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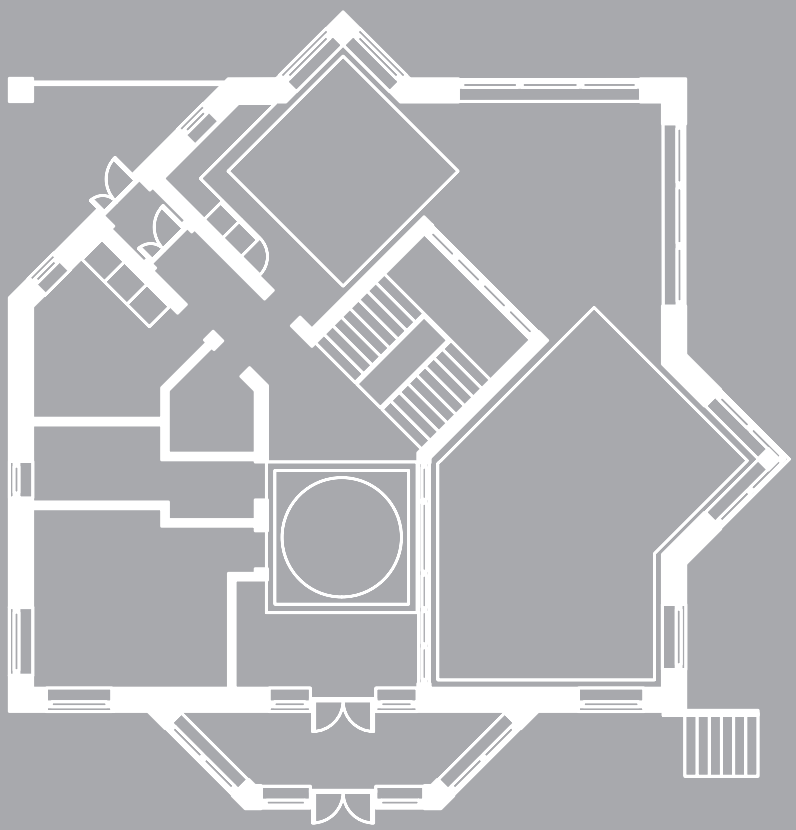
EDITORS **ÖZDEN ŞAHİN**, **JONATHAN MUNRO** AND **CATHERINE M. WEIR**

This LEA publication has a simple goal: surveying the current trends in augmented reality artistic interventions. There is no other substantive academic collection currently available, and it is with a certain pride that LEA presents this volume which provides a snapshot of current trends as well as a moment of reflection on the future of AR interventions.



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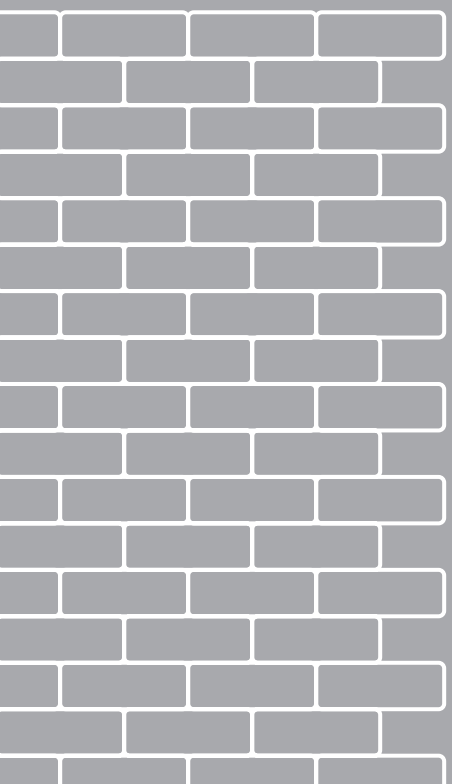

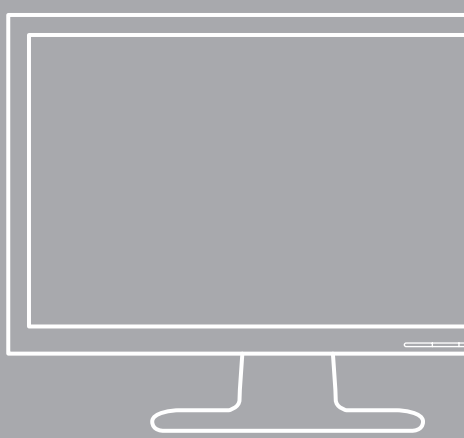

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Not Here Not There

VOLUME EDITORS
LANFRANCO ACETI AND RICHARD RINEHART

EDITORS
ÖZDEN ŞAHİN, JONATHAN MUNRO AND CATHERINE M. WEIR

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KASA GALERİ

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Operational & Curatorial Research in Contemporary Art, Design, Science & Technology

Not Here, Not There: An Analysis Of An International Collaboration To Survey Augmented Reality Art

Every published volume has a reason, a history, a conceptual underpinning as well as an aim that ultimately the editor or editors wish to achieve. There is also something else in the creation of a volume; that is the larger goal shared by the community of authors, artists and critics that take part in it.

This volume of LEA titled *Not Here, Not There* had a simple goal: surveying the current trends in augmented reality artistic interventions. There is no other substantive academic collection currently available, and it is with a certain pride that both, Richard Rinehart and myself, look at this endeavor. Collecting papers and images, answers to interviews as well as images and artists' statements and putting it all together is perhaps a small milestone; nevertheless I believe that this will be a seminal collection which will showcase the trends and dangers that augmented reality as an art form faces in the second decade of the XXIst century.

As editor, I did not want to shy away from more critical essays and opinion pieces, in order to create a documentation that reflects the status of the current thinking. That these different tendencies may or may not be proved right in the future is not the reason for the collection, instead what I believe is important and relevant is to create a historical snapshot by focusing on the artists and authors developing artistic practices and writing on augmented reality. For this reason, Richard and I posed to the contributors a series of questions that in the variegated responses of the artists and authors will evidence and stress similarities and differences, contradictions and behavioral approaches. The interviews add a further layer of documentation which, linked to the artists' statements, provides an overall understanding of the hopes for this new artistic playground or new media extension. What I personally wanted to give relevance to in this volume is the artistic creative process. I also wanted to evidence the challenges faced by the artists in creating artworks and attempting to develop new thinking and innovative aesthetic approaches.

The whole volume started from a conversation that I had with Tamiko Thiel – that was recorded in Istanbul at Kasa Gallery and that lead to a curatorial collaboration with Richard. The first exhibition *Not Here* at the Samek Art Gallery, curated by Richard Reinhart, was juxtaposed to a response from Kasa Gallery with the exhibition *Not There*, in Istanbul. The conversations between Richard and myself produced this final volume – *Not Here, Not There* – which we both envisaged as a collection of authored papers, artists' statements, artworks, documentation and answers to some of the questions that we had as curators. This is the reason why we kept the same questions for all of the interviews – in order to create the basis for a comparative analysis of different aesthetics, approaches and processes of the artists that work in augmented reality.

