialisation of data or knowledge production on the city.

These transformations may take different forms:

• Communication support for intelligent cities in the form of maps, sites or even networks;

• Digital usage and production of discourse in mobility situations as well as the issue of space/time articulations;

• Cultural and innovative practices of digital usages;

• Local materialisations of web practices;

• Dialogue among various actors and stakeholders in territorial development and the issue of discourse.

With these major general objectives in mind, the *City Telling* project proposes more modestly to develop and experiment original socio-technical devices to create a narrative of the territory. The project relies on a management tool and on indexation and editorialisation of territorial multimedia contents (audiovisual archives, residents' accounts, documentary resources, interviews with experts…), a mobile application and a tactile and collaborative online cartography. *City Telling* was subject to a real time experiment in Paris between 2012 and 2014, especially around the Cité internationale universitaire de Paris (CIUP – student campus).

The *City Telling* project was developed by Dédale, an agency devoted to culture, new technology and social innovation in Europe. Its activities include artistic production, event-planning, research and provision of advice to public collectives as well as European institutions. It is particularly immersed in innovation and in new uses in changing domains such as urban planning, media, artistic creation, cultural heritage, environment as well as education. Digital usages are at the heart of its activities, focused around the *Living Lab SmartCity* programme, opening up exploration of new forms of interventions in the urban space: micro urbanism, audiovisual installations and performances in public spaces, urban sports, transient or interactive architectures, mobile art, new urban cultures.

Dédale acts in the Ile de France region through different partnerships built in Paris and south of the capital. Since 2008, a pilot project has been developed with CIUP, the mayoralties of the 13th and 14th arrondissements (districts) and the Gentilly and Arcueil municipalities. The artistic *SmartCity* programme envisages citizen participation, inviting residents, users and artists to imagine an alternative vision of the city and collaborate in novel projects for reappropriating public spaces (workshops, artists' residences and multidisciplinary events). Experiments for adoption of innovative urban digital services were deployed in the CIUP area as well as beyond. The *Urban Explore* device was tested in two areas neighbouring CIUP. At first the test consisted of a tramride for discovering artworks created and installed around line 3 of the tramway along CIUP. These visits arranged in partnership with the city of Paris (Département de l'Art dans la ville - Deparment of Art in the City) sought to offer a cultural mediation around the artistic works commissioned by the tramway project. Further, digital visits were offered as part of a project for sensibilisation and mediation around the reopening and restoration of the Bièvre river at Arcueil-Gentilly.[4]

Methodological approach

City Telling's choice as case study relied on the opportunity to observe the project as part of an evaluation mission following a period of quite long contacts and exchanges with Dédale. The data collection and analysis was based on a combination of quantitative and qualitative methodologies. The quantitative approach was focused on users and enhanced visits with the help of an investigation via questionnaires through an online form that was filled by 43 people (about one in ten
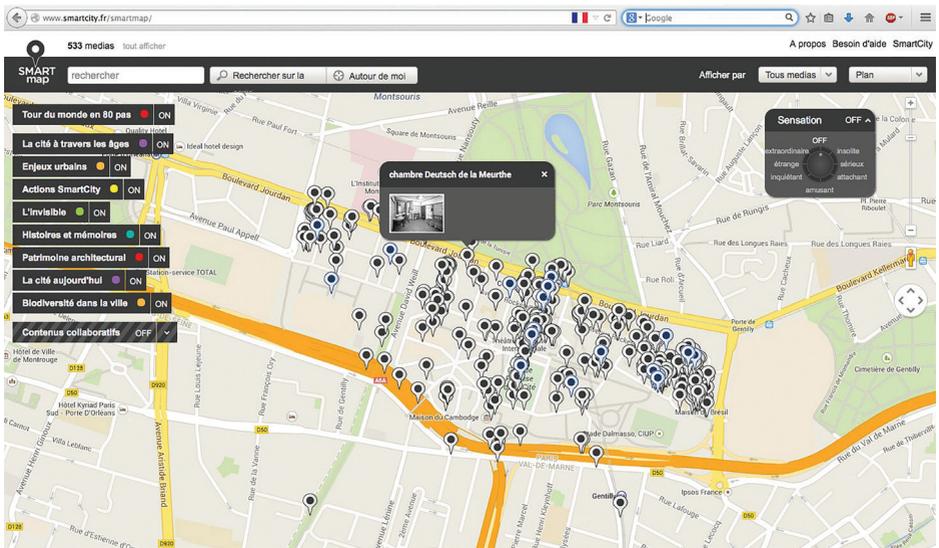
Figure 1 | Smart Map's interface
Source: www.smartcity.fr/smartmap.

users). Meanwhile, the qualitative approach consisted of semi-guided interviews with officials of Dédale, external partners (institutions associated with the montage and then project implementation, developers and designers of digital systems and socio-cultural organisers) and users of various devices.

The main questions were about the experience from the technological point of view of the conditions of the narrative of the area but also the socio-cultural viewpoint of the production of discourse on the city using digital media. Taking these results into account, the first part of this article quickly presents the corpus studied with the three systems as objects of an experimentation as part of the *City Telling* programme. This is followed by noting the lessons generated and the discourses produced.

1 | Three digital devices of city narratives

Three digital editorialisation devices for the City Telling project area led to an experimentation: *Smart Map*, *Heritage Experience* and *Urban Explore*.

1.1 | Smart Map: an intelligent cartography

The *Smart Map* is a tactile and collaborative cartography with the ambition of helping the emergence of a collective, emotional and shared vision of the area. It lets users appropriate it and rediscover their spaces of leisure, visits, discoveries or work.

The experiment took place since 2013 in the CIUP neighbourhood as part of the *Smart City* programme and provided access to a set of geo-localised and editorialized resources: videos, texts, sound and graphical documents. It was accessible online via a web navigator[5]. This tool gave access to a multitude of new multimedia content (drawn from the spatial corpus) and preserves all the 'traces' left there by users. It helped open up the audiovisual memory and contributed to the construction of its current identity.

This tool's main functions are:

• Furnishing a device for discovering and getting to know an area based on many sources;

• Providing access to the site's audiovisual records;

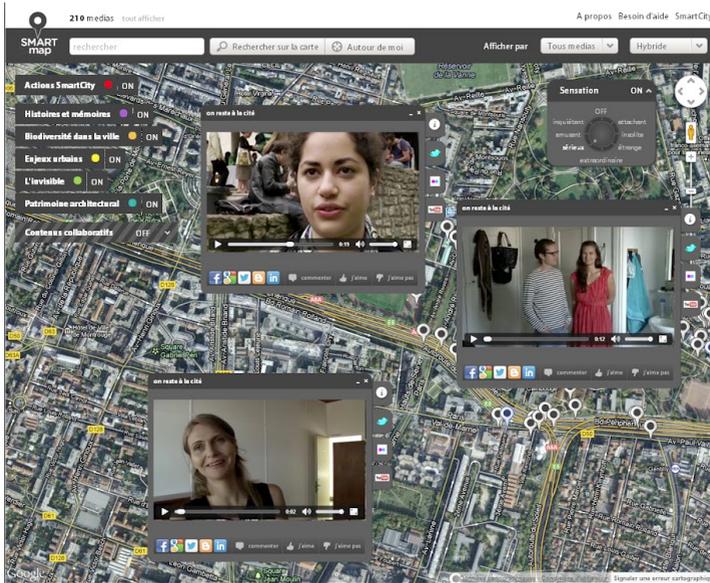• Letting users leave marks of their passage

Figure 2 | Examples of the Smart Map's contents
Source: www.smartcity.fr/ciup/projet/smartmap-cartographie-sensible-et-collaborative.html.

in the area, to share their experience and re-
act to those of others;

• Letting the public discover, react and par-
ticipate in the urban development project;

• Affording the viewing of impressions and
accounts of experiences of an area, the uses
of places and little known practices.

1.2 | Heritage experience: system of heritage mediation

The *Heritage Experience* programme takes
the form of a mobile application offering the
user a tactile experience of the area. With
the help of a *Smart Phone* which registers
its location via GPS, the user gains access
to geolocalised audiovisual fragments drawn
from images of digitalized archives and a col-
lection made beforehand by a survey team.
The system thus helps the visitor navigate
inside the corpus of thematised data in an
intuitive manner.

During their meanderings the visitors can
hear via the headphones the sound track of a
film chosen by them. They visualise the film-

making process in progress via the *Smart
Phone* interface. Thus their route will 'revive'
and then link up images and sounds. Each
route taken by a visitor creates a digital trace,
which, once analysed by a 'montage motor',
generates an original film reflecting the re-
corded path.

The experience comes in two ways:

• Soundtrack: interactive and immersive, this
is the first experience of the area.

• Film: singular and unique, once the walk
is over, the visitors can find it right on their
mobiles or a little later on the project website.
They may decide to share it with other users
and view their films.

The application relies on the use of data
drawn from the spatial corpus and their or-
ganisation in the web application of digital
resources management which functions as
a veritable editorialisation or knowledge pro-
duction tool. It helps enrich the narration of
digital data.

Today the project has a dedicated web plat-
form (website for viewing and sharing films,

Figure 3 | Urban Explore: example of use during a tram ride
Source: Nicolas Douay.

web application for indexation and editorialisation of data as well as cloud service for encoding and distributing video resources). Aided by this software base, the project is technically viable, serving as a demonstrator ready to be replicated in other spatial contexts.

1.3 | Urban Explore: 'enhanced' urban visits

The *Urban Explore* programme is presented in the form of an application offering a new mode of exchange and reading of an area with digital support from a tablet screen which makes for an enhanced visit, linking the participant and digital resources. The interface restores narratives *in situ* – audiovisual archives or documents that can help enrich the visit. The users navigate through the contents during the promenade, the interface giving them access to a mass of selected and editorialized contents depending on the theme of the promenade. *Urban Explore* offers a collective experience around a group dynamic allowing exchange

time and collective viewing.

This facility has led to a most important experiment of the *City Telling* programme. First a public restoration event was held at the Bird-Renoult residence with the production of digital sound routes in the CIUP park. This was followed by a test for introducing sound content in the *Urban Explore* application for some 50 people taking part. Then followed two series of visits: first, tram rides to help discover art works created and installed along line 3 of the tramway that skirts CIUP and and second, digital visits offered as part of a project for sensibilisation and mediation around the reopening and restoration of the Bièvre river at Arcueil-Gentilly (in partnership with Vivacités IDF and Mission Démocratie participative – participatory democracy mission – of the CG94).

These large scale experiments with more than 300 participants helped hone the *Urban Explore* application but also stoked reflections on the development of other systems in the programme.

2 | From technological experience to that of urbanity

Having presented the three systems studied, we shall observe how the uses of digital technologies help in building a narrative of the city by exercising enhanced urbanity.

2.1 | The challenge of adapting to the local context

The experiments revealed the importance of developing content that is relevant and adapted to the local context. The first difficulty lies in content selection, there being abundant information available online and offline. If the system presents too much information it will put paid to the message's clarity. In this sense, the two guides having led the enhanced visits as part of *Urban Explore* note that before the start of their experiments, they paid longer visits and that they had to reconsider the format of their digital support systems in order to better select what they wanted to use: «during the creation, we certainly put too much into the slide show (…) 1 or 2 images for each stage is fine (…) At first I gave too much info, it was oozing forth, during just the four-hour visit» (Guide interview #1).

Apart from selection, there is the challenge of aggregating content and presenting it in a digital interface. In navigation style, the most open system corresponds to *Smart Map* while the first versions of *Urban Explore* appeared to be too linear. Thus, for the three systems, it is envisaged to develop a more open superstructure which would give greater autonomy to users and afford them freer navigation by letting them have several exploration options simultaneously. The challenge is to offer more transversality in the experience, letting users have a bigger picture of the digital content.

A more autonomous navigation experience could also facilitate generation of content that is more varied and more specifically adapted to users' wishes. So the content should not be seen as top down production coming mainly from those managing the system. The user could also exercise the capacity to create content and formulate a discourse on the city by sharing texts, images or even videos. Such individual production adds to the already constituted material, contributing to the collective experience of knowledge building by editorialisation. Again, the social network seems central for developing this dimension in an effective and speedy manner. It could allow the users to more easily add specific content (text, web link, image or video) which they have authored or simply to link the system to content they may not be the authors of but which they wish to endorse, share or even see discussed. Some examples: *YouTube* could be tapped for videoes, *Flicker* for images and *Wikipedia* for text. Of course, in using these sources, there is the major issue of of content copyright that needs to be considered. A solution would be to rely on only public platforms that have done the work of identification and selection. The European digital library *Europeana* allows access, for instance, to 33 million digitized documents representing the continent's historical and cultural heritage. But there is the issue of the informations' local dimension. The more the content is local. the more it is likely to appeal to users.

2.2 | Appeal of digital systems

First, users' observations in experimental situations point to a possible digital divide: «The tablet requires familiarity with the digital world in order to see and understand the documents. There is expectation of knowledge that is not simple for everyone (…) there is the need to adapt to the media and one has to understand and be proficient in three stages: to be able to read, be able to get on to the time line and know when to click pause» (Guide interview #1). This divide does not appear to be as huge as might be imagined as regards dominant representations of web usage. During visits or in responses to the questionnaire, users often seemed to be connected to several devices (computers,

tablets and *Smart Phones*), and for long periods at that. Age and gender did not seem to be a discriminating factor, although younger users have a more relaxed attitude to new technologies as regards observations during visits or events seen. However, it has been noted that senior citizens often have a more enthusiastic attitude to new technologies as they do not associate it with professional use as was revealed during *Urban Explore* visits.

On site observations showed that initial apprehensions were overcome during the visit: «at first I had my doubts: we can walk, listen, see simultaneously, but it's interesting, important and original» (User interview #2). Quite soon facility with different devices came about: «I had doubts about digital but in fact, it's fine (…) at first I did not take the tablet as I thought it would come in the way but no, we're a reticent generation but we must shed our prejudices. The tablets make for independence especially when we are a big group as it would be difficult to show documents. Actually, it's easy to use, although there were glitches at first. I'm tempted to visit again armed with an iPad» (User interview #5). Finally, while the 'enhanced' nature of Urban Explore visits did not seem evident for the users, the experiments helped remove doubts and pointed to the possibility of adding real time virtual support systems for perceiving the city. Moreover, the *Smart Map* and *Heritage Experience* experiments show that users are indeed speedily taking to digital platforms. Thus there is no digital divide therein.

The spatial narrative rests on the interactivity of platforms that lets users be at the center of the technical system. This change responds to the ease of use noted during on site utilisations. Moreover, it corresponds to contemporary usage of new technologies 2.0 wherein the user is not merely a recipient of information. This more interactive approach helps situate the users in a more central position where they can contribute to the exchange by sharing or commenting on the content, adding new information and more importantly, interacting with the system's other users. Such a position of the user also corresponds to the change of cognitive posture with the shift from a deductive to an inductive approach wherein the users have greater autonomy in constructing their own practice of spatial editorialisation or knowledge production which is transformed into a collective experience.

2.3 | From user to citizen

Apart from *City Telling*'s experiments, the area's editorialisation could go beyond traditional technonogical frontiers of systems beholden to particular entities, so as to develop an experience that leads to longer term digital usage. This complementarity between *on-line* and *off-line* use times, but mainly during and after the collective experience of experimentation and/or visit helps more important and substantial adaptations. The *participants* can have the possibility of creating a user profile and prolong the experiment beyond the visit time and enter their reports on the area long after their presence there. In this perspective, editorialisation or knowledge production must be seen as a practice of interoperability, offering a global experience wherein the digital does not merely prolong a physical experience but rather is concomitant with urbanity. Identification can take place with the intermediary of social networks such as *Facebook* or *Twitter*. It is a recent but important evolution of the main social networks that permit access to third sites without having to create a new ID. It also has the advantage for third sites, allowing them to appear on the networks and make contact with future users.

These editorialisation practices raise questions regarding the citizen experience of users: Should one reveal one's real identity? Do users participate individually or in groups? Can they comment on, note or vote on the proposals or content offered by other users? Can they contact each other? What type of content may be shared? What forms of discussion can take place and according to what modalities? According to what techni-

cal limits of format? How are they presented? Who eventually controls the content and interactions? Finally, the system's design (Badouard, 2014) opens up possibilities but also governs the conditions of their realization by exercising a normative constraint on internet users' practices in their ability to narrate the city: the applications format makes possible the realization of an action in a certain way. By developing applications that allow for exchange and discussion, webdesigners organize social relations providing a framework for the way in which Internet users editorialise the area and potentially gain a public.

Finally, the development of an experience around the users themselves helps strengthen the capacity for appropriation of the digital tool, putting more resources in the users' hands. Thus the capacity to editorialise an area may be envisaged as one of the conditions facilitating participation in a collective action. Going by Dewey's concepts, through such editorialisation, the possibility arises of making something public by promoting freedom and a capacity to investigate: «A public is a collection of people having full access to the data about affairs that concern them, forming common judgements as to the approach to take based on such data and having the ability to openly air these judgements. (…) The public's authority presupposes freedom to investigate, with full knowledge and appropriate for acquiring the competence to evaluate the documentary corpus, even produce them and guaranteed political rights» (Zask, 2008: 23).

The sharing and exchange around the area can generate a more active participation on space management based on greater knowledge of the area: «To be politically active, a public must learn. And for such learning to be politically operative, knowledge must be acquired following a method that renders the public active and not mere spectators» (Zask, 2008: 28). In this sense, the development of spatial editorialisation or knowledge production tools may be envisaged as a vector for

citizen mobilisation. Such experiments can potentially help empower citizens and lead to more collaborative town planning. The process may materialize first of all with an identification of spatial challenges based on visits as part of *Urban Explore* and then a discussion via *Urban Heritage* and *Smart Map* better representing different stakeholders of the area and generate discussion of challenges faced.

2.4 | Spatial editorialisation as collective experience

The spatial editorialiation studied should not be seen as a mere technical device. The project's social dimension is primordial and even absolutely necessary to its adoption and efficacy. *City Telling* is therefore a socio-technical tool whose success depends on the effective mobilisation of people in the area.

The area's actors are primarily public institutions (local collectives: communes, intercommunalities, departments or regions), para-public institutions (for example: municipal tourism offices, regional or departmental tourism committees, INSEE – National Institute of Statistics and Economic Studies-France, municipal or departmental archives, …), associations, private actors and above all citizens. This diversity of actors carries with it values, interests, representations and specific discourses on an area. Such spatial editorialisation, while not necessarily being exhaustive, seeks to represent this diversity by gathering these actors to generate identification and appropriation by users who could then produce new discourses on the city.

The challenge of creating a narrative about a city lies in the mobilisation of actors and stake holders of an area so as to collect information content better adapted to the local specificity. This could be in the form of opening up of data from public institutions (*Open Data* movement which developed through several local initiatives as well as legislative and regulator injunctions) or creation of original content for an editorialisation or knowledge produc-

tion system. In all cases, the format issue is primordial in order to ensure interoperability of data and their integration. Obviously, such production and aggregation of data from different actors necessitate the building and nurturing of good relations with them. This demands time and consistency in engagement, as the CIUP experience highlighted.

Finally, an area's different stakeholders invest in the systems, it may be hypothesized that several spatial experiences of urbanity and thus of representations or even discourses would be represented in the content offered. The diversity of values and interests lying behind these different actors is essential in order to generate appropriations and identifications among users. If users are able to interact with each other, such appropriation could lead to citizen discussion and set the terms for a local public debate enhanced by the articulation of content and experiences online and offline. Apart from the experimentation presented here, digital spatial editorialisation could potentially help strengthen citizens' ability act by opening up the possibility of confronting the challenges presented by an area through a better understanding, discuss and build a vision for the future. Thus relying on digital tools, the aim of residents' participation could find new resources to ensure more effective opening to public decision making.

Conclusion:
towards a digital citizenship?

Narrating the city means visiting it. So this experiment consisting of editorialising an area or producing knowledge about it digitally illustrates new ways of creating discourses in the city and on it. These practices give another glimpse of the digital city that is no longer perceived as must an object reserved for major private groups which promise an 'enhanced' city by algorithmic force. Here digital usage potentially opens up the possibility of a better collaboration with citizens who would find new resources to express themselves and eventually produce discourses different from the dominant representations.

Beyond the *City Telling* project experiment these issues deserve new investigations based on larger usages and time-bound writings so as to measure the real impact of these emerging forms of expression of urban citizenship. It would be gratifying to examine the ability to organize, define common interests and finally weigh in on the power equations holding up the making of the city. In other words, while the digital world opens up a brand new path for citizens' capacity, the transformational impact of the discourses produced by these digital systems is yet to be demonstrated. The future will certainly help strike a balance between cyber pessimism and cyber optimism as regards the affirmation of an enhanced urban citizenship.

Notes

1 Going by the definition of Jacques Lévy and Michel Lussault, this notion refers to the practices and representations of individuals and groups. It is «[…] a dynamic relationship between individual actors (mainly individual but also collective) and the urban object. […] Urbanity/residentship constitutes a whole – highly complex and evolving – of representations feeding spatial practices, the one by reflex contributing to the modification of the other» (Lévy & Lussault, 2003: 160).

2 A French version of this article will be published at the Presses Universitaires du Septentrion: Douay N., «Dire la ville par le numérique, le cas de l 'éditorialisation du territoire avec le projet City Telling» in Fijalkow Y. (dir.), *Dire la ville, c'est faire la ville. La performativité des espaces urbains*, Lille: Presses universitaires du Septentrion.

3 http://www.citytelling.fr/en/ [accessed June 5, 2016].

4 Activities carried out in partnership with Vivacités IDF and the Mission Démocratie participative (participatory democracy mission) of the Val-de-Marne department.

5 http://www.smartcity.fr/smartmap [accessed April 30, 2015].

Credits

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Abstract

Space Juxtaposition in Arts suggests a modular structure that constructs and presents digital artworks related to spatial practice. This structure involves multi-layered space, interconnected modules and nomadic qualities.

This article discusses the discourses of site-specific art, cultural specificity and spatial practices in an artwork. The research analyzes characteristics of locative artworks, such as the unstable relationship between spatialized narrative and its site, the temporal shift in multilayered space, and the significance of this modularity in an artwork.

Part One of this article reveals the importance of the origin of locative art while presents a critical analysis of the art practice in the 1960s. It also describes artistic approaches to everyday life and argues that elements from our everyday life in art projects as the bonds that connect each other.

In Part Two, The Art Projects, describes two art projects both conceptually and technologically. It also explains the diagnostic art-making process and justifies its contribution to history of art, in relation to the domains covered in the previous chapters.

Annie Wan

Space Juxtaposition in Arts

Keywords: Locative arts, Networks of sites, Modular structure, Site-specific art, Mobile technologies

1 | Introduction

Site-specific art practice usually refers to artworks that exist in a particular space. A famous quote from the minimalist artist, Richard Serra, reveals the essence of this art practice. In 1985, after a public hearing to determine whether his work Tilted Arc needed to be relocated, he remarked: «As I pointed out, Tilted Arc was conceived from the start as a site-specific sculpture and was not meant to be 'site-adjusted' or 'relocated'. Site- specific works deal with the environmental components of given places. The scale, size and location of site-specific works are determined by the topography of the site, be it urban, landscape or architecture enclosure. The works become part of the site, and restructure both conceptually and perceptually the organization of it» (Serra, 1994: 202).

However, Serra's definition of this practice remains controversial. Because many argue that site-specific art should apply to any artwork that is made in response to a site or interacts with any element of a site. In addition, this term site-specific art originates in the 1960s, defines the production, presentation and reception of artworks in conjunction with the idea of the site, its cultural and physical qualities. This includes light installations, sound installations, environmental art, public sculptures, dance performances and digital art, etc. Instead of discussing approaches

that define site-specific artworks, this chapter focuses on the critical analysis of minimalist and conceptualist practices in site-specific art.

«Rather than 'establish its place', the minimalist object emphasises a transitive definition of site, forcing a self-conscious perception in which the viewer confronts her own effort 'to locate, to place' the work [....]» (Kaye, 2000: 2). In the book Site-specific art performance, place, and documentation, Nick Kaye shares his insights on site-specific practice by exploring Robert Morris' sculptural practice. He states that Morris' Mirrored Cubes (aka. Untitled), exhibited in the Museum of Modern Art, New York in 1965, penetrated into the gallery space, and abstracted the outer space and inner space of the sculpture. Morris positioned four mirror plated cubes as if they are placed at the corners of a larger square. As such, the multiple layers of reflection were unavoidable. In Morris' cubes, the reflection of the gallery space became the site of the artwork, which includes the audience and viewers of the work. It presents the instability of the site, as the reflected images are constantly changing.

When compared with Serra's conceptual framework, Morris considers the fact that the site of an artwork is a space where people interact. Although Serra defended Tilted Arc and stated that site-specific art should not be

'site-adjusted' or 'relocated', his earlier work Shift reveals the importance of the audience's participation and their spatial relationship with the artwork.

«What I wanted was the dialectic between one's perception of the place in totality and one's relation to the field as walked» (Serra, 1994: 11). Shift redefines the viewers' perception of the landscape by placing concrete sections together in a zigzag pattern. Viewers, or precisely those who penetrate into the space, perceive the terrain as a formless and undetermined structure.

During nearly the same period in which Morris presented his Mirrored Cube, Hans Haacke presented Condensation Cube which engages with the natural environment of a site. Moisture at a unique time in the site where this transparent cube is placed, becomes the content of the work. Hence, invisible elements such as humidity, subtle changes in temperature and overall environment of the site changing constantly would eventually affect the form of the work.

1.1 | New Definition of Site

Site-specific art could be 'site-adjusted' as in the case with the above artworks, especially in terms of embracing different qualities that exist in the site. Whether the work can be 'relocated' depends heavily on how the word 'site' is defined in site-specific art, important concerns include: What is a site?, How has the site been constructed? and Where is the site?

«An existing space may outlive its original purpose and the raison d'être which determines its forms, functions, and structures. It may thus in a sense become vacant, and susceptible to being diverted, re-appropriated and put to a use quite different from its initial one» (Lefebvre, 1991: 167).

Henri Lefebvre' s Production of space affirms space is never absolute and neutral. Instead, the construction of space is a complex and bidirectional process based on social values, human perception and spatial practices.

Anthropologist Marc Augé (1995) conceived 'non-places'[1] as places of transience according to their usage and human spatial practices. The theory stresses that spatial practices are more significant than the physical space itself. It defines location as the name of a place, whereas space is defined as the physical / architectural form and an end-product of spatial practice. As a consequence, the word site should be interpreted in a straightforward fashion as a location or place or space of events. Each period's or culture's construction of site is re-defined on the grounds of relevant, dominant social norms, time or practice, but not on any claim to be the prior truth. In other words, the concept of site is temporary and volatile.

The pioneering sound artist, Max Neuhaus, created one of the very first telematic sound performances Radio Net in 1977. It was a closed-loop radio network, which propagated a radio signal from one transmitter in a city to that of another city in the United States. The two-hour performance adopted communication technologies as a bidirectional process. Radio Net's structure formed a cartography of radio wave spectra and an invisible landscape. We can see the technological advancement in this project, and how technology affects an artwork's structure. The invisible network formed by multiple sites in this work, cannot be described by the theory of site-specificity, especially for Serra's rigid structure. Because a site in site-specific art usually refers to a certain space while this artwork was traveling across several places. The communication and interaction among audience in different places are inseparable to the artwork, so the connection among places and the idea of multiple sites become important, though none of the sites is superior.