When creating the conceptual structures for this collection my main personal goal was to develop a link – or better to create the basis for a link – between ear-

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lier artistic interventions in the 1960s and the current artistic interventions of artists that use augmented reality.

My historical artist of reference was Yayoi Kusama and the piece that she realized for the Venice Biennial in 1966 titled *Narcissus Garden*. The artwork was a happening and intervention at the Venice Biennial; Kusama was obliged to stop selling her work by the biennial's organizers for 'selling art too cheaply.'

"In 1966 [...] she went uninvited to the Venice Biennale. There, dressed in a golden kimono, she filled the lawn outside the Italian pavilion with 1,500 mirrored balls, which she offered for sale for 1,200 lire apiece. The authorities ordered her to stop, deeming it unacceptable to 'sell art like hot dogs or ice cream cones.'" [1]

The conceptualization and interpretation of this gesture by critics and art historians is that of a guerrilla action that challenged the commercialization of the art system and that involved the audience in a process that revealed the complicit nature and behaviors of the viewers as well as use controversy and publicity as an integral part of the artistic practice.

Kusama's artistic legacy can perhaps be resumed in these four aspects: a) engagement with audience's behaviors, b) issues of art economy and commercialization, c) rogue interventions in public spaces and d) publicity and notoriety.

These are four elements that characterize the work practices and artistic approaches – in a variety of combinations and levels of importance – of contemporary artists that use augmented reality as a medium. Here, is not perhaps the place to focus on the role of 'publicity' in art history and artistic practices, but a few words have to be spent in order to explain that publicity for AR artworks is not solely a way for the artist to gain notoriety, but an integral part of the artwork, which in order to come into existence and generate interactions and engagements with the public has to be communicated to the largest possible audience.

"By then, Kusama was widely assumed to be a publicity hound, who used performance mainly as a way of gaining media exposure." [2] The publicity obsession, or the accusation of being a 'publicity hound' could be easily moved to the contemporary group of artists that use augmented reality. Their invasions of spaces, juxtapositions, infringements could be defined as nothing more than publicity stunts that have little to do with art. These accusations would not be just irrelevant but biased – since – as in the case of Sander Veenhof's analysis in this collection – the linkage between the existence of the artwork as an invisible presence and its physical manifestation and engagement with the audience can only happen through knowledge, through the audience's awareness of the existence of the art piece itself that in order to achieve its impact as an artwork necessitates to be publicized.

Even if, I do not necessarily agree with the idea of a 'necessary manifestation' and audience's knowledge of the artwork – I believe that an artistic practice that is unknown is equally valid – I can nevertheless understand the process, function and relations that have to be established in order to develop a form of engagement and interaction between the AR artwork and the audience. To condemn the artists who seek publicity in order to gather audiences to make the artworks come alive is perhaps a shortsighted approach that does not take into consideration the audience's necessity of knowing that interaction is possible in order for that interaction to take place.

What perhaps should be analyzed in different terms is the evolution of art in the second part of the XXth century, as an activity that is no longer and can no longer be rescinded from publicity, since audience engagement requires audience attendance and attendance can be obtained only through communication / publicity. The existence of the artwork – in particular of the successful AR artwork – is strictly measured in numbers: numbers of visitors, numbers of interviews, numbers of news items, numbers of talks, numbers of interactions, numbers of clicks, and, perhaps in a not too distant future, numbers of coins gained. The issue of being a 'publicity hound' is not a problem that applies to artists alone, from Andy Warhol to Damien Hirst from Banksy to Maurizio Cattelan, it is also a method of evaluation that affects art institutions and museums alike. The accusation moved to AR artists of being media whores – is perhaps contradictory when arriving from institutional art forms, as well as galleries and museums that have celebrated publicity as an element of the performative character of both artists and artworks and an essential element instrumental to the institutions' very survival.

The publicity stunts of the augmented reality interventions today are nothing more than an acquired methodology borrowed from the second part of the XXth century. This is a stable methodology that has already been widely implemented by public and private art institutions in order to promote themselves and their artists.

Publicity and community building have become an artistic methodology that AR artists are playing with by making use of their better knowledge of the AR media. Nevertheless, this is knowledge born out of necessity and scarcity of means, and at times appears to be more effective than the institutional messages arriving from well-established art organizations. I should also add that publicity is functional in AR interventions to the construction of a community – a community of aficionados, similar to the community of 'nudists' that follows Spencer Tunic for his art events / human installation.

I think what is important to remember in the analysis of the effectiveness both in aesthetic and participatory terms of augmented reality artworks – is not their publicity element, not even their sheer numbers (which, by the way, are what has made these artworks successful) but their quality of disruption.

The ability to use – in Marshall McLuhan's terms – the medium as a message in order to impose content bypassing institutional control is the most exciting element of these artworks. It is certainly a victory that a group of artists – by using alternative methodological approaches to what are the structures of the capitalistic system, is able to enter into that very capitalistic system in order to become institutionalized and perhaps – in the near future – be able to make money in order to make art.

Much could be said about the artist's need of fitting within a capitalist system or the artist's moral obligation to reject the basic necessities to ensure an operational professional existence within contemporary capitalistic structures. This becomes, in my opinion, a question of personal ethics, artistic choices and existential social dramas. Let's not forget that the vast majority of artists – and AR artists in particular – do not have large sums and do not impinge upon national budgets as much as banks, financial institutions, militaries and corrupt politicians. They work for years

1. David Pilling, "The World According to Yayoi Kusama," *The Financial Times*, January 20, 2012, http://www.ft.com/cms/s/2/52ab168a-4188-11e1-8c33-00144feab49a.html#axzz1kDck8rzm (accessed March 1, 2013).

2. Isabelle Loring Wallace and Jennie Hirsh, *Contemporary Art & Classical Myth* (Farnham; Burlington, VT: Ashgate, 2011), 94.

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with small salaries, holding multiple jobs and making personal sacrifices; and the vast majority of them does not end up with golden parachutes or golden handshakes upon retirement nor causes billions of damage to society.

The current success of augmented reality interventions is due in small part to the nature of the medium. Museums and galleries are always on the lookout for 'cheap' and efficient systems that deliver art engagement, numbers to satisfy the donors and the national institutions that support them, artworks that deliver visibility for the gallery and the museum, all of it without requiring large production budgets. Forgetting that art is also about business, that curating is also about managing money, it means to gloss over an important element – if not the major element – that an artist has to face in order to deliver a vision.

Augmented reality artworks bypass these financial challenges, like daguerreotypes did by delivering a cheaper form of portraiture than oil painting in the first part of the XIXth century, or like video did in the 1970s and like digital screens and projectors have done in the 1990s until now, offering cheaper systems to display moving as well as static images. AR in this sense has a further advantage from the point of view of the gallery – the gallery has no longer a need to purchase hardware because audiences bring their own hardware: their mobile phones.

The materiality of the medium, its technological revolutionary value, in the case of early augmented reality artworks plays a pivotal role in order to understand its success. It is ubiquitous, can be replicated everywhere in the world, can be installed with minimal hassle and can exist, independently from the audience, institutions and governmental permissions. Capital costs for AR installations are minimal, in the order of a few hundred dollars, and they lend themselves to collaborations based on global networks.