As technology develops, and art forms evolve, there are more and more artworks related to space and site which cannot be explained fully using Serra's theory.

Recent digital art practices reveal the importance of shifting sociality in public spaces. They frame the virtual space as a place of events and social practice because this affects the way how we occupy space in the city.

"Can You See Me Now?" was a urban game first exhibited at the b.tv festival 2002 in Sheffield, UK. It happened online and in the city at the same time. Members of Blast Theory (members) played against online players (avatars) in an online city. The game placed avatars at random locations on a virtual map while members appeared on the map according to their real time physical locations. The members tried to catch the avatars in real city space and they also exchanged information and tactics with others via walkie-talkies. Once they caught an avatar, they would take a photo of that particular location in real city space.

In "Can You See Me Now?", the virtual map space and the idea of presence in this work suggest an insight. The virtual map exists on the internet, where cultural interaction happens. Meanwhile, this map is an abstraction of the physical space, i.e. the cityscape. When the runners took pictures of places where they caught avatars, there is no doubt that the virtual players did not exist physically in those particular places. The spaces in this project are all superimposed, mixed up and blurred. Its site was a virtual map - an extension of the physical site. Yet, it engaged more people and created a network of complex, hybrid space, which could not be analyzed solely using the term site-specific. These spaces make a statement about what a site means in the twenty-first century. Site nowadays should be interpreted as a space of events and an end-product of spatial practice. In addition, this space can be either physical, virtual or hybrid, similar to where interactions happen in "Can You See Me Now?".

On the contrary, "Milk Project" – created by Esther Polak, Ieva Auzina and RIXC at Riga Center for New Media Culture in 2004 – utilized the same technology, but a different approach towards space. This locative art project traced the production and transportation process of milk from Latvian cows. The artists invited farmers and drivers to wear GPS devices, interpreted the resulting data and created routes of how the milk was delivered from the udders of cows to consumers' plates.

The structure of this work is simple enough. For instance, the content of the work depended on how people deliver milk, and the short stories involved. The stories were documented in both text and images, presented in the form of a video installation. It is concerned with what was happening on the route which had been derived from and defined by spatial practice; the route does not exist if there is no milk delivered, and it is a site defined by actions and culture. Also, it is meaningless not to just read the stories as a whole as coherence will not be achieved, and as a result, one may not understand that the work revolves around the delivery process of milk. In other words, the entire entity was made up of connected stories that happened along the milk line, and these constructed the spatialized narrative, which was specific to the line.

The art group regarded the work as landscape art instead of addressing any cultural and political statements. The traces of movement depicted the activities of the participants involved, and none of them was omnipresent. Their collaborative force and technology facilitated the digital landscape art.

In both "Can You See Me Now?" and "Milk Project", there were hybrid forms of spaces, and their sites were complex. The term site-specificity is too weak to describe their states of flux and nomadic qualities.

However, digital art nowadays deals with locations, spaces and sites that mostly originated from site-specific art in the 1960s. They extend the idea of location, site, spatial practice and space. Moreover, due to the

invention of telematics and mobile technologies, the original framework cannot explain the innovative discipline entirely. Neither can the rigid one from Serra's Tilted Arc nor the mutable form from Mirrored Cubes and Condensation Cube. This paper is not concerned with defining site-specific art for today's digital art practices. On the contrary, it is concerned with suggesting a new form of art and discourse about how to appreciate this form of art, a new genre – locative art. It is also concerned with the notion of what the relationships among sites are, what the relationship between the site/ context is, and where the site(s) is/ are.

Most digital artworks, in relation to space, sites and mobile technologies, encompass a number of invisible elements from their sites. This multi-faceted model is comprised of audience participation, historical backgrounds, collective memories as well as different form of spaces.

1.2 | The Bonds

Vito Acconci's "Following Piece" is a significant project in relation to art and everyday life practices in public spaces. Algorithms in art are sets of rules that artists create and during the process of art making; artists or softwares created by artists in digital art make decisions based on them. In this piece, Acconci's algorithm was first to pick random strangers on the streets, then until they disappeared and entered private spaces where he could not enter. This work was carried out every day for a month and he took video documentation. His own algorithm shows how artists contextualize public spaces and private spaces in art. It also emphasizes the uncontrollable nature of our movement in everyday life and public spaces.

Acconci's algorithm decided his own movement in public spaces and this solely depended on actions of random strangers. This reflected how his movement and those related everyday life events were affected by external forces. In spite of ethical questions arising from this project, one of the major elements in the piece was role of the participants in public spaces and everyday life.

The multilayered space in his piece is worth paying attention to. When he was following his targets, he was aware that he was creating art. In other words, his space is an art space. However, from his targets' perspective, the space is a public space. In this case, the contradictory definition of space proves that action defines space. Art originates from everyday life; it provides a channel and intersection between artists and their audience. Acconci's paradoxical structure framed the artwork, and randomness in everyday life enriched its content.

From collage paintings to performance and excursions, Dadaists embraced everyday life events as active ingredients in their practice. For example, Marcel Duchamp's famous ready-made sculpture Fountain. He exhibited an everyday life object, a standard urinal, and signed it with a fake signature (R. Mutt). This artwork transformed what we normally regard as non-art into art. Besides Duchamp's anti-art innovation, Tzara and other Dadaists structured their works, especially for their performances and excursions, around the creation of an experience between dream and reality. Their claim of anti-art is the most ironic. They made art anti-art. Their lack of aesthetics becomes their aesthetics, and also their manifestos.

«In documenting art on the basis of the supreme simplicity: novelty, we are human and true for the sake of amusement, impulsive, vibrant to crucify boredom … I write a manifesto and I want nothing, yet I say certain things, and in principle I am against manifestos, as I am also against principles … I write this manifesto to show that people can perform contrary actions together while taking one gulp of fresh air; I am against action, for continuous contradiction, and for affirmation too, I am neither for or against because I hate common sense»[2] (Tzara, 2006).

Similar to their claims stated above, the way they interpret common sense is ironic too. Elements from everyday life in their works are the common sense (Duchamp's urinal object for example), and through their anti-art process (by exhibiting the urinal object in a museum), the anti-art object becomes art. The process involves setting up a situation and an experience which originates from everyday life, and deconstructing it at the same time. Although art critics criticizes their bankruptcy in aesthetics (this is what they were aiming for), their innovation in creating new forms of experience and influence on their successors – Surrealism, Situationist International and Conceptual Art – cannot be ignored.

Social activists or interventionists provoke their audience by presenting didactic messages and activate social changes, normally in public spaces. There are fundamental differences between this practice and artworks that involve public spaces. Art projects that involve public space do not necessarily aim for social change.

Claes Oldenburg and Coosje van Bruggen transform everyday life objects and stereotypical objects into large public sculptures, such as Balancing Tools in Germany and Cupid's Span in San Francisco. Their monumental sculptures situated in different cities transform the public's perception of what sculptures are. The artists alter the scale of ordinary objects, and these iconic images are often freely associated or have multiple meanings. These sculptures should be viewed as pure forms of objects, as monuments in public spaces that juxtapose with our everyday life.

City spaces are stages of everyday life; they are full of meanings, and are constantly being written or re-written. Hence, we regard cities (i.e. open public spaces) as spaces of everyday life events.

Spaces in everyday life are similar to these objects, and they often can be rendered as different acts and be re-written. Sense of space and its definition are highly subjective, and names of spaces are usually decided by urban planners, governments and authorities. As mentioned previously, Marc Augé stresses spatial practice of a certain space is far more important than that physical space. Hence a sense of space developed by a particular person depends on his/ her perception, memory of that space and practice in that space. Meanings and representations of spaces in everyday life are no longer static.

The manifestation of each artwork is different from another, and often merely depends on what kind of element in our everyday life has been selected. In 1998, French art critic Nicolas Bourriaud suggested the term relational art, which defined as art practice concerned with communities, human relations and social context. This art practice stands against art practices which concern an independent and private space. Since relational art consists of a structure formed by collectivity and elements from our society, he also stated that methods of connecting each element together become less visible.

«Art keeps together moments of subjectivity associated with singular experiences, be it Cezanne's apples or Buren's striped structures. The composition of this bonding agent, whereby encountering atoms manage to form a word, is, needless to say, dependent on the historical context. What today's informed public understands by 'keeping together' is not the same thing that this public imagined back in the nineteenth century. Today, the 'glue' is less obvious as our visual experience has become more complex, enriched by a century of photographic images, then cinematography (introduction of the sequence shot as a new dynamic unity), thus enabling us to recognize the 'world' as a collection of disparate elements (installation, for instance) that no unifying matter, no bronze, links.» (Bourriaud, 2002: 17-18)

Bourriaud's definition of 'glue' can be seen as methods that artists select events, and how they connect them together. Public space

can also be regarded as a pool which is filled with everyday life events. Artists, such as Acconci, Claes Oldenburg and Coosje van Bruggen, have selected objects and events to form the bonds. According to Bourriaud, the bonds become more complex, and they are not restricted to visual elements. Everyday life is an active ingredient in forming the bonds. There are no objections to how art relates to our society or it is a part of our culture, although revealing this relationship is not necessarily the ultimate goal. Instead, art should be unique and distinct in creating an experience.

Jacques Tati's film Playtime, is a perfect example of how visual and aural rhythms with futuristic everyday life experiences are synergized. It has been described as plotless and without stories, in contrast to those films with clear narratives and formalistic structures. Tati positions us in his rigid, technological and futuristic world, and portrays the life of the main character (Hulot) as humorous and a person who fails at life. Hulot finds himself full of curiosity in this world, unlike other characters in the film. In the scene that shows he is waiting for a job interview, Tati emphasizes the sound of a telecommunication machine, stepping sound of an employee and the sound from a sofa, which Hulot sits on.

Cinema is a form of mirror, not absolutely accurate but selectively magnified and amplified. In Playtime, the bonds, in Bourriaud's term, especially in the scene mentioned, were those details in everyday life which often ignored by us. Tati emphasizes this surrealism of sound in our everyday life and this goes beyond what Bourriaud called 'cinematography (introduction of the sequence shot as a new dynamic unity)', instead, he creates new relationships among our everyday life, sound and visual images.

The bonds turn invisible and more complex in installation art, as Bourriaud mentioned and it is also true in new media art. Milk Project, referred earlier in Introduction, reveals different disparate elements keep together and forms a unique world. Participants from different locations along the milk line told stories about how milk was delivered and these stories rewrote meanings of locations. One of the stories told by Janis Simsons (one of the participants), who is a milk farm, showed his work schedule in a particular day. On the web archive of this project, artists chose not to show the names of participants' locations (e.g. Janis Simsons'), instead, they showed their GPS coordinates, animations of their recorded movements and their stories in text. The audience perceive participants' locations as spots along the milk line, and these spots are spots of memories and cultural practice in this project. The names of locations are no longer important to audience. Meanwhile, all spots are bonded through actions and movements of the participants, and this bonds are invisible and inaudible.

From Dadaism, film to new media art and locative media, artists select events in everyday life and create selectively magnified worlds, the space in these worlds can be multilayered, contradictory and overlapping. This includes actions, visual, aural, cultural and psychological elements. Most of them manipulate events in everyday life as content of their works but their strategies, structures and approaches are different.

1.3 | Characteristics of Locative Art

The term 'Locative Media'[3] (Galloway and Ward, 2006), coined by Karlis Kalnins, refers to digital art practices in relation to either physical, cultural, epistemological or contextual elements, or ubiquitous technologies. Before the birth of the term, art practices from Thomas Philippoteaux's paintings to Waag Society's Amsterdam Realtime, revealed the engagement of locative-ness in various art practices.

In most of the locative artworks, artists concern with spatial relationship, rather than the space or the site itself. But due to our more complex sensory experience nowadays, the audience no longer sees the artworks to be

happening in nineteenth century. They become active in viewing the artworks.

Waag Society, Esther Polak and Jeroen Kee created the project Amsterdam Realtime in 2001. Public audiences in Amsterdam were invited to be equipped with a portable tracer device developed by Waag Society. The devices kept track of their positions by using GPS technology and data synchronized with that stored in a central server in real time. The visualized data would then be shown on a map. The map does not contain any streets names, landmarks or buildings. Instead, it contains traces of human movements.

Another locative sound art example, Christina Kubisch chooses the invisible electromagnetic waves in Electrical Walk, and creates sonic narratives within different cities. Electric Walk is an outdoor installation which consists of lots of electrical wires. It employs custom made headphones that detect inaudible electromagnetic waves emitted by both wires and different objects in the city, such as ambulances, neon lights, and convert them into sound. The project has been exhibited in various cities.

Anthony Dunne and Fiona Raby described hertzian space as an interface between human and electrical devices: «We are experiencing a new kind of connection to our artificial environment. The electronic object spread over many frequencies of the electromagnetic spectrum, partly visible, partly not. Sense organs function as transducers, converting environmental energy into neutral signals» (Dunne and Raby, 2001: 107).

In Kubisch's work, technology used in different sites are the same, and different sites and cities, and movements from the audience enrich the content with the invisible, 'hertzian' space. This unique sonic experience differs from one location to another. In other words, the most important elements of an artwork are how the artwork is structured around the idea of spatial practice, and how different locations affect the artwork but not the kind of high-end technology involved.

Kubisch's piece cannot be located inside a gallery or museum, and most of the locations that she chooses are cities. These cities provide rich spectra of electromagnetic waves. In each city, the sound is different from one to the other, though the technology used are the same. The sound foregrounds the importance of everyday life, spatial practice, the 'hertzian' space and how the electromagnetic spectrum in a particular location affects the work as a whole. In her work, sites are important but they are not site-specific, because the 'hertzian' space is volatile and invisible. The space itself is in a state of flux and the sites are important to the work due to the activities of electromagnetic spectra happen there, in other words, the spatial practice in a particular site is important, rather than the physical space.