Problems though remain for the continued success of augmented reality interventions. Future challenges are in the materialization of the artworks for sale, to name an important one. Unfortunately, unless the relationship between collectors and the 'object' collected changes in favor of immaterial objects, the problem to overcome for artists that use augmented reality intervention is how and in what modalities to link the AR installations with the process of production of an object to be sold.

Personally I believe that there are enough precedents that AR artists could refer to, from Christo to Marina Abramovich, in order develop methods and frameworks to present AR artworks as collectable and sellable material objects. The artists' ability to do so, to move beyond the fractures and barriers of institutional vs. revolutionary, retaining the edge of their aesthetics and artworks, is what will determine their future success.

These are the reasons why I believe that this collection of essays will prove to be a piece, perhaps a small piece, of future art history, and why in the end it was worth the effort.

Lanfranco Aceti
Editor in Chief, Leonardo Electronic Almanac
Director, Kasa Gallery

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Site, Non-site, and Website

In the 1960's, artist Robert Smithson articulated the strategy of representation summarized by "site vs. non-site" whereby certain artworks were simultaneously abstract and representational and could be site-specific without being sited. A pile of rocks in a gallery is an "abstract" way to represent their site of origin. In the 1990's net.art re-de-materialized the art object and found new ways to suspend the artwork online between website and non-site. In the 21st century, new technologies suggest a reconsideration of the relationship between the virtual and the real. "Hardlinks" such as QR codes attempt to bind a virtual link to our physical environment.

Throughout the 1970's, institutional critique brought political awareness and social intervention to the site of the museum. In the 1980's and 90's, street artist such as Banksy went in the opposite direction, critiquing the museum by siting their art beyond its walls.

Sited art and intervention art meet in the art of the trespass. What is our current relationship to the sites we live in? What representational strategies are contemporary artists using to engage sites? How are sites politically activated? And how are new media framing our consideration of these questions? The contemporary art collective ManifestAR offers one answer,

> *"Whereas the public square was once the quintessential place to air grievances, display solidarity, express difference, celebrate similarity, remember, mourn, and reinforce shared values of right and wrong, it is no longer the only anchor for interactions in the public realm. That geography has been relocated to a novel terrain, one that encourages exploration of mobile location based monuments, and virtual memorials. Moreover, public space is now truly open, as artworks can be placed anywhere in the world, without prior permission from government or private authorities – with profound implications for art in the public sphere and the discourse that surrounds it."*

ManifestAR develops projects using Augmented Reality (AR), a new technology that – like photography before it – allows artists to consider questions like those above in new ways. Unlike Virtual Reality, Augmented Reality is the art of overlaying virtual content on top of physical reality. Using AR apps on smart phones, iPads, and other devices, viewers look at the real world around them through their phone's camera lens, while the app inserts additional images or 3D objects into the scene. For instance, in the work *Signs over Semiconductors* by Will Pappenheimer, a blue sky above a Silicon Valley company that is "in reality" empty contains messages from viewers in skywriting smoke when viewed through an AR-enabled Smartphone.

AR is being used to activate sites ranging from Occupy Wall Street to the art exhibition ManifestAR @ ZERO1 Biennial 2012 – presented by the Samek Art Gallery simultaneously at Bucknell University in Lewisburg, PA and at Silicon Valley in San Jose, CA. From these contemporary non-sites, and through the papers included in this special issue of LEA, artists ask you to reconsider the implications of the simple question *wayn* (where are you now?)

Richard Rinehart
Director, Samek Art Gallery, Bucknell University

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ConnectiCity, augmented perception of the city

by

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ABSTRACT

We constantly re-interpret and transform the spaces around us.

The ways in which we constantly personalize the spaces which we traverse and in which we perform our daily routines communicate information about emotions, knowledge, skills, methodologies, cultures and desires.

This process takes place in digital realms as well, which start to ubiquitously merge with cities.

Mobile devices, smartphones, wearables, digital tags, near field communication devices, location based services and mixed/augmented reality have turned the world into an essentially read/write, ubiquitous publishing surface.

The usage of mobile devices and ubiquitous technologies alters the understanding of place.

In our research, we investigated the possibilities to conceptualize, design and implement a series of usage scenarios, moving fluidly across arts, sciences and the practices of city governance and community design.

The objective we set forth sees the creation of multiple, stratified narratives onto the city, set in place by citizens, organizations and administrations. These real-time stories and conversations can be captured and observed, to gain insights on fundamental issues such as ecology, sustainability, mobility, energy, politics, culture, creativity and participatory innovation processes.

These methodologies for real-time observation of cities help us take part in a networked structure, shaped as a diffused expert system, capturing disseminated intelligence to coagulate it into a framework for the real-time processing of urban information.

1. INTRODUCTION

We constantly re-program the spaces around us. [1]

As pointed out by Edward Krupat and William Guild, [2] Jack L. Nasar [3] and Susan L. Scheiberg [4] the ways in which we reinterpret and personalize spaces effectively convey important information about our emotional states, working methodologies, knowledge, skills, cultural backgrounds, desires and our visions. It is a pragmatic manifestation of the ways in which we perceive our living environments, a constructivist act of world-making: "In the course of time every section and quarter of the city takes on something of the character and qualities of its inhabitants. Each separate part of the city is inevitably stained with the peculiar sentiments of its population." [5]

On the other side, the forms and essence of urban space directly affect people's behavior, describing what is possible or impossible, allowed or prohibited, suggested or advised against. [6]

Our experience of the contemporary world is characterized by the presence of a ubiquitous digital membrane, [7] [8] represented and accessed by technologies and networks whose wide availability and accessibility allows us to fill space/time with digital information and allow opportunities for interaction, interrelation and communication. [9 – 11]

These observations allowed us to embrace a research process to investigate the ways in which ubiquitous technologies and networks alter our sense of place, transform our perception of reality and enable us to plan and act in novel ways.

A set of objectives has been set forth in the process:

» to gain a better understanding of human presence in contemporary urban spaces;
» to understand the ways in which it is possible to understand and visualize the way people re-program and re-interpret the spaces around them using digital tools;
» to observe in real-time the digital discussions which take place in cities, to both transform them into a component of the ubiquitous information landscape of urban spaces and to understand the emotional approaches, themes and issues which emerge from human perception of the city. Con-

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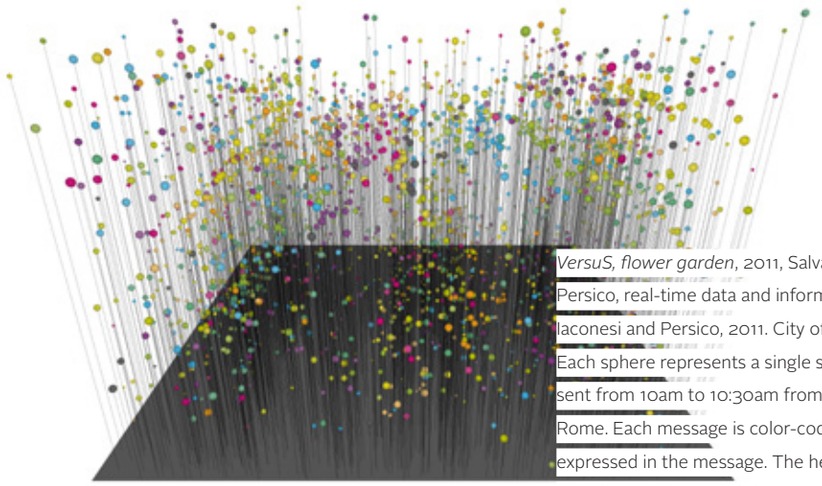