As Kubisch situates the work in different public spaces, this giving a more complex structure. She relocates the artwork and the audience in Electrical Walks transforms the public space into an art space together with the artist, through their movements in the city.

A more recent example of locative art is Serendipitor by Mark Shepard. This iphone navigation app provides alternative routes to users and suggests actions, such as taking a photo, picking a flower. Users enter an origin and a destination, then the app will map a route between them. They can also choose to increase or decrease the complexity of the routes. When users reach the destinations, they can choose to send emails and share their routes and steps they took with others.

This work adopts a similar approach to Kubisch's. Spatial practices in both projects are the active ingredients. Shepard even gives more freedom to users, and due to the technological advancement, the users can now experience the artwork wherever they are. The iphone app provides alternative routes for the users, and presents another kind of cartography, which differs from normal routes provided by online map applications.

Those routes are usually longer than we nor-

mally take and encourage users to explore our environment in everyday lives. Yet, this personal experience has been guided by some simple instructions in the app. Serendipitor is another example of how art transforms space, and sites of the artwork become indistinct.

In Acconci's Following, the artist experienced the art space that is created by himself while others, such as persons he followed, experienced an everyday life public space. This concept expands in Serendipitor, since users experience and create art spaces, together with the artist. These spaces are multilayered and overlapped. Furthermore, sites in this artwork could be anywhere in the world with an internet connection, hence its sites are hybrid in form.

In addition to Karlis Kalnins' definition of locative media, one of the unique characteristic of locative art is how artists include everyday life events, i.e. actions in public space. Artists structure these events in order to transform the public space as well as the spatial relationship between the artwork and the audience.

1.4 | Modularity

A similar practice to locative art is telematic art. It is defined as artworks adopting telematic technology, such as the mobile phone and other telecommunication devices. One of the telematics artworks, Heath Bunting's Kings Cross Phone-In in 1994, opened up new possibilities of performance art and the participants were aware of their actions. Bunting created a webpage, described the project and what people needed to do if they wanted to join the project. He also listed a pay phone number at Kings Cross station he would call during the performance. The artist observed the listed phone numbers' activities at the station and summarized events into a written report. Kings Cross in London became the main site of the piece while the distributed network covered locations where people telephone in. This work emphasizes

the communities and the network but in actual fact, it had a main, central site. No other sites were superior to the main site. On the contrary, in Shepard's work, all users' inputs are important, and the sites (users' locations) in the network are equally important.

Internet art is distinguished by real-time and virtual space while in locative art, such as Serendipitor, the transient and mobile natures stand out.

In Serendipitor, there are multiple sites involved, and qualities of different locations are highly important. However, the definition of site in locative art is no longer limited to physical, discrete spaces. Instead, it may involve 'hertzian', virtual or hybrid space. Furthermore, qualities of different locations, i.e audiences' actions and the environment, are constantly changing, hence these qualities affect the user's experience in Serendipitor.

Another feature of this kind of art is modularity and in Serendipitor, each user's interaction in a location can be considered as a module. This modular structure, which outlined in a book of Lev Manovich as one of the principles of new media. The established media art scholar depicts a new form of media art in terms of content and structure. He states: «This principle can be called 'fractal structure of new media.' Just as a fractal has the same structure on different scales, a new media object has the same modular structure throughout. Media elements, be it images, sounds, shapes, or behaviors, are represented as collections of discrete samples (pixels, polygons, voxels, characters, scripts). These elements are assembled into larger-scale objects but they continue to maintain their separate identity. The objects themselves can be combined into even larger objects -- again, without losing their independence.» (Manovich, 2001: 30).

But modularity in locative art goes beyond what Manovich describes. With the development of internet technology and wireless communication, artworks existing simultaneously in different spaces is possible. In

locative art, due to its transient and mobile nature, chance events usually occur. When art becomes more open-ended and volatile, authorship in traditional art forms turns invisible. The experience created by locative art depends on how artists select events in everyday life, as mentioned previously. It also depends on how they put them together, and what the 'glue' is, according to Bourriaud. As we can see in the Milk Project, mentioned previously, the artists limited the way how traces had been created. The group looked for specific content and qualities of narratives through interviews. Hence, different micronarratives, told by different persons involved in the milk line, such as drivers and milk farm, in the project were delivered successfully to the audience in the gallery. Each micro-narrative in this artwork can be regarded as a module and all modules are well-glued by the milk line which is a cultural practice – a typical example of how action defines site.

In "Milk Project", each micro-narrative can be read as an individual story of everyday life and by combining those narratives together through artists' choice, it forms «fractal structure of new media», in Manovich's term. But this modular structure in locative art does not solely exist in one, discrete place, instead, all modules are spread out in all kind of spaces.

2 | The Art Projects

The two art projects in this article reviews an innovative form of creating micro- narratives and locative experience. This experience originates from everyday life, and extends the sensuality to physical space, as well as a hybrid form of space. The first project, *Where's the Chicken?* interprets locative public art as an augmentation of site- specific art practice. It attempts to situate the same piece of art at different sites, foregrounds the cultural differences and suggests a more compelling structure for today's digital arts in relation to locative technologies. As for the second project, *Around the Corner*, it extends users' interaction into a multilayered, hybrid space.

Spaces are no longer defined by their physicality but instead, by actions and memories.

2.1 | Where's the Chicken?

"*Where's the Chicken?*" (2008-09, http://wheresthechicken.org/slimboyfatboyslim/?p=1) is a locative robotics public artwork supported by the Hong Kong Arts Development Council. It embodies public interaction, collaborative narrative, automata systems and mobile technology. The piece constructs a narrative performance from the cooperation between the robot, culturally specific locations and public participation. The chicken robot is a life-form mechanical automata that reframes both its definition and its general perception. In "*Where's the Chicken?*", a 'better' kind of chicken – a robot that does not spread disease but rather serves as a role model of a 'well-behaved chicken' – engages the public. It reframes the question of how we extend ourselves, our history and culture, while sharing a time-space and highly cultural specific locations with us.

"*Where's the Chicken?*" was shown at the Academy of Visual Arts, Hong Kong Baptist University, Hong Kong SAR China in July 2009 and exhibited at the Hong Kong Contemporary Art Award in 2012. It also received a Finalist Award in the 2009 Asia Digital Art Awards in Fukuoka, Japan (February 2010) and shown at the Hong Kong Museum of Art (July 2013–January 2014) as part of the Art Square at Salisbury Garden Completion Ceremony.

The piece itself is not simply a simulation of reality—it originates from our everyday perceptions of reality, which are twisted, altered and transformed through an aesthetic system. The audience actively contributes to the construction of the artistic experience by interacting with the new scenarios, structures and interfaces. The narrative is hybridized and enriched by the public interaction, through audience member 'performances' and stories. The audience take pictures with the robot, upload the pictures when they re-

Figure 1 | Performance at Wanchai, Hong Kong
Source: http://wheresthechicken.org/slimboyfatboyslim/.

turn the piece to the artist and tell the artist what they did with it, essentially constructing a collaborative ‚chicken map of the city'.

«Art keeps together moments of subjectivity associated with singular experiences, be it Cezanne's apples or Buren's striped structures. The composition of this bonding agent, whereby encountering atoms manage to form a word, is, needless to say, dependent on the historical context. What today's informed public understands by 'keeping together' is not the same thing that this public imagined back in the 19ts century. Today, the 'glue' is less obvious as our visual experience has become more complex, enriched by a century of photographic images, then cinematography (introduction of the sequence shot as a new dynamic unity), thus enabling us to recognize the 'world' as a collection of disparate elements (installation, for instance) that no unifying matter, no bronze, links» (Bourriaud, 2002: 17-18).

The manifestation of each artwork is different from another, and often merely depends on what kind of elements in our everyday life have been selected. In 1996, French art critic Nicolas Bourriaud suggested the term 'rela-

tional art', which defined as art practice concerned with communities, human relations and social context. This art practice stands against art practices which concern an independent and private space. As the structure of relational art is formed by collectivity and societal elements, Bourriaud also stated that methods of connecting such elements become less visible.

Bourriaud defines the methods that artists use to select and connect events as 'glue'. Public space can also be regarded as a pool filled with everyday life events, and artists such as Acconci, Claes Oldenburg and Coosje van Bruggen have selected specific objects and events to form bonds. According to Bourriaud, as such bonds become more complex, they are not restricted to visual elements.

I constructed six robot chickens for this project. They included a fiberglass enclosure, electronic circuits and motors which enabled breathing motion, control beak motion and eye blinking motion via crank mechanism. The chicken robots also produced sounds with an embedded sound playing module. I brought one of them to different cultural spe-

Figure 2 | Performance at Mongkok, Hong Kong
Source: http://wheresthechicken.org/slimboyfatboyslim/.

cific locations around Hong Kong during the exhibition period.

The locations of the chicken robot were updated and converted into a graphical representation, 'Chicken Map of Hong Kong'. Public messages had been rerouted from the mobile phone to the computer via Bluetooth connection, and shown at the bottom of the 'Chicken Map of Hong Kong', which is algorithmic processed by a custom-made software. Those who sent SMSes during this phase were automatically signed up for the second phase of the exhibition. If they called the designated phone number, they would hear a sound recording in both Cantonese and English, which introduced the project and method of participation.

During the first part of the performance, a small computer program tracked my location. In addition, I held a performance in each cultural specific location of the 18 districts, and marked the chicken robot's appearance at each location.

After the first part of the performance, I edited a video documentation of the performance together with the 'Chicken Map of Hong Kong'. The video documentation and the other four chicken robot were exhibited in the Academy of Visual Arts (AVA), Hong Kong Baptist University during the media arts festival "Where's the Chicken?" in July, 2009.

During the second part of the performance, public participants who had sent SMSes and who been signed up previously to bring the chicken robot out were allowed to participate in the 'chicken outing'. They brought the chicken robot, together with a trolley around Hong Kong. They took pictures of the robot, and interacted with other people in the public. When they returned, they shared their experiences/ narratives with me, and created a 'Collaborative Chicken Map of Hong Kong'.

2.2 | Around the Corner

Another project related to this article is "*Around the Corner*" (2011-2013, http:// wheresthechicken.org/slimboyfatboyslim/?p=366), a locative piece realized as a mobile phone app that creates an experience based on users' locations and spatial practices. The boundary between urban and telematic space becomes indistinct. This project was inspired by Constant's New Babylon, an unbuilt concept city that is always in a state of flux as a place of 'free will' (where inhabitants

Figure 3 | Collaborative Map in Around the Corner
Source: http://wheresthechicken.org/slimboyfatboyslim/.

can easily reconfigure their own space). It comprises transformable physical structures that are small cities themselves, and allows inhabitants to live in a reconfigurable environment. It provides an alternative idea of what a city actually is and makes a statement about anti bourgeois culture. In this project, spaces or cities are no longer defined by infrastructure. Instead, they are defined by thought-processes, actions and practices. Users explore the artwork through simple interaction and unfold the layered narrative, which describes an everyday life situation.

"*Around the Corner*" was exhibited at the Digital Arts Festival, University of Reno, United States (October 2012), the Web Biennale in the Istanbul Contemporary Art Museum, Turkey (October 2012), at the Conference on Media, Games and Art at Swinburne University of Technology, Melbourne, Australia (November 2012), as part of the B-Tour Festival in Berlin, Germany (August 2013), and at the Espacio Enter, International Festival of Creativity, Innovation, and Digital Culture in the Canary Islands, Spain (November 2013). It was also presented at the 2014 International Symposium of Electronic Arts in Dubai, United Arab Emirates.

Site-specific artistic practices are usually

pieces that exist in a particular space. However, the construction of sites by each period or culture is redefined on the grounds of relevant, dominant social norms, time or practice, but not based on any claim to truth. French anthropologist Marc Augé stressed that the spatial practice of a certain space is far more important than the physical space. Hence, a sense of space developed by a particular person depends on his/her perception of, memory of and practice in that space. In other words, the concept of 'site' is temporary and volatile. The traditional rigid definition of site is no longer valid in this project. Our spaces, everyday lives, and culture are all in a state of volatility. The meanings and representations of spaces in everyday life are no longer static, and the everyday life events in the project are active ingredients in forming the bonds, as suggested by Bourriard.

There are no objections to how art relates to our society or serves as part of our culture, although revealing this relationship is not necessarily the ultimate goal. Instead, art should be unique and distinct in creating an experience. Art is a selectively magnified artifact of our world and aesthetic, especially in relation to ideas of space (in whatever forms and media) and cultures. As the rigid concept of
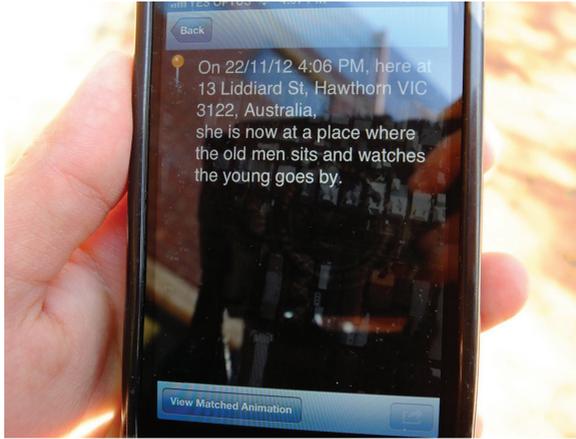
Figure 4 | Generative Narrative in Around the Corner
Source: http://wheresthechicken.org/slimboyfatboyslim/.

site diminishes and most locative artworks are concerned with our digital culture, spatial practices and city space, the fragmented experiences in the project's structure created by mobile technology should be inter-connected and originate from our everyday life events. The structure suggested here bonds all of the fragments together via both form and content. The glue usually contains invisible elements, as it is imagined or re-created by the audience.