VersuS, flower garden, 2011, Salvatore Iaconesi and Oriana Persico, real-time data and information visualization. © Iaconesi and Persico, 2011. City of Rome, February 15th 2012. Each sphere represents a single social network message sent from 10am to 10:30am from the territory of the city of Rome. Each message is color-coded according to the emotion expressed in the message. The height of the message describes the length of the conversation it generated. Courtesy of Art is Open Source.

stantly generating insights on issues related to ecology, mobility, land use, wellness, need for services and infrastructures, sense of place, definition of emergent boundaries and attention groups;

» to propose novel forms of mixed-media urban interstices in which multiple cultures, languages, religions and political orientations can meet and interact;

» create methodologies, for all actors involved, to transform these possibilities into tools for awareness and consciousness about the expression of needs and emotions of people, for ethical, sustainable, participatory policies, plans, businesses, initiatives and processes;

» promote choral initiatives, engaging citizens, organizations and institutions.

2. TRANSFORMING THE SENSE OF PLACE

Portable devices transform our experience of space/time.

For example, the Sony Walkman powerfully introduced the possibility of being able to be in two places at once [12] through the personalized sounds playing through our headphones, creating a powerful conjunction between physical space and the imaginary space created by the music.

Devices such as the Sony Walkman allow us to traverse urban spaces – with their cognitive, aesthetic and moral significance – and to benefit from the use of a critical tool in the management of our space and time, in the construction of boundaries around ourselves, as well as in the creation of sites of fantasy and memory. [13]

Mobile devices, smartphones, wearables, digital tags, location based services and mixed/augmented reality have gone much further in this direction, turning the world into an essentially read/write, ubiquitous publishing surface [14] and altering our understanding of the spaces around us. [15]

As David Morley describes: "The mobile phone is often understood (and promoted) as a device for connecting us to those who are far away, thus overcoming distance – and perhaps geography itself." [16]

In this analysis, the possibility to compress space and time enables novel opportunities to interconnect and relate to objects, processes, places and people, but also fills "the space of the public sphere with the chatter of the earth, allowing us to take our homes with us, just as a tortoise stays in its shell wherever it travels." This modality describes a direct, personalized intervention into the design of space, in both its form and function, creating a definite shift in the definition of (urban) landscape: from a purely administrative one,

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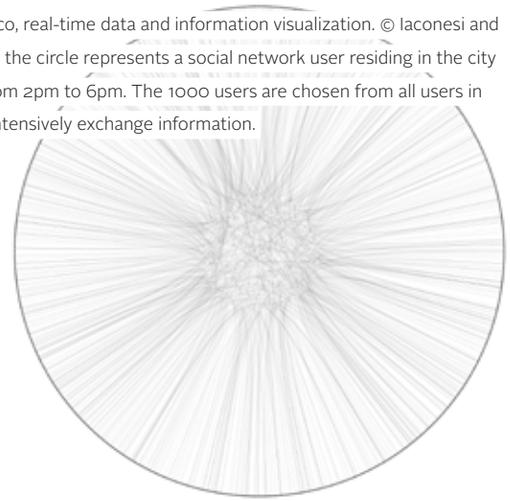
VersuS, speaking circle, 2011, Salvatore Iaconesi and Oriana Persico, real-time data and information visualization. © Iaconesi and Persico, 2011. City of Rome, February 15th 2012. Each dot around the circle represents a social network user residing in the city of Rome. 1000 users are shown with their mutual interactions from 2pm to 6pm. The 1000 users are chosen from all users in Rome in order to define a "community": a group of people who intensively exchange information. Courtesy of Art is Open Source.



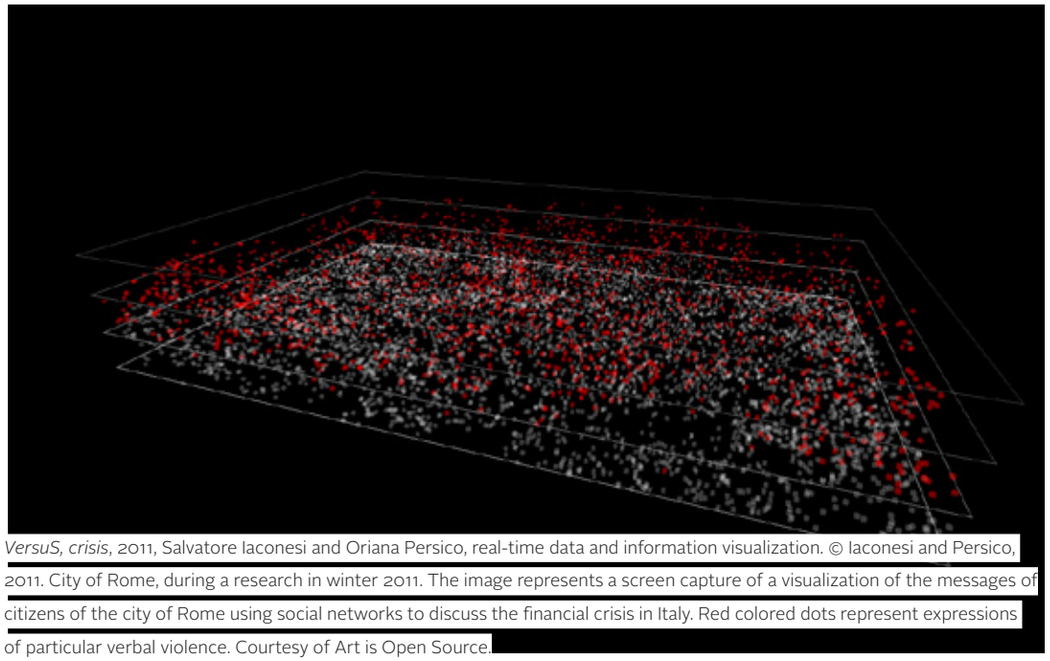
to one which is multiplied according to all the individuals which experience that specific location.

However both modalities potentially allow us to imagine and design stratified spaces in which multiple points of view find their expression, much in the same ways in which Gilles Clément, [17] John Paul Eberhard [18] and Almo Farina [19] describe our landscapes from entirely different perspectives: space/time as a continuous, emergent, fluid, recombinant stratification of analog/digital information/communication/interaction.

The possibility to access these multiplied definitions of space alter our own perception of it, opening it to cultures, backgrounds and symbolical apparatuses which have the potential to be entirely different from our own, using devices which we hold in our pockets.

Derrick De Kerckhove [20] suggested that the augmentation of architecture, should include the concepts which originally underpinned the inception of the World Wide Web. Alowing us to expand our possibilities for awareness and consciousness through the wide and ubiquitous availability of multiple sources of information, which are hyperlinked to the physical elements of our reality.

Operating in this direction, it is possible to imagine and design forms of disseminated intelligence which can be coagulated in multiple ways by actors traversing cities and using mobile devices to enact novel



VersuS, crisis, 2011, Salvatore Iaconesi and Oriana Persico, real-time data and information visualization. © Iaconesi and Persico, 2011. City of Rome, during a research in winter 2011. The image represents a screen capture of a visualization of the messages of citizens of the city of Rome using social networks to discuss the financial crisis in Italy. Red colored dots represent expressions of particular verbal violence. Courtesy of Art is Open Source.

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forms of reading/writing of spaces, symbols and configurations, moving fluidly across digital and physical domains.

Nicola Green [21] investigated a similar approach, highlighting the role of mobile devices as spatial/temporal mediators, exposing alternative perceptions and behaviors in human beings and, thus, proposing different usage grammars for spaces and timeframes.
This result can be combined with the ones produced by Marsha Berry and Margaret Hamilton while observing the usage of mobile devices on trains: "public places and spaces are being transformed into hybrid geographies through the introduction of new spatial infrastructure."

CONNECTICITY, METHODOLOGY

ConnectiCity is an arts/science meta-project which investigates the possibilities offered by the progressive availability of real-time, ubiquitous, digital layers of information. It is able to design and implement a series of prototypes which would pursue the following goals:

- to create a set of experiences allowing
  - to capture in real-time various forms of city-relevant user generated content from a variety of sources, including social networks, websites, mobile applications,
  - to interrelate information to the territory [7] [8] [23] using Geo-referencing, Geo-Parsing and Geo-Coding techniques; [24 – 27]
  - to analyze and classify information using Natural Language Processing and Named Entity Recognition techniques to identify users' emotional approaches, forms of expression, topics of interest, discussion graphs, networks of attention and of influence, trending issues, evaluations of satisfaction, well-being and happiness, and other forms of expression (using techniques designed by taking into account the many researches of this kind which have been performed over these last few years, including fundamental contributions which have been adopted from; [28 – 30]
- to imagine initiatives through which this information allows central administration and individuals to come together, under the form of a peer to peer ecosystem in which each subject is an informed, aware agent, thus describing novel forms of governance and decision-making processes; [31 – 33]
- to reflect on the life and expressions of cities and of their inhabitants, to identify new policies, new sustainable, ethical business models, urban planning processes, grass-roots initiatives and operative models;
- to use the insights provided by models such as the living labs and other user-centric innovation processes [34 – 40] in the creation of novel practices for citizens, organizations and administrations;
- to reflect on the themes of cognitive accessibility for this kind of information, analyzing visual and multi-modal representation and interaction metaphors that would allow to maximize the effectiveness, ease of use and understanding of these complex information scenarios; [41 – 44]
- to confront with validation models that would allow to assess the quality, relevancy and reliability of harvested data, affected by information noise, digital-divide related issues (e.g.: not all citizens use social networks or imagine that they can use them to express opinions about their city)interpretation errors;
- to imagine and implement strategies for open access of information and services, to reconfigure them as novel forms of freely usable spatial infrastructure;
- to reflect on the new models for identity, privacy, ethics and on the new possible emerging definitions of public and private space.

RESULTS

The ConnectiCity project is an on-going process started in 2008. Since then a continuous refinement of the methodologies and technologies has allowed the creation of several prototypes which implement the concepts conceived in the investigation phase.

Rel:attiva presenza

The first prototype was designed in Mexico City at the Franz Mayer Museum, and it was titled "rel:attiva presenza." The occasion for this project was the presentation of the paper "architettura rel:attiva" at the Seventh International Meeting on the Revitalization of the Historical Centers, focused on the idea of architecture as mediator of the historical and contemporary city.

"Rel:attiva presenza" was designed as a video projection mapping and of a sound environment in the cloister of the Italian Cultural Institute in Mexico City, in the Coyoacan neighborhood. The video projection was created by assembling video footage and images from different epochs, describing the mutation of the neighborhood across the years, starting from the beginning of the century. The images and footage were assembled together with geographical representations of the evolution of the territory and of the land use in the neighborhood. The resulting visual narrative constituted a sort of conceptual time-lapse video, in which the life of the neighborhood was shown in its evolution. The sound environment was assembled by manually harvesting field-recordings in the neighborhoods streets and markets, collecting dialogues, typical noises, sounds of transit, mobility, transport, commerce, chit-chat, voices in bars and restaurants.

The installation was proposed as a novel way to stratify the neighborhood's history into an accessible, narrative form. By looking at and listening to "rel:attiva presenza," the history of the place could be experienced along multiple points of view, in its evolution towards its present condition. Images and sounds were completely "user-generated," as they had been produced by long-time inhabitants of the place, just as the voices and sounds collected using the location's daily life.

The process designed and produced for "Rel:Attiva Presenza" can be thought of as a practice of archival of the perceptions, experiences and narratives of the people who live in the territory, and as a research into their accessibility. The prototype was exhibited under the form of an architectural intervention in the Coyoacan neighborhood, transforming surfaces into screens which acted as an accessibility layer for the history and emotions of the inhabitants.

The results of this first experience deeply inspired the following ones.

The Atlas of Rome

The following prototype created for the ConnectiCity project was, in more than one way, a direct extension of the first one.

A 35 meter long architectural projection and sound environment was created for Rome's "Festa dell'Architettura" (Architecture Fair), organized by the City Administration together with the Italian Order of the Architects in the enormous entrance corridor of the ex-Mattatoio (ex Slaughterhouse) in the Testaccio neighborhood of the city.

The Atlas of Rome's purpose was to portray in real-time the evolution of the visions, desires and actions created by architects, institutions, operators and citizens onto the city of Rome on a series of fundamental themes such as culture, creativity, education, urban planning, commerce, arts, security and health, classified in 16 information domains to describe the overall wellness of the city.

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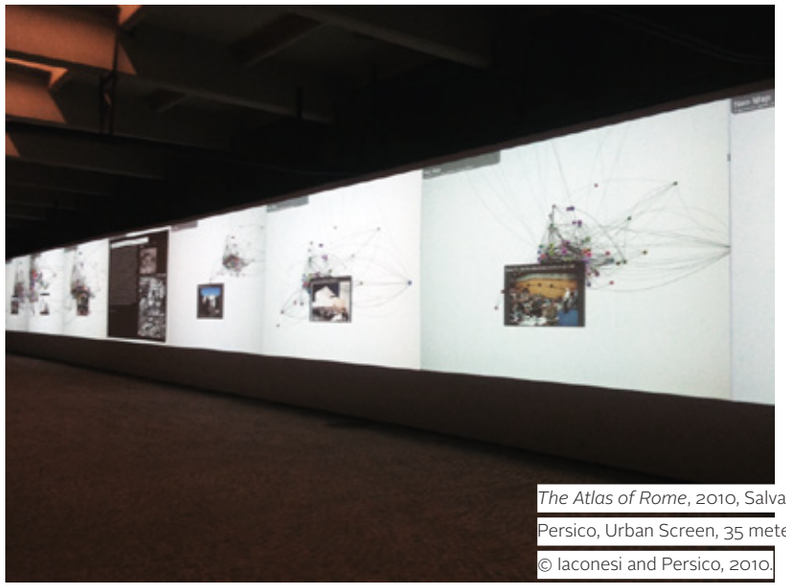

The Atlas of Rome, 2010, Salvatore Iaconesi and Oriana Persico, Urban Screen, 35 meters.