In "*Around the Corner*", when users launch this semi-autonomous software, their current locations will be marked on the map, and the data will be uploaded to an internet server, together with their current date and time. They can also view other placemarks created by other users stored in the server. Once the user clicks 'Start Your Odyssey Now', the server side software will retrieve the data on the users' locations and have it mixed with the texts, generated via Markov Chain Algorithm which is based on Italo Calvino's *Invisible Cities*. Then, random placemarks with mixed texts will be automatically marked on the users' maps.

There are 26 pre-recorded animation clips with audio on the server, and their plot is based on a layered narrative. The narrative describes an everyday life situation: someone (B) is supposed to meet another person (A) at a particular location; B is unable to locate A but A sees B from a distant; A follows B.... . Each line of generative text will be matched with a clip of animation on the server. Their matching processes are based on the artists' tags. When the users click on a particular placemark, she/ he may listen and view that matched audio and video clip.

The entire algorithmic process will start again when the users click 'Start Your Odyssey Now' button. In addition, they can also choose to share their micro-narratives via email or Facebook. After they have shared their narratives, they will be rewarded and allowed to read other users' narratives.

"*Around the Corner*" is an iPhone app written in Objective-C, using Xcode 3.2.5 while the server side script was written in Python. There are seven parts in the software; the real- time map, data from the other users, details of the data from other users, generative texts, details of the generative texts, matched audiovisuals and the shared interface. The real-time map shows up when users launch the apps, and his/ her current location will be marked on the map. Their data will be stored together with other users'. Their current loca-

tion is retrieved using the CLLocation method from the CoreLocation framework. Once the retrieval process is completed, the server side script will send the stored data back to the app.

The server side data consists of time, date, GPS coordinates and generative texts created by users. The green pins on the map indicate server side data, and when users click on the buttons, the detailed view on that particular location together with generative texts will be shown. The users created generative texts are based on the Markov Chain algorithm, where the source text comes from Italo Calvino's *Invisible Cities*. In the book, there are a number of city names created by the author, and those names are replaced by the place names near the users' locations.

When users start their odysseys, random placemarks will be generated and marked with orange pins. When they click on a particular generated placemark, the matched animation clip with audio will be shown. The matching process is based on my descriptive tags of each animation, e.g. bridge, panic, fear, free, parking, etc. If the program finds the same word in both the generative texts and descriptive tags, the matched animation clip will be shown in the apps. Users are allowed to share the screenshots of their generative texts and animation clips via Facebook or email. Once they share them, the date/ time created, GPS coordinates and generative texts will be stored in the server. Other users can then see the stored data on the real-time map.

Conclusion

Both art projects aim at creating a structure for today's digital art practice in relation to location-based technology. The mobile medium itself is inherently unstable and volatile. I magnify selected everyday life object and event, and through 'placing' the object/ event around the city, a modular structure is established. In "Where's the Chicken?", by mobilising the robot in selected cultural specific

locations, it creates another layer of narrative in relation to the chosen locations. Although the chicken character is symbolic and iconic, it creates different meanings and narratives in different locations. Each module in each location can be viewed as an individual artwork, and if combined together, form a series of work.

This approach of connecting each module fits into locative technology as this kind of technology emphasizes mobility. The way in which it was implemented in the "Milk Project", for example, is straight-forward. Instead of following a culturally important route, I was creating my own route to different cultural specific locations. The connections between locations are not as direct and linear as that in the "Milk Project", in which their relationships are built upon multiple meanings of the icon and the histories of chosen spots. This echoes the idea of 'rewriting' the place and defining the place by actions. Each location in "Milk Project" represents a spot in the milk line and the embedded stories in European culture while each location in "Where's the Chicken?" was intentionally chosen according to the culture, local histories in relation to the chicken and the concept of live events.

The modular structure in "Where's the Chicken?" is specific to locative art, adopts the mobility nature and builds the framework of an artwork. Another close example is "Max Neuhaus's Radio" Net which adopts a similar structure despite it being a telematic project. In most of the telematic projects, simultaneity is the most specific element, and the invisible 'hertzian' space created in Nauhaus's project show a certain degree of importance too.

However, when the locations in Nauhaus's project are compared with other locative projects, such as the Milk Project, those in this project are no more than 'stages' for telematic activities. The interconnectivity between each module in Nauhaus's project is enabled by simultaneity while in Milk Project, it is event-driven. In "Where's the Chicken?", the relationship between each module is pre-de-

termined, and the structure is more complex. This gives it another layer of narrative. This also opens up the possibility for the audience to reconnect modules and create new relationships and narratives. At the same time, it is a closed system in which I have control over each location, and bond them through repetitions in form (i.e. the same presentation format) and contents (i.e. the same events).

In "Around the Corner", the suggested structure has been further developed. It includes an online map space and physical space as a hybrid form of space. "Around the Corner" resembles a Twitter kind of locative network with visual elements. The locative technology recreates this unique encounter of time and space, adopts micro-narrative structure which outlines an everyday life event.

Similar to "Can You See Me Now?", the map in "Around the Corner" creates a hybrid experience of 'presence', and extends the users' experience into a new form of undefined space. In "Blast Theory's project", the 'presence' of the users/ avatars is shown on the virtual map. This resembles the idea of self-surveillance/ 'surveillance' and 'tele- presence'. However, the information is limited. It only shows where the users are exactly on the map. The group was trying to keep the project as simple as possible, and it is closer to a game structure. In "Around the Corner", apart from what the group's project has suggested, it gives an extra layer of narrative which is a collaboration of the users' locations, generative texts and my pre-recorded animations.

The collectiveness in my project was inspired by Blast Theory. The collaborative force in "Can You See Me Now?" suggests that cultural interactions happen in the hybrid space, and promotes this kind of collectiveness. This force becomes a strong one nowadays in other social media as well. In Around the Corner, the users experience the embedded, layered narrative by exploring each module of animation as well as connecting their personal experience with their current locations.

At the same time, they are also allowed to see what narratives other users have created. This is another form of collaboration which does not involve real-time element but gives more information to the users, extends the hybrid space to any physical space around the globe, and connects his/ her own module to others' in their minds.

The rigid definition of site is no longer valid as stated in the first half of this dissertation. Our space, everyday life and culture are all in the state of volatility. Art is a selectively magnified artifact of our world and artworks, especially if it is in relation to ideas of space (in whatever forms and media) and digital cultures. It is believed that the modular structure as suggested – will be a role model for locative art.

As the rigid concept of site diminishes and most of the locative artworks are concerned with our culture, spatial practices and city space, the fragmented experience created by mobile technology should be inter-connected and originated from our everyday life events. The modular structure suggested here bonds all fragments together via both form and content. The 'glue' usually contains invisible elements; it is imagined or re- created by the audience.

Notes

1 Marc Augé, *Non-places*: *introduction to an anthropology of super modernity* (London: Verso, 1995).

2 Tristan Tzara, 'Dada Manifesto 1918' in *The Dada Reader: A Critical Anthology*, ed. Dawn Ades (Chicago: University of Chicago Press, 2006), 36-42.

3 Anne Galloway and Matthew Ward, "Locative Media As Socialising And Spatializing Practice: Learning From Archaeology" Leonardo Electronic Almanac, http://leoalmanac.org/journal/vol_14/lea_v14_n03-04/gallowayward.html [accessed March, 2, 2011).

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Abstract

In this widely-read essay, Scholz does not only offer a critique of the predatory sharing economy, he also introduces the concept of platform cooperativism, which joins heritage-rich cooperativism with the digital economy. It argues for democratic governance and collective ownership of the sites that we rely on most.

Trebor Scholz

Platform Cooperativism vs. the Sharing Economy

Keywords: Sharing economy, Platform cooperativism, Heritage, Digital economy

Introduction

The backlash against unethical labor practices in the 'collaborative sharing economy' has been overplayed. Recently, The Washington Post, New York Times and others started to rail against online labor brokerages like Taskrabbit, Handy, and Uber because of an utter lack of concern for their workers. At the recent Digital Labor conference, my colleague McKenzie Wark proposed that the modes of production that we appear to be entering are not quite capitalism as classically described. «This is not capitalism», he said, «this is something worse» (McKenzie, 2014).

But just for one moment imagine that the algorithmic heart of any of these citadels of anti-unionism could be cloned and brought back to life under a different ownership model, with fair working conditions, as a humane alternative to the free market model.

Take, for example, Uber's app, with all its geolocation and ride ordering capabilities. Why do its owners and investors have to be the main benefactors of such platform-based labor brokerage? Developers, in collaboration with local, worker-owner cooperatives could design such a self-contained program for mobile phones. Despite its meteoric rise, $300 million in VC-backing (and its $18 billion evaluation bubble), as well as massive international reach, there is nothing inevitable about Uber's long-term success. There's no

magic when it comes to developing such a piece of software; it's not rocket science. Of course, technology is only one part of the equation and instead of letting techno-determinism run its course, I'd rather point to the long history of worker-owned cooperatives, EP Thompson and Robert Owen.

Just forget about all the trending lifestyles; the giant automaton could get a new set of operators soon.

There isn't just one, inevitable future of work. Let us apply the power of our technological imagination to practice forms of cooperation and collaboration. Worker–owned cooperatives could design their own apps-based platforms, fostering truly peer-to-peer ways of providing services and things, and speak truth to the new platform capitalists.

I have been part of cooperatives all my life; I lived in communes, I experienced first hand how they can put people at the center of the equation. But you'd be mistaken if you think that I have an idealized view of everything cooperative. To start with, millennials might stress their individual careers over an allegiance to any given co-op, and then there is the problem of competition with global corporations that are rolling in money. And while Silicon Valley's turbo capitalists are zipping ahead, social movements as well as regulators are often slow. For hackers, 'long tail workers,' and labor activists, now is the time

to step up their efforts before the network effect chisels brands like Uber into stone.

I will start with a few comments about work in the sharing economy and then advance an intensely practical argument about what I call platform cooperativism.

Business gurus suggest that there is a logical step from the sharing of content through social media to the rental of goods, space, and the provision of transport through de facto labor companies like Feastly, Carpooling, Handy, Kozaza, EatWith, Kitchensurfing, TaskRabbit, and Uber. Consumers, raised with an appreciation of low prices above all else, welcome many of these market incumbents.

And, of course, all of these developments play out against the background of deliberate shockwaves of austerity that followed the 2008 financial crash. The sharing economy is portrayed as harbinger for the post work society and path to ecologically sustainable capitalism, Google will conquer death itself, and this brave new 'disruptive' economy will rid us of Jurassic forms of labor, which might well include what David Graeber (2014) refers to as 'bullshit jobs'.

But by now, only few people still fall for the solidarity theater of the 'disruptive sharing economy,' its deceptive 'peer' rhetoric when referring to individual workers and consumers, as well as its constant talk of changing the world (HBO's Silicon Valley anyone?). They figured it out by now. People understand that it is the modus operandi of the 'community managers' of the sharing economy to conflate multimillion-dollar commercial entities like Uber with non-market, peer-to-peer projects like Wikipedia or FoldIt. (I elaborate on this dynamic on Public Seminar.)

Also the mystifying association of the sharing economy with Occupy or the Arab Spring lost its pull for anybody who has been paying attention. Just like in the pharmaceutical industry, these 'community managers' of key companies in the sharing economy are frequently

young, likable women. Let's say you come across the fact that TaskRabbit and TopCoder explicitly bar their workers from contacting each other, than you might strongly feel that that this is completely unacceptable. But while such practice may seem disagreeable, critics often hesitate to confront the beforementioned reps about such abuses.

If you are taking a closer look at templates of 21st century work that are currently put in place, you will notice a trajectory of workers taking on many gigs at once. Sascha Lobo[1] and Martin Kenney[2] recently introduced the term platform capitalism, which I'd define in reference to subcontracting and rental economies with big payouts going to small groups of people. Occupations that cannot be offshored, the pet walkers or home cleaners, are now subsumed under platform capitalism.

Even if you hesitate to categorize emerging unregulated platforms like Handy as innovative, it is hard to deny that baby boomers are losing sectors of the economy like transportation, food, and various other services, to millennials who fiercely rush to control demand, supply, and profit by adding a thick icing of business onto apps-based user interactions.

Companies like Uber and airbnb are enjoying their Andy Warhol moment, their $15 billions of fame, in the absence of any physical infrastructure of their own. They didn't build that— they are running on your car, apartment, labor, and importantly, time. They are logistics companies where all participants pay up the middleman: the financialization of the everyday 3.0. According to NYU business professor Arun Sundrarajan, personal and professional services are now blended, creating a continuum of commercial activity while at the same time raising serious issues about labor protections against discrimination, for example.

Today, nothing remains outside of labor.

The narrative of the sharing economy is just so huggable: neighbors can sell the fruit from

the trees in their gardens, you can rent an apartment in Rome, a tree house or yurt in Redwood Forest. In Berkeley, you can pay your neighbor to cook you a wholesome dinner[3], and now you can even listen to your own Spotify account in an Uber taxi. It is just all so convenient.

The sharing economy is presented as the ultimate anti-Turkle. Where Sherry Turkle, author of Alone Together, claims that technology leads to social deskilling, here comes the sharing economy, positioning itself with the claim that it leads people out of that social isolation. Just think of the old lady renting out her room on airbnb. 'People come for the consumption and stay for the sociality,' as Sundrarajan put it.[4]

If you agree to drive your car for Uber much of the time, the company will co-finance the purchase of a new car so that you can afford that Lexus after all. But much in contrast to that, one of the slogans of the sharing economy is 'access, not possession.' Allegedly, millennials don't have an interest in worldly possessions, they just want to access stuff when they need it. ZipCar plays into that model of thinking. It's all about the just-in-time delivery of things. You could think of it as a streaming service: you don't own the file, you merely stream it. You are paying for what you are using now and the next time you want it, you are paying for it again. We are streaming our own lives.