A complex activity was set-up in the organization of the project:

- an information harvesting scheme was created to capture real-time information from a variety of sources:
  - institutional and professional information sources such as blogs, websites, news feeds about the city of Rome and relevant to the chosen themes
  - relevant user accounts which were identified on social networks, among those citizens, professional operators, members of the institutions, museums, art galleries, spaces for creativity and entertainment, social aggregation points, active communities and to continuously benefit from relevant updates on the chosen themes;
- harvesting took place using a selection of techniques, involving both automatic processes (RSS feed parsing, micro-formats, public API usage, authorized web-scraping, database connections, import of structured data in a variety of formats) and manual ones (such as in the case of those organizations which sent us press releases to be added into the system);
- information was parsed using Natural Language Analysis, [45] [46] to classify information according to the selected topics;
- information was then geo-referenced either by using the coordinates provided by the information source (for example when the information source directly corresponds to a specific place, such as in the case of museums) or extracted, whenever possible, by Geo-Parsing schemes, which was performed by using a large database of Named Entities with a geographical connotation, including the names of streets, malls, cinemas, museums, landmarks, neighborhoods, common alternative names of places, pubs, bars, shops, stores, gyms, and other dozens of types of locations for which names could be identified in the text of the harvested content (a multi-modal text-matching engine compared the strings in multiple ways for similarity and for the textual context in which the identified words were found, to be able to filter out most false-positive results, and obtaining a correctness of about 97%);
- a series of direct input channels were created to accept content (text, images and videos) from citizens using mobile devices and a series of multitouch kiosks which were set-up in various areas of the city.

Collected information was shown on the 35 meter wide surface using a processing application. A series of different information visualizations were designed to convey information according to different metaphors. Somewhere dedicated to aggregating information according to themes, time-frames and the types of activities.

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A peculiar geographical visualization captured most of the attention of the visitors. Here, color-coded circles represented localized elements of information. A map was not shown under the circles, but their relative geographical positions were correctly calculated. Points were connected by similarity: two points on the visualization were connected if they were relevant to the same themes.

A map formed, composed, not through natural or administrative boundaries, but through the emotions and ideas of citizens. It was constructed continuously through the activities which take place in real-time in the city of Rome.

This kind of emergent geography has proven to be extremely effective when used as a lens, as a new perception of the city in which it is the behavior of people – individually or through their organizations – to describe forms, aggregations, coherences and inconsistencies. The analysis of this representation has been of fundamental value in gathering the insights which were used to create the following prototypes of the *ConnectiCity* project.

Visitors could use their mobile devices and a series of multitouch surfaces to interact with the part of the projection that they had in front of them. The position of the multitouch terminal, the geographical coordinates identified by the smartphone application and a customized wireless network setup allowed the system to understand which part of the projection to activate, eventually alerting the user that the area was currently being used by another visitor, suggesting to moving slightly to the left or right to obtain a free projection area.

Individuals could navigate detailed versions of the content by touching interface elements, choosing the bits of information they wished to experience. Large pop up viewports contextually appeared in front of them onto the architectural projection, showing texts, videos, images and interactive experiences.

This immediate responsiveness of such a large scale projection proved to produce radically positive effects on visitors. The fact that a large-scale architectural surface was actually responding in real-time to their interactions, powerfully combined with the tangible effect of having the possibility to publish one's own information onto the projection. The combined effect of being able to both contribute and interact had a distinct empowering effect on people, who spontaneously started to discuss possible uses for this kind of system in areas such as participatory urban planning, policy making and decision-making at the city level.

ConnectiCity Neighborhood Edition

The system created for the *Atlas of Rome* was also implemented in a smaller scale, dedicated to provide novel scenarios for the life of neighborhoods.

An Urban Screen was designed to capture in real-time the social network conversations which could be identified as originating from within the territory of the neighborhood. For this purpose, the Twitter, Flickr and FourSquare social networks were used, thanks to the accessibility of their geographical features.

Harvested information was processed using the same, yet evolved, strategies described for the Atlas, and were shown on the Urban Screen using a simple, minimal interface in which large, black dots represented single contributions, appearing onto the screen and connected to the edges of the screen. Here, textual representations of the content were presented. Also, two or more dots were visualized as connected when they represented messages dealing with the same topic or if they represented direct interactions (e.g.: re-tweets and comments).

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The immediateness of the interface, allowing passers-by to read the content and to immediately understand its context by analyzing connections, proved to be truly effective in stimulating novel forms of social and territorial interaction. People actually stopped to read the ongoing conversations, trying to identify the people behind the social network nicknames. Many times identification happened, producing enthusiastic results and creating in people the immediate awareness about the possibility to contribute to the information landscape of their neighborhood. Some people eventually pulled out their smartphones and immediately started answering tweets and comments, to verify if they would actually show up in the interface.

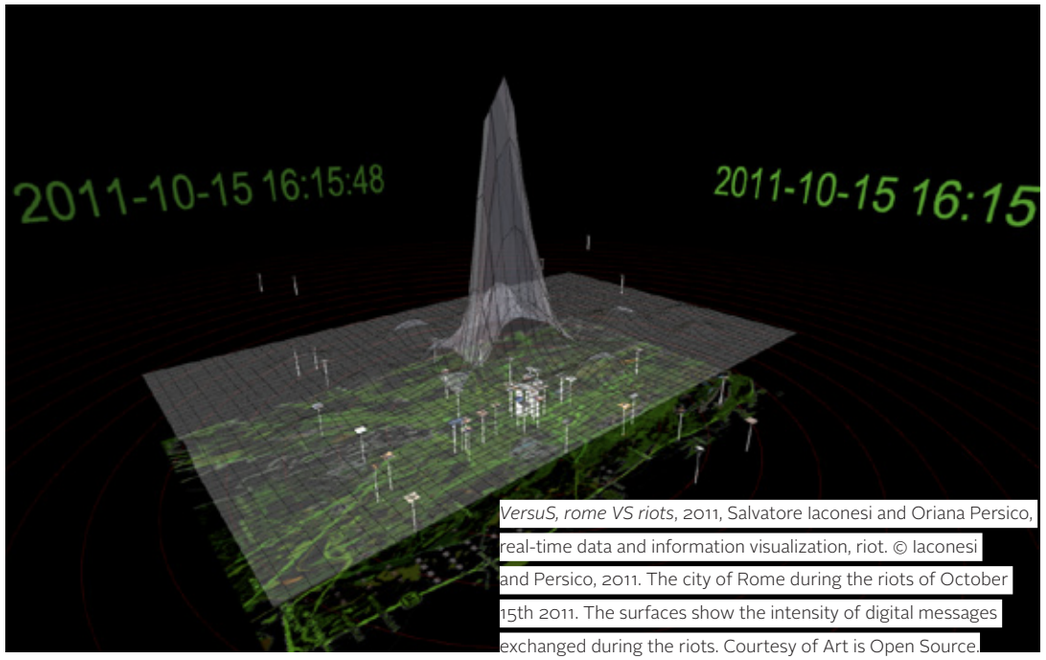
Discussion did benefit from different levels of attention, ranging from topics related to sports and entertainment, but also engaging current news items and focal issues for the neighborhood's territory.