The sharing economy is said to bring an end to 'markets for lemons.' No longer will we have to buy used cars that later turn out to be poorly serviced. This is the end of the road for the shady used car salesman, the incompetent plumber, or wanting electrician. Now, 'real-life profiles' on LinkedIn and Facebook, connected to these emerging platforms, introduce novel checks and balances. That is, at least, how the argumentation in favor of these reputation systems, and against governmental regulation, runs its course.

Sundrarajan is suggesting that these repu-

tation systems are largely capable of self-regulating this market, much in contradiction to arguments by Canadian technologist and blogger Tom Slee who argues that these systems don't deliver an adequate measurement for reputation. Who needs the government if reputation systems can isolate the bad Airbnb host or abusive Uber driver? On the other hand, however, it is important to remind ourselves that governmental regulation still matters when it comes to securing wage floors for workers and preventing monopolies.

There is no question about it; legacy taxi companies have seen better days. Ride ordering apps are making transportation easier and also a bit more accountable as passengers can give dreadful drivers devastating reviews. Some taxi drivers report that they appreciate not having to commit to a company like Uber, full-time. They enjoy the flexible hours that they cannot get with legacy taxi companies. Ecological concerns about single driver occupancy are also real when thinking about these labor companies.

It's a no-brainer, the medallion system could use an update and at far over $800,000 for a single medallion in New York City, the system is completely impenetrable for taxi associations trying to build a small fleet of their own. The medallion cartel prevents such worker-owned organizations from taking hold. With innovative ride rental software, organizing the taxi business is slightly more conducive for the various types of worker cooperatives. Entities like Uber, Ola, Quick Cabs, TaxiForSure, or Lyft are quite vulnerable because their technology can be duplicated. But of course, when you see how regulation is steered by costly PR campaigns in big cities, when you see how ever-increasing brand awareness tilts the network effect in favor of Uber and airbnb, when you notice the co-financing for new cars offered for Uber drivers, and when you understand that insurance for passengers is costing an arm and a leg, then you remind yourself of the old saying: money talks.

Think Outside the Boss

Instead of counting down to next month's apocalypse, let's make the idea of worker-owned cooperatives using ride ordering apps more plausible.

Cooperatives are facing copious amounts of challenges on the level of competition from dominant players like Uber, in terms of public awareness, allocation of work, as well as wage levels.

Investors from the financial sector are looking at Uber with algorithmic calculus, anticipating that the platform that has the most users today will also be the one, in the future, that has the most users. There are, however, many examples that would proof such analysis wrong. If you belong to Generation X, just rattle down the names of social networking services that you used over the years – Myspace, Friendster, etc. – and consider how many of them lost momentum or even closed shop.

Is real social change only thinkable if you have Big Money on your side? If we are faithful to that logic, then there would never be a chance for gubernatorial incumbents like New York's Zephyr Teachout. The inability to imagine a different life is capital's ultimate triumph. Teachout recently proposed that one of the pathologies of the current system is that it trains people to be followers. I might add that it trains people to think of themselves as workers instead of collective owners.

An app with the basic functionality of UberX can be duplicated and improved upon by independent developers who are working in tandem with cooperatives. From the very beginning, the development process would have to be steered by workers and developers. Ever more sophisticated crowd funding schemes, using bit coin, could support such efforts. It is true that the millions of venture capital behind Uber put them into a superior position to strike a regulatory sweet spot between the legislative protections that play out in their favor and the calls for corporate

responsibilities that do not. Uber can influence regulation on a city level and might even be able to sway national labor laws. And perhaps, but really just perhaps, these templates, created at the frontiers of regulation will then be taken on or over by worker cooperatives who could benefit from established guidelines. An equally likely outcome of these regulatory struggles is that Uber emerges as monopoly ruling the taxi industry worldwide. Welcome to the Internet Explorer of the streets.

The stakes for the drivers are clear, the prerogative of VC-backed companies is short-term shareholder profit but when it comes to offering better working conditions, these startups cannot measure up. The business consortium Peers aims to position itself not only as a labor brokerage but also as a social safety net for workers in the sharing economy. Given that it mostly represents centralized, for profit upstarts, Peers is not a genuine alternative to worker-owned cooperatives.

Why bother handing over the revenue to Uber, the middleman? Lyft and Uber have serious issues with attrition; the pay rates for drivers can (and have been) lowered from one moment to the next, workplace surveillance is constant, and drivers can be 'de-activated' (fired) at any time for digressions as small as criticizing the Uber mothership on Twitter.

Taxi drivers and technologists can coalesce to build an app that equals or outperforms their corporate equivalent. This movement has already started with a driver-owned ride rental service and Fairmondo, a co-op-based version of eBay. Worker-owned cooperatives can offer an alternative model of social organization to address financial instability. They will need to be collectively owned, democratically controlled businesses, with a mission to anchor jobs, offer health insurance and pension funds and a degree of dignity.

In New York City, there is a coalition of 24 worker-owned cooperatives, almost exclusively operated by women. Over the past few

years, low-wage workers who joined these cooperatives saw their hourly wage increase from $10 to $25.

Such models have been propagated for a long time by the likes of Yochai Benkler and Michel Bauwens[5]. For Bauwens, the p2p economic model rests upon the free participation of equal partners, engaged in the production of common resources. For Benkler, networked peer production is a cooperative and coordinated action carried out for radically distributed, non-market mechanisms[6].

In This Changes Everything, Naomi Klein recounts her experience of living in Argentina for two years while making a documentary about workers who turned their old and abandoned factories into cooperatives after that country's economic crisis in 2001. Her documentary, titled The Take, follows the story of a group of workers who took over their shuttered auto-parts plant and turned it into a thriving co-op. Workers took big risks and over a decade later, the factory is still going strong. In fact, the majority of worker-run cooperatives in Argentina, and there are hundreds of them, is still in production today.

In the United Kingdom, there are currently 200,000 people working in more than 400 worker cooperatives. And these cooperatives have more than a 160 year-long history in the UK. The largest among them has a turnover of £ 24 million.

Mondragon, an often cited example, is a corporation and Federation of Worker Co-operatives that was founded in 1956 in the Basque region in Spain. Mondragon is worker-owned, not worker-managed; it is part of the larger competitive market (Chiney, 1999). At the end of 2013, it employed 74,061 people in the areas of finance, retail, and education. Mondragon cooperatives are united by a humanist concept of business. The general manager in an average Mondragon cooperative makes no more than five times more than the minimum wage paid in his or her cooperative. (Compare that to Walmart's CEO who

is paid 1,034 times more than the median Walmart worker.) As you can see, cooperative alternatives to platform capitalism would by no means have to be limited to the transportation sector.

Apps-based, worker-owned labor brokerages that allow workers to exchange their labor without the manipulation of the middleman are possible. They are possible for micro work, specifically on Mechanical Turk and CrowdFlower.

Let's do justice to what we know. Platform cooperativism equals a more humane workplace equals real benefits for workers. They say that big money talks, but I say that platform cooperativism can invigorate genuine sharing, and that it does not have to reject the market. Platform cooperativism can serve as a remedy for the corrosive effects of capitalism; it can be a reminder that work can be dignified rather than diminishing for the human experience. Cooperatives are not a panacea for all the wrongs of platform capitalism but they could help to weave some ethical threads into the fabric of 21st century work.

Notes

1　http://www.spiegel.de/netzwelt/netzpolitik/
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plattform-kapitalismus-a-989584.html　[accessed
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2 http://brie.berkeley.edu/publications/WP182.pdf
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3 http://josephine.com [accessed October 15,
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4　http://www.digitallabor.org/participants/arun-
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6　http://cyber.law.harvard.edu/wealth_of_net-
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Abstract

Algorithmic calculations currently play a central role in organizing digital information, and in making it visible. Faced with the deluge of disordered and disparate data collected on the web, algorithms form the basis of all the tools used to guide the attention of Internet users. In turn, rankings, social media buttons, counters, recommendations, maps, and clouds of keywords impose their order on the mass of digital information. In the view of many observers, algorithms have replaced various human editors (journalists, librarians, critics, experts, etc.) to prioritize content that deserves to be highlighted and brought to public attention. Algorithms have thus come to serve as the new 'gatekeepers' of public digital space. This article describes different competing principles used by various web services to rank digital information: audience, authority, affinity, freshness and personalization.

Dominique Cardon

How to rank the web? Competition among metrics of digital information

Five ranking principles

In the age of big data, a stream of data flows on the Internet and transforms its nature. There are 900,000 blog posts every day, 50 million tweets, more than 60 million Facebook messages and 210 million emails. The former CEO of Google, Eric Schmidt, likes to recall that if all communication were digitalized and written down since the dawn of humanity until 2003, it would require 5 billion gigabits for storing. Today we generate this volume of digital information in two days (Cohen, Schmidt, 2013). No matter how extraordinarily huge it is, this data explosion is not just a quantitative change or scaling. It is primarily the consequence of the disappearing of the filter applied by the gatekeepers to separate public information from non-public information (Cardon, 2010). The information space has traditionally been a binary one. Journalists and editors decided what should be public and therefore should benefit from a large visibility. Everything else, unverified information, implausible manuscripts, risky assumptions, personal diaries and notes were left in the shadow. In this binary division, the Internet replaces a seamless graduation: everything is potentially made available, but does not profit from the same visibility. The information filter has not disappeared, but its economy has been overthrown. It no longer separates the rare information selected by the few professionals of the public space *a priori*.

Now, it organizes a vast ocean of information *a posteriori* by distributing it on a visibility scale calculated by Google' algorithm and whose ultimate trophy is the access to the first page of search engines. Faced with this torrent of heterogeneous data, the new power of rankings now belongs to algorithms. A tiny handful of ranking artifacts effectively controls the prominence and viability of the majority of the information in the world. This revolution in the process of establishing an information hierarchy, moving from filter to scale, from gatekeepers to algorithms, is still small or is being poorly perceived by users. The web is the scene of a ruthless competition for visibility where "being seen" means increasingly being seen by algorithms. Moreover, the rules of this new game, registered in the web metrics settings, have a growing impact on user behavior and habits (Balnaves, Willson, 2011; Galloway, 2004). Algorithms embody the biases, hopes, beliefs and hypotheses of the programmers who write and design them. But there are also technical artifacts with their own constraints and statistical logic. This paper seeks to understand the way algorithmic techniques have incorporated different principles in order to rank digital information (Cardon, 2015).

Five ranking principles

The history of the web has thrown up various information classification techniques. Each of

them is superimposed on the other to shape a particularly complex architecture. In order to clarify the different values that engineers try to impose on information order, five principles may be isolated for the classification of information: editorialization, authority, audience, affinity and freshness. From the start, the classification of information has been critical to the development of the Internet. Until the late 1990's, this could be done with two simple strategies: the first was to let people curate the web's content by having them identify, select and rank the best sites. The making of Yahoo's directory sites, driven by a researcher austerity and a touch of geek oddity by an army of little hands, was a perfect example of this unreasonable effort: a human classification of the entire web (Batelle, 2005:57). The Open Directory Project interactive directory (Dmoz), the drafting of articles on Wikipedia, which refers to the most legitimate sources of the web, or site selections offered on major information portals, have extended the concern to give human judgment the privilege to make a reasoned and assumed choice on the best of the web. However, its exponential growth has quickly made unrealistic any effort to let humans rank the whole Internet. Now the editorialization of the Web can only be facilitated by a local, sampled and contextual venture.

In parallel, another classification strategy has been initiated through the emergence of search engines (Levy, 2011; Van Couvering, 2008). Their goal was to rank sites using an algorithm, a formula that returns queries with the most relevance. By surpassing the first lexical database engines, Googlebrought, in the late 90's, a bold technical solution that closely matched the claim of "collective intelligence" of the Internet pioneers (Benkler, 2006): the best information hierarchy relies on the Web graph and measures the authority of sites. It measures the relevance of a site by investigating its links to other sites (Rieder, 2012). In a very close intuition of what the PageRank would be, Jon Kleinberg specified that counting hyperlinks alone was enough

to capture any document's authority: «*the creation of a link on the www represents a concrete indication of a judgment of this kind: by including a link towards page q, the creator of page p has to some extent conferred authority to q. What is more, the links provide an opportunity to discover potential authority simply by way of the pages pointing towards it*» (Kleinberg, 1998). This intuition, inherited in every respect from the *abstraction* and *proceduralism* properties of the Science Citation Index, was decisively ground-breaking. It made the quality of the information found on sites not an internal property to search for inside the document, through an ever more detailed analysis of its lexical content, but an external property shaped by the respective attributions made by sites recognizing one another. Quality is a social construct that interactions project onto the documents. Larry Page made this very clear in the patent which described the functioning of PageRank: «*Intuitively, a document should be important (regardless of its content) if it is highly cited by other documents*» (Page, 2001). The hypertext link is simply an envelope, a "concretion of intelligence" (Pasquinelli, 2009:155), which must not be opened so as to preserve its computability. Its markers are easily identifiable by the robots that vacuum the web. There is no need to know why it was created, nor what amount of diverse and varied intentions, inferences, computations and appreciations have gone into its creation. Just as in a ballot box, it simply needs to be counted. The founders of Google audaciously expanded on this understanding of scientific authority by extending the metaphor of the link as a citation to that of the link as a vote. While the web is essentially based on documents, the logic that governs its classification is the authority that the PageRank measures as the result of a weighted vote of publishing Internet users. Everything contributed to ensure the hegemony of PageRank on the Internet: the rigor that humans had to renounce, the relevance of rankings that reproduce hardly questionable meritocratic principles, a definition of quality

by the mass of computable data rather than by their meaning and the martingale of an efficient advertising model.

However, the confrontation of models of editorialization and algorithmic authority, overplayed scenes of conflict between humans and machines, only lasted a short time. By extending the volume of this data, the number of users and diversity of its services, the founders' web was split into multiple and conflicting logics (Zittrain, 2006). The massification of its use has profoundly changed the autocentric web of the pioneers. The principles that shaped the spirit of the web stated clearly that those who published were also those who ranked publications; as simple readers, passive internet users were herefrom excluded. This elitism was able to claim itself to be aristocratic because of the carefully maintained revendication to expand access to publication to all. But the pioneers' participatory messianism found itself increasingly contradicted by the reality of new internet users' practices. The widening gap between the number of active and passive internet users paved the way for new metrics measuring the reading choices of the ever growing number of those who browse the web without publishing any content.

A third type of measure, the audience, has thus quickly started opposing a ranking of the active versus the passive, by no longer counting the number of published links, which is done by PageRank, but by counting internet users' navigation, in particular through measuring "page views" and "unique visitors" (Beauvisage, 2013). Hence, the audience metrics add tracking techniques developed by the traditional media in order to set up an advertising business model in the online world (Turow, 2011). However, immerged in the plastic and immediate world of digital interfaces, this measure sanctioning *ex poste* the content that had so far managed to attract the largest audience has also become a prescriptive indicator for classifying real-time information based the number of

users who clicked on a particular link. What has been a tracking measure for online media has become a measurable determinant of the editorialization of links, in particular as "top list". The appearance of the audience measuring indicators testitfies to the business objective of measuring the impact of information not through peers, but by the public. Audience measurements imitate a democratic vote: each Internet-user who clicks has one (and only one) voice, and the sites that dominate the rankings are those able to attract the larger public. As seen in the history of quantifying the public audiences for newspapers, radio and television, such forms of measurement found legitimacy through their close proximity with democratic procedures (Méadel, 2010). Indeed, the 'public' and the electorate are often considered interchangeable collective entities. They share the same idea of statistical representation, founded on the counting of single voices, and both seem to constitute the heart of the idea of a nation. They are both organized around an asymmetry between a small center of "transmitters" (the political sphere, the mediasphere) and a silent population of receivers (electors, viewers). At the center, several media divide up the dispersed individual votes collected by a program, educating and unifying people who share the same experience. Thus, popular programs unite a "grand public" by giving rise to an "imagined community" that participates in the formation of a collective civic representation (Anderson, 1983). However, unlike traditional media, the web audience measurements have less of an ambition to build a public that serves as a tool in the advertising market.

Editorialization, authority and audience could have been the three dominant forms of organization of information if the web, as it became the universal library it aspired, had kept its essentially documentary nature. But a decisive transformation came with the massification of the public of the web: a huge conversational space driven by the dynamics of the Internet social networks has developed

along and beside the documentary web. Some of those who read the web without writing have found a way to participate, at a lower cost, by sharing status phrases, jokes, discussions and annotated links. The massive introduction of social conversation on the web shows a demand for personalization of information access, in order to avoid the massively shared and overwhelming conventionality of central rankings and of the metrics of authority and audience. One of the most original contributions of the web 2.0 was to show that rather than searching for thematic information, the social network of individuals was a much better filter to provide interesting and personalized content. Therefore, affinity metrics have developed to rank the information based on individual customized preferences. Facebook's newsfeed, Twitter's timeline and the thousands of other storing and aggregating tools which make the content visible according to the relational structure of users' contacts and affiliation networks, are the scattered pieces of these new affinity metrics that erode the central authority of PageRank (Pariser, 2011). With the development of new conversational writing formats on digital social networks (statuses, comments, "Like" or "+1" buttons and sharing tools like RT on Twitter), the publication act has become more like a simple audience feedback act. These new expressive forms have given new rights to younger audiences that are more geographically dispersed and tend to be from lower social strata than the "worthy" producers of hypertext links. But social media also organizes an entirely different information ranking principle. Whereas PageRank measures links between documents, Facebook's EdgeRank ranks documents according to subjective judgments exchanged by people connected by affinity. Instead of concealing the person behind the text, social networks' conversational enunciation is more flexible, relaxed and immediate; it has conferred visibility to individuals' subjectivity to make their judgments an identity signal that they project towards their sociability (Cardon,

2013). Whereas in the web of documents, the illocutionary force of the link is embedded in the authority of the citing text's page, in the web of people, it is the enunciator's digital authority, their e-reputation, that supports their enunciation. The social web's metrics of affinity distribute towards the documents they rank an authority rooted in the people whom PageRank had sought to eclipse.

The deep shock caused nowadays by affinity metrics on the organization of the Web has also contributed to highlighting a different ordering principle of information: their freshness. By expanding its service offering all-out, the Web has become a real-time media accelerating the pace at which information is spread. From now on, visibility of information is no longer played only on the deep time recorded by the meritocratic authority of PageRank, but on the viral ability to create a temporal window of attraction during which information will be massively spread by Internet users. With Twitter, the temporality of information, including its contagion speed, has become a new principle of information classification (Wasik, 2009).

Toward personalized algorithmic techniques

The brief overview of the five classification principles of information, editorial content, authority, audience, affinity and freshness, shows quite clearly the plurality of ranking principles that have spread on the web. It is now a far more complex and multifaceted object than the pioneers' documentary web with its directories and search engines. If Google's PageRank is the backbone of this new information system, its overwhelming centrality only achieves a "first level" ordering of the Internet information. PageRank orders answers to queries. It responds to explicit research intentions that show practices that are strongly influenced by the documentary nature of the web. Diversification of uses, including the conversational turn, guides Internet users to other modes of navigation and

exposure to information that does not cross the path of the search engines. Moreover, an incredible proliferation of classification tools has appeared on each platform of the Web, to produce local rankings architecting the information spaces the Internet user is used to visiting. In their way, the Facebook newsfeed, the Twitter hashtag, the geolocalized maps of information, Amazon's recommendations, the Flickr "50fav" groups, The TripAdvisor hotel reviews, YouTube's most viewed videos, the Rue89 best article comments, etc.., are all classification techniques designed to make certain pieces of information more visible than others to Internet users. Not a single of these new artifacts encloses in a "pure" way any of the five principles underlying the history of Web metrics. As they multiply, they increasingly complexified and intertweaved principles of organization that can give meaning to why a piece of information is better ranked than another. This illegibility participates in the Internet users' ignorance of the information structure that shapes and leads their navigations.

However, this exploration of information classification principles should now be reconsidered in the light of the development of machine learning techniques. New digital calculations have thus emerged, recording the traces left by Internet-users as discreetly as possible. This method is characterized by the use of a specific statistical technique called "machine learning," which has radically shifted the way in which calculations have penetrated our society (Domingos, 2015). It aims to personalize calculations based on the traces of online activity to encourage Internet-users to act in one way over another, as seen in the recommendation systems employed by Amazon and Netflix. These predictive techniques have been added to most of the algorithms that measure popularity, authority, or affinity, whereby they *learn* by comparing a user's profile to others who have acted or decided in a similar way. Based on probability, the algorithm guesses that a person may do something that they haven't yet, because

those with similar online behavior patterns have done so before. The user's possible future is predicted based on the past actions of similar users. It is thus no longer necessary to extract information from the content of documents, from judgments pronounced by experts, from the size of an audience, from community recognition, or from the preferences reflected in a user's social network. Rather, this method constructs user profiles based on the traces of online behavior to develop predictive techniques that adhere closer to their actions (Rouvroy, 2013).

To justify the development of these new predictive techniques, promoters of *big data* have attempted to discredit the wisdom and relevance of human judgment. Individuals, they claim, constantly make evaluation errors: they lack discernment, systematically make overly optimistic estimates, are unable to anticipate future consequences by focusing too much on the present, are guided by their emotions, are easily influenced by each other, and lack a well-developed sense of probability (Ayres, 2007; Pentaland, 2014). Supported by new findings in experimental psychology and economics, the architects of the latest algorithms suggest that only the real behavior of individuals can be trusted, not what they claim to be doing or do when experimenting on social media platforms. The global regularities observed throughout the huge number of traces allows for estimations of what users would *actually* do. Thus, predictive algorithms do not respond to what people merely *say* they want to do, but rather to what they really want to do, without saying it.

The statistical models of the new data scientists come from the exact sciences, in that they inductively search for patterns by making the least possible number of hypotheses. The idea that algorithms should incorporate principles or values has been replaced by an efficiency measurement of users' behavior. Current computing power allows for all possible correlations to be tested without exclud-

ing any on the grounds that the events leading to them may never come to pass. It would be misleading to assume that these methods search only for correlations without bothering to explain them. In reality, they produce many models of behavior that only appear *a posteriori*, and thus as tangled explanations whose variables act differently according to different user profiles. In a unified theory of behavior, algorithms operate as a continuously shifting mosaic of contingent micro-theories that articulate local pseudo-explanations of likely behaviors. These calculations are intended to guide our behavior to the most probable directions: they do not need to be understood, and very often they cannot be.

This inverted way of fabricating the social reflects the reversal of causality effected by statistical calculation to address the individualization of our society, as well as the indeterminacy of an increasingly large number of determinants on our actions. The current logic used by researchers and data scientists is indeed striking in terms of how it attempts to reconstruct frameworks of society: upside-down and from below, starting from individual behavior to then infer the conditions that make it statistically probable. In this way, the ranking of digital information depends less on principles than on the measurement of each user's behavior. Recent transformations of digital algorithms give more importance to personal data recorded through navigational tracks. The idea that the information should be ranked by shared and common principles is contested by the individual calculation of each person center of interest. This is particularly visible in the case of location-based services. New tools for smart cities offer to predict for each user events that could happen in their immediate environment. Is my neighborhood is protected from criminals? Will the property value in my street increase? Is my town cleaning service effective? Recommendations calculated for individuals no longer simply rely on stable and "objective" social statistics. They incorporate increasingly dynamic and individualized elements relating

to the individual for whom the prediction has been calculated. The new digital calculators do not represent society as a whole detached from individuals. They build the environment of individuals inferring from traces of their past activities what should be their perspective on the world.

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Abstract

Following a two-day conference focusing on the rapid growth of new issues raised by innovative social, artistic and political use of digital tools, a multimedia art exhibition was held in a suburb of Hong Kong, organized the Academy of Film, School of Communication of the Hong Kong Baptist University (HKBU). The exhibition, entitled "The City's Survival Kit", showcased artworks suggesting new ways to represent digitally enhanced living in a highly digitalized city. It hosted the works of seven multimedia artists whose creations all link in their own way to the ever growing realm of digital data, new urban development and new trends in civil social engagement.

Annie Wan, Nicolas Douay, David Bartel
The City's Survival Kit

1 | Introduction

The exhibition funded by the Institute of Creativity, HKBU sought to question the artists' per-spectives on the use of digital data in their works in relation to the new media ecology offered by the contemporary expansion of urban spaces. Web 2.0 changes the nature of forms of expression and commitment through a shared spaced that, far from being virtual, now embodies the very visibility of information. Indeed, those seven work of art, using social media (Facebook, Twitter, etc.) or ways to rejuvenate the art of archive-building all considered in their peculiar ways the boundaries of "virtuality" in a world where the imprint of the digital is henceforth entangled in the daily down-to-earth reality of civic popular engagement, be it the organization of demonstrations and happenings, the signing of petitions, the conservation of cultural heritage or the revealing of sociopolitical polarization through a renewed mastering of cartographic techniques. Those seven works indeed attempted to give a physical shape to the otherwise elusive world of the Internet, and to the latest buzz word of Big Data that tremendously appeal to the present ongoing process of remapping the social and the political realms in relation to new forms of artistic creation.

2 | Artists and Digital Art

Keith Lam (林欣傑) is a new media artist, and the founder and artistic director of New Media Creative Team Dimension Plus & Creative Space LAB by Dimension Plus. He is a winner of an award at the Ars Electronica 2008, the leading new media arts festival in the world. He was also awarded at the Japan Media Arts Festival and has won the Hong Kong Arts Development Awards 2008. He was selected as "40 under 40" of Global Creative Talent by Perspective Magazine. His artworks have been showcased at numerous festivals, including Design for Asia, where too he won an award. He is an external examiner of Hong Kong Design Institute, visiting Associate Professor of Guangzhou Academy of Fine Arts and Art Director and consultant at the Shenzhen New Media Arts Festival. He has taught at Hong Kong's top universities. Keith Lam's "One Day Social Sculpture" is an artistic platform that smartly converts "Likes" entered on Facebook to a sculptural form and extends the idea of "everyone is an artist" (Beuys, 1972) to global virtual communities. His art "physicalises" the information into a "social sculpture" to try to use it as an analyzing tool of the practices of Internet users, to visualize how people react to social issues.