Most people had no problem in identifying the possibility to use such systems in terms of activating participatory processes which could create value for their neighborhood. Scenarios for self organization and coordination were imagined by most people, which imagined using the urban screen as a sort of public billboard in which to perform numerous types of coordinated actions among the residents. Some people also identified more complex usage scenarios, in which multiple types of urban screen could be imagined for different purposes, such as citizen awareness, coordination and activation, general chit-chat, practical information, requests for help and also various types of "time-bank," in which neighborhood inhabitants could exchange services among themselves.

VersuS, Rome October 15th

The possibility to harvest information in real-time from cities using user generated content on social networks were used on occasion of the first instantiation of the *VersuS* project.

The first prototype was created in occasion of the protest which took place in the city of Rome on October 15th 2011.



VersuS, rome VS riots, 2011, Salvatore Iaconesi and Oriana Persico, real-time data and information visualization, riot. © Iaconesi and Persico, 2011. The city of Rome during the riots of October 15th 2011. The surfaces show the intensity of digital messages exchanged during the riots. Courtesy of Art is Open Source.

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The protest took place in the city under the form of a march authorized by the City Administration, as one of the events which were created internationally in occasion of the October 15th event organized worldwide by the "Occupy" movement.

In the city of Rome, the peaceful protest quickly degenerated into violence, with multiple groups of activists engaging fights with police forces which devastated large parts of the city centre, causing injuries and damage.

The harvesting component of the *VersuS* system was created to collect as many social network conversations as possible which were taking place during the protest in the city of Rome. Focus was placed on Facebook, Twitter and Flickr social networks, and a limited set of resources were also dedicated to Foursquare and Google+.

Different social networks were observed using different techniques. For example, Twitter streams were easily captured by using the publicly available API (Application Programming Interface), as was the case of Flickr, in which public APIs allow to capture activity taking place in a specified geographical bounding box. A different technique was used to engage activity generated on Facebook: a preliminary analysis performed using the search facilities provided by the Open Graph protocol and Facebook's implementation (titled Graph API) allowed researchers to identify more than 60,000 user profiles among the ones whose public "home location" (the place which users specify as being the one they live in) was described as being "Rome" or one of the hundreds of smaller cities within 80km distance of the city centre, which were merged to the about 80,000 profiles which explicitly mentioned the protest in Rome during the two days before October 15th. The list of 'friends' of these users was collected as well. Duplicates were removed from the overall list, arriving to a total of more than 160,000 users which were considered to be relevant to the required observation.

All identified sources of information were provided with a procedure to capture their online activities for the whole duration of the protest. This required a fairly high amount of processing and network resources, with 3 multi-core servers and a 20Mbit connectivity completely dedicated to the capture process during the day, from 2pm until 11pm.

The Natural Language Analysis and GeoParsing/GeoReferencing procedures – described above – were applied to identify content which was relevant to the protest. This step has been performed according to a number of different approaches:

- messages whose geographical origin was located along the areas touched by the protest, at relevant times
- messages explicitly naming places touched by the protest, at relevant times
- messages discussing the protest in one of several possible forms (e.g.: mentioning the protest, its participants, its themes, its path, and more)

This analysis, using a series of different threshold levels to define the level of acceptable quality of the inferred relevancy, which was never placed below 95% for all modalities, allowed to select more than 92,000 information elements during the time-frame of the protest. Some of these revealed to be of little or no interest to the analysis (around 30,000) and were filtered in the following steps of the process.

A series of visualizations were designed to investigate on the results.

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A first visualization was designed to show the intensity of communication over time in the various areas of the city.

A geo-referenced parametric surface was configured to receive the number of posts in each area of the city as values determining the surface's heights in the matrix of control points. The effect was to create an immediate readability of the locations in which online activity was stronger during the time of the protest. By superimposing the visualization with the path followed by the protest, it was important to understand how the online activity closely followed the protest itself: the march took place both in the physical space and in the digital one.

This form of quantitative, geo-referenced analysis produced evidence of the following two phenomena:

» a high number of people who were physically present at the protest produced digital content and published it on social networks, allowing to observe the impressions, emotions and information as communicated directly from relevant locations at a high level of detail;
» a high number of people who were not physically present at the protest discussed it online, allowing for observation of the general experience of the event.

Then further analysis was performed on the qualitative level, to observe the types of information which could be extracted from the captured streams. This kind of observation was performed using the results of the Natural Language Analysis phase, thus benefiting from the availability of a classification of all information elements according to a classification of emotions and of topics.

The richness of the captured data suggested the possibility to envision, design and implement a series of applicative scenarios.

Given the specific focus on emergent crisis situations in urban contexts, such as those which potentially can take place during protests and revolts, mobile applications and the supporting technological frameworks were designed for the following scenarios/actors:

» a real-time geographical application for public police and security personnel;
» a real-time geographical and augmented reality application for protesters;
» a real-time geographical application for a fictional type company whose business model is based on the offering of services for these kinds of emergency scenarios.

VersuS, augmented reality for protesters, 2012, Salvatore Iaconesi and Oriana Persico, real-time data and information visualization. © Iaconesi and Persico, 2012.
VersuS, the Augmented Reality Interface of the application for protesters. The arrow changes color while turning around: red shows potentially dangerous directions, as inferred by messages harvested in real-time from social networks.

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Each application has been thought out according to a dedicated perspective:

» the application for the police forces
  » identification of a series of linguistic templates which would indicate the emergence of specific scenarios which represent dangerous situations or, more in general, situations in which a direct police intervention is required (e.g.: "they're breaking the windshields of the cars" would be among the possible sentences which this part of the system would need to react to and, thus, constructs such as "? breaking ? cars ?" would be a typical part of the linguistic template dictionary used in the platform);
  » identification of rising trends, which might indicate emergent situations which could benefit from the attention of the police forces (e.g.: a sudden rise of messages like "the protest is turning left onto xxx street" would definitely need some attention by police officers, who might decide to intervene in regulating the mutated use of public space);
» the application for the protesters
  » a map and an augmented reality display allow the user to see in real-time what is being communicated in the various directions around the current geographical position;
  » several prepared configurations allow the user to see in immediately accessible and understandable ways the spatial distribution of information around own position (e.g.: the colors red and green are used to draw a circle in AR around the user to inform about the presence, in that direction, of messages describing possible situations of danger, such as riot, police charge, injured people; this information would, for example, suggest the user to choose to walk in "green" directions, and to avoid moving towards "red" ones);
  » the user can configure a list of social network users: visual displays constantly show the configured people's positions, thus allowing the user to be constantly aware of their position, thus avoiding getting lost or separated from them, or to establish highly accessible means of spatial communication in emergency scenarios);
» the application for the fictional company
  » a web framework allows the fictional company to setup a curation environment in which to aggregate content harvested in real-time among geo-referenced information published by users on social networks;
  » the framework offers easy tools to observe in real-time the content produced on social networks about a series of strategic themes (paths of protesters in city space, alerting of exceptional events, signals of violence or other dangerous activities;
  » the framework also highlights emerging topics among the real-time expressions of social network users, whose growth in intensity and frequency signals them as interesting-to-observe and, thus, allows to add them among the topics under observation on the city map;
  » the fictional company's personnel (or software systems) can use these aggregated informations to dynamically create visualizations in which one or more themes are shown; each grouped representation of this kind (set of layers of manually or automatically curated information) forms a "product" which the company "sells" to various actors, thus realizing their business model;
  » to access the offered products/services, users download a smartphone application; when they do, they can choose among the themes aggregated by the fictional company, for example wishing to be alerted of the overall activity relevant to the protest; from that moment the high-quality aggregated information, using aug-