Annie Wan (溫安妮) is an international media artist. She creates artworks focusing on relationships between spaces and sites, material and immaterial. In 2012 she earned a PhD from the University of Washington in Digital Arts and Experimental Media. She mostly
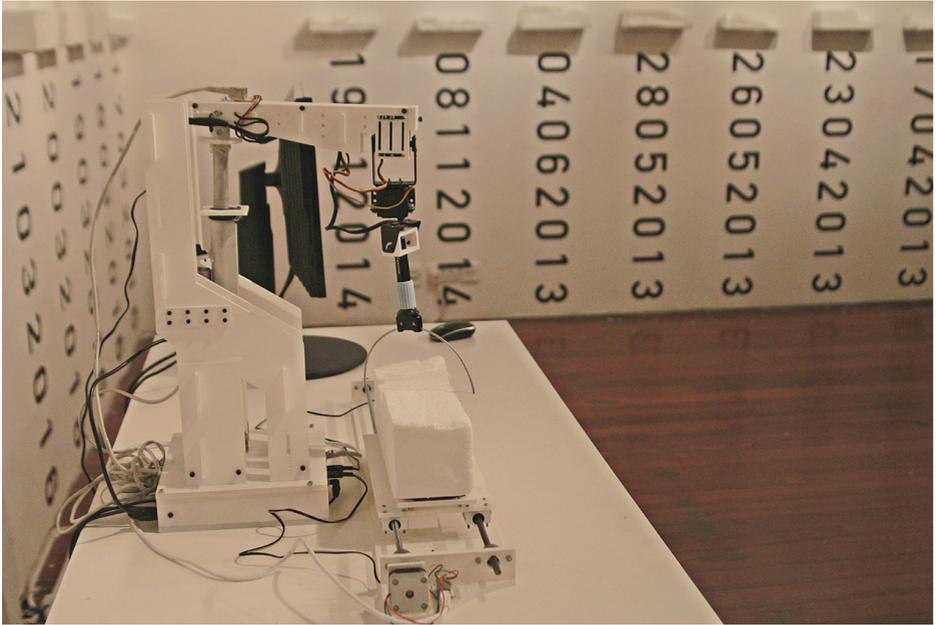
Figure 1 | Keith Lam's One Day Social Sculpture
Source: Photo by the authors.

works with locative media, embedded electronics and network-based systems. Wan is currently an Assistant Professor in the School of Communication (Academy of Film), Hong Kong Baptist University. Her "Pocket Cinema Hong Kong" (一袋電影, PCHK), a digital application merging augmented reality, film conservation and on-site positioning, was presented and exhibited at the 2015 Bi-city Biennale of Urbanism\Architecture and on other occasions in Hong Kong and elsewhere. PCHK was founded by Knowledge Transfer Office, HKBU and in collaboration with Art in Hospital and Hulu Culture with special contributions from Golden Scene, Lunchtime Production Ltd. and Edko Films.

Nicolas Douay is associate professor of urban planning at the Diderot Paris 7 University. He is a researcher within the French Centre for Research on Contemporary China (CEFC, Hong Kong) and Géographie-cités laboratory (Paris). His research compares urban-

planning approaches in Asia (China & Hong Kong), Europe (France) and North America (Canada), and focuses on the process of "metropolisation", particularly with regard to urban policies, territorial planning processes and the uses of digital technology.

Aurélien Reys is a geographer, with a diploma from the University of Paris Diderot. After getting a master's in cartography, he worked from 2010 to 2011 as an engineer within Orange Telecom. Between 2011 and 2015, he worked on a doctoral thesis in development geography. He then worked on an academic project gathering teams from several disciplines and institutions around many research axes whose goal is to look at the transformations of the Earth-World coupling in its different dimensions within science.

The social network Twitter is now widely used by politicians in charge of the socio-architectural urban project of Greater Paris. Therefore, it can help us understand the "Political Impli-

Figure 2 | Annie Wan's Pocket Cinema Hong Kong
Source: Photo by the authors.

cations of Data Generated by New Media". Here, the analysis and visualization of these "big data" have a spatial dimension showing an unequal distribution of elected representatives in the space that highlights a gradient between the center and the periphery of the agglomeration. Similarly the network formed by these representatives emphasizes political proximities, such as opposition between right and left and proposes a new cartography of political spatial representation through the use of new digital instruments.

François Vienne is a 26 years-old France urban planner graduated in urban planning from Paris 1 Panthéon-Sorbonne, and based in Singapore. Passionate about urban Big Data and public participation issues, he worked on the social media data potentials to nurture the urban planning frameworks. He works on the spatial dimension of the Big Data, especially about the millions of citizen data sets can be a relevant material to enhance the public par-

ticipation in urban planning and how urban planning models can be nurtured by these new spatial expressions.

The Big [social] data (here the Facebook CHECK-IN), the work co-created by François Vienne and Nicolas Douay, is the expression of usages and spatial practices of the suburbs inhabitants. Taking a look at the Great Paris suburban areas, this work means to signify how people massively talk about their environment through the ICT (especially the social media). These maps show new phenomenon of territory self-belonging expression and a new form of spatial appropriation through a crowdsourcing technique.

Sarah Song (宋夏然) is a final year student in Media Arts from HKBU's School of Communication Academy of Film. She is mainly interested in interactive installation and new media. She has come up with an installation called "Somewhere in the night, THERE is a light" (萬家燈火) in which each light spot
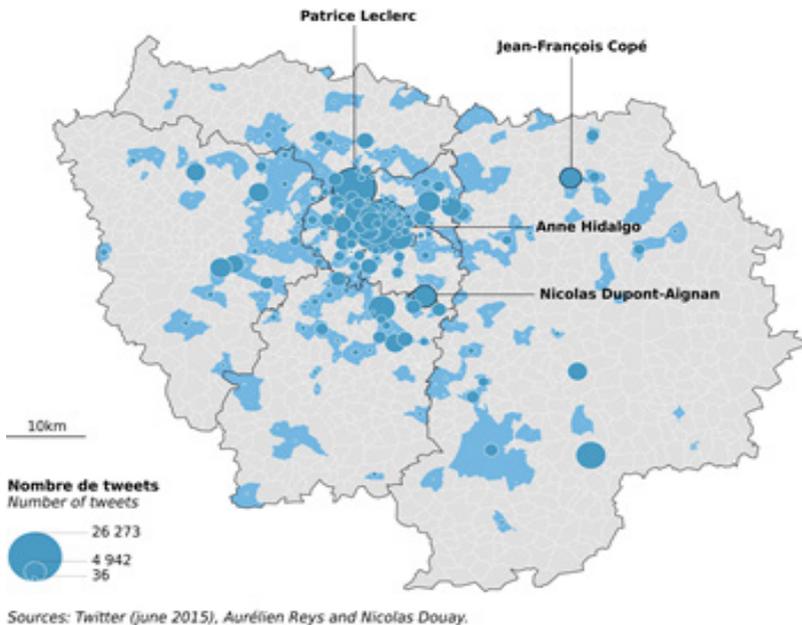
Figure 3 | Nicolas Douay's and Aurélien Reys' Political Implications of Data Generated by New Media
Source: Photo by the authors.

Figure 4 | Nicolas Douay's and François Vienne's Facebook CHECK-IN
Source: Photo by the authors.

Figure 5 | Sarah Song's "Somewhere in the night, THERE is a light"
Source: Photo by the authors.

signifies a unit of family home, the smallest social unit that forms a city and raises the questions: What does that light mean to you? What is "HOME" to you? This interactive installation uses LEDs and ambient sound to simulate a dense urban environment.

M+ is the new museum for visual culture in Hong Kong, part of the West Kowloon Cultural District, encompassing 20th and 21st century art, design and architecture, and moving images from Hong Kong, China, other parts of Asia and beyond. From its vantage point in one of the world's most dynamic regions, M+ seeks, through its exhibitions, programming and permanent collections, to document the past, inform the present and contribute to the future of visual culture within an ever more interconnected global landscape. The exhibition presents an interactive online presentation celebrating Hong Kong's neon signs. "Mobile M+: NEONSIGNS.HK" is an online exhibition that celebrates a key feature of the city's streetscapes by exploring, map-

ping and documenting its neon signs. Alongside curatorial essays, videos, slideshows and artist commissions, more than 4,000 photos were submitted by the public to collectively create a unique neon map of Hong Kong. The site will remain as a lasting record and examination of Hong Kong's fast disappearing neon signs [http://www.neonsigns. hk/?lang=en].

WARE is a new media art studio, established with the aim of driving innovation in art and technology. Using different features – from electronic gadgets to sensorial environments – the studio team seeks to envision the future of digital experience. Projects are often made in collaboration across different fields, including interactive installation and multimedia performances.

Emoticons/Emojis are a single, universally understood language, using pictographic symbols that are above all used in digital communication. This projection installation explores the potential of emoticons as a universal

Figure 6 | M+'s Mobile M+: NEONSIGNS.HK
Source: Photo by the authors.

semiotic language, facilitating the experience of storytelling without words and wonder: If emoticons could potentially become THE universal language, the Esperanto of future... would we understand a story without a single word?

Detailed interviews with the artists help envision recent trends in the new type of relations made possible by the development of digital technology related to urban spaces and to the parallel appropriation of new media in their spatial and political dimension. The difficulty here is to try to find and explain "communalities" proposed by very different personalities from different academic and artistic backgrounds.

If the use of data provided by social network is common to Douay and Lam's works, the tenets and outcomes are of considerable difference. Douay and François Vienne's work seeks to renew the field of cartographic expression of political polarization resulting from the increasing use of social media by citizens and political actors themselves. They question directly the impact of the web on the domain of political action. To follow, through Twitter, the political activities of elected personnel and public debates indeed ponder the possibility to develop a social dimension of web usage through direct interaction between elected staff and their constituency. By offering new graphic means of representation, they raise the key question as to whether the new usage of the web could be a basis to renew the imagination of political action and therefore carry a form of democratic renewal. Questioning this new role of the Internet in our daily life directly confronts Jürgen Habermas's paradigm of the civil society (Habermas, 1978) as a unified buffer space between state and society. After press, radio and television, the Internet could become in its own way – fragmented, diversified, differentiated – a space less and less virtual where a "mosaic" of thematic expression will find

Figure 7 | WARE's installation
Source: Photo by the authors.

genuine concrete sociopolitical outcomes.

For Lam, on the other hand, the method is slightly different. He uses Facebook data collected from specific "fan pages" related to news platforms, where people from anywhere in the world gather to spread ideas and exchange information concerning a peculiar issue. As he puts it: "It is territory free, but highly social and city related." In his view, information itself shapes our societies and profiles our understanding of it. Without expressing a direct political concern of his own, the Facebook pages he chooses to create "social sculptures" are socially and politically motivated. Obviously, Lam is affected by the increasing political concerns perceived by Hong Kong citizens and by the social activities they have triggered. "The civic or the political is not separated from this city nowadays", he adds referring to the multiple social contestations continuously triggered by the inefficiency of the political sphere to cope with social and cultural issues. And the sculptures he constructs are shaped by Facebook data found on pages nurtured by those issues. In Lam's view, the context of the city creates – literally sculpts – the social concern and the political dimension of its work.

Two other works presented at the exhibition address somewhat differently the issue of digital expression of civic engagement. Like Douay's work, the M+ NEONSIGNS.HK project uses new possibilities offered by the reinvention of cartographic representation by means of geo-localization. It then adds a participative element since all the data collected are related to places where neon signs images are offered by the public to construct a unique database of a rapidly changing visual aspect of Hong Kong. Captions and stories, written by the participants, are also part of the archiving work. Images are then classified by their location (full address and district, or custom-filled by the public through online forms), by business nature (restaurant, night clubs, beauty parlors…) and by the neon

Figure 8 | The exhibition introduction
Source: Photo by the authors.

shape (animal shape, typography…). Visitors can view the public submissions by map, or they can filter the results base by district and/or categories. Its first aim is to raise public awareness on the fast disappearing urban landscape and the craftsmanship involved in this iconic feature of the Asian city. The public at large became participants in documenting this disappearing aspect of their own urban environment. Together with 12 night time Google Street Views of Hong Kong neon signs, and a long interview with the cinematographer who probably gave a visual identity to Hong Kong nightlight, Christopher Doyle (杜可風) the website resulting from this participative collection is now open for public consultation, and offers a visually compelling set of digital archives that totally integrate the civic values of engagement offered by the new usage of the Internet. The Hong Kong Neon Map issued from the pictures and their location remains as a lasting record for further research by different parties (universities,

architectural groups, historical/photography groups…). It will facilitate the M+ museum organization to go in for possible future acquisitions, and it will also increase public awareness regarding the fast changing path of urban landscape evolution. Such a use of the Internet to create participative living sets of database directly contributes to the new possibilities offered to archives and libraries to elaborate "smart" visualization of evolving features of urban life.

The Pocket Cinema Hong Kong project conducted by Annie Wan shares a certain number of features with the above project. However it targets another disappearing important element of Hong Kong cultural identity: locally produced cinema. In recent years in Hong Kong, in many discussions within different levels of the society, there have been disputes about the methods, objectives and significations of heritage preservation. The usual tendencies for heritage preservation and the literature on Hong Kong's own colonial his-

Figure 9 | Guests at the exhibition
Source: Photo by the authors.

Figure 10 | The artist (Sarah Song) introduces her works to the audience
Source: Photo by the authors.

tory often remain constrained by the realm of tangible legacy such as historical buildings or past pictures. They usually overlook the value of the city's own culture and intangible heritage. In this project, the idea of considering local films as an intangible artistic heritage to be mingled by "smart" technologies of position reconnaissance and guided cultural urban walks proposes new digital ways to preserve and to articulate this past feature of Hong Kong identity with urban contemporary realities. Augmented Reality technology refers to computational image processing techniques combining computer sensory input as motion detectors, GPS, accelerometer and 3D or 2D graphics with real-time captured videos. Multiple workshops for docents training and cultural tours are co-organized by students and external partners. The workshops include a brief introduction to the peculiar role of local film culture in Hong Kong's popular identity and the usage of AR technology used in mobility situations. The public is invited to join cultural tours following the path of onsite filming locations. The audience is invited to download a mobile phone application before starting the tours to allow interaction with the city itself and to explore it in an innovative, "smart" way. Henceforth, the public can join the tours and enjoy physical walks in Sham Shui Po, or Tai Kok Tsui where they can watch through the mobile device a selection of scenes taken from local emblematic films.

At the heart of the PCHK discourse on film culture's disappearance is of course the unfair pressure put on local assets by the increasing presence – in terms of production, of public, and of course of censorship – of Hong Kong's mainland Chinese neighbor since 1997. Most of the recent successful films in the city have been censored, even forbidden in the Mainland. As in the case of Keith Lam, Annie Wan reaffirms with conviction that daily life in Hong Kong is political. Preserving local heritage, and everything considered by the Chinese leaders as defending trends going against the Beijing-centered cultural policy is/can be interpreted as some form of dissidence.

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Big Data & Civic Engagement

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