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mented reality, will be shown on the screen all around them and on a map;
» users can also choose to form a group among other users of the application and include users from supported social networks; in this way they will also see the icons of these users highlighted onto the map and in AR, allowing to know their relative position in real-time and to instantly exchange information.

Post-event simulations of these three platforms, using the data gathered during the riots as time-based feeds of information, produced remarkable results.

About 30,000 elements of information (such as messages, sequences of locations, patterns in conversations) were found to be relevant in identifying violence, law infringements, abnormal gatherings and injuries.

Twelve user profiles chosen among the most active during the riots were chosen to test in a similar way the app designed for the protesters. Scenarios were enacted describing the personas of peaceful and also violent protesters. Around 2000 information elements have been found as being significant in supporting them in identifying the positions of the most violent happenings, and to constantly be able to keep in touch with friends that were active on social networks during that timeframe. As for the scenario of violent protesters, around 12,000 information elements have been found to be of significant strategic value in understanding police movements and strategies, and to support in organizing collective action. The tool proved to be effective in gaining a substantial strategic edge; companion-related position information allowed this profile to benefit from a practical tool and to keep active groups spatially aggregated, and to also immediately visualize the position and direction of movement of the other protesters.

The application dedicated to the fictional company offering protest-based services was found to be effective in providing hundreds of information packages describing dangerous situations, curiosities (a selection of the most interesting things taking place during the protest, expression of creativity and innovation), joyful events (such as improvised concerts, clown/busker shows and other similar events) and spatial messaging features.

VersuS, planet edition

An enhancement and generalization of the VersuS platform has been recently tested in a prototype which allows to observe several cities at once. The platform was presented and tested during an italian national radio broadcast using the narrative of a musical journey touching 6 urban contexts (Milan, Berlin, London, Bristol, New York and Philadelphia), with the DJ playing music by artists in the different cities while a web interface allowed listeners to view the real-time information visualizations of those cities. For the event, an emotional approach was used, classifying user generated content by emotions organized around the scheme proposed by Robert Plutchik, in his book *Emotion, a psychoevolutionary synthesis.* [47]

The experiment was closely monitored using a mixture of techniques involving the use of web analytics and direct engagement with listeners through social networks and questions posed during the radio show. Response has been particularly strong on this occasion. Listeners actively used the platform, constantly inferring meaning and explanations for both the emotional configurations expressed in cites and for the specific messages that, while captured, were being shown on the interfaces.

Listeners autonomously suggested multiple usage scenarios for the platform, also referring to hypothetical scenarios in which these kinds of systems could

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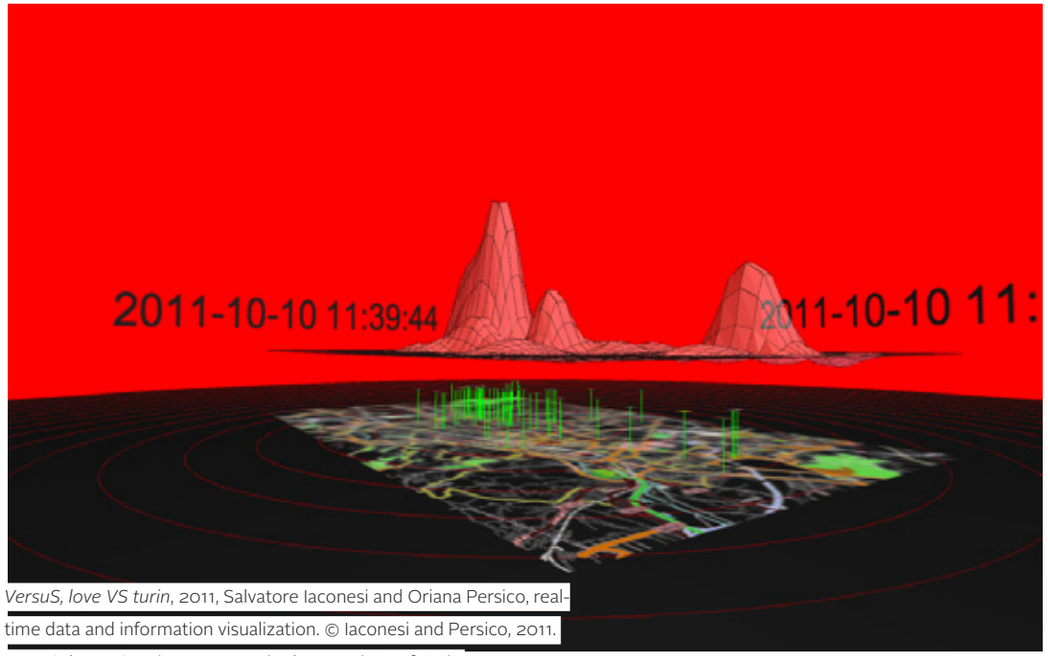

VersuS, love VS turin, 2011, Salvatore Iaconesi and Oriana Persico, real-time data and information visualization. © Iaconesi and Persico, 2011.

VersuS, love VS turin, a moment in the emotions of Turin.

be used to create participatory governance practices for entire cities. Usage scenarios dedicated to novel entertainment products and services were also often hypothesized, with users declaring their welcoming approach to these kinds of systems being available on their smartphones.

CONCLUSIONS

The possibility to listen to the ideas, visions, emotions and proposals which are expressed each day by citizens – either explicitly or implicitly by the ways in which they use their cities, workplaces, malls... – suggests the emergence of positive scenarios.

Harvesting systems allow us to continuously sense the public discussion and to correlate it to cities, transport systems, infrastructures, architectural spaces, neighborhoods.

"Sensibility Networks" can be established using natural language analysis processes allowing us to 'read' cities, for how they are 'written' by people, traversing languages and cultures.

Sensor networks can be included in the scenario to record in real-time information about pollution, traffic and the other measurements which shape the ecological, social, administrative and political lives of our cities.

It is possible to create multiple layers of narratives which traverse the city and which allow us to read them in different ways, according to different strategies and tactics, and enabling us to highlight how cities (through their citizens or even on their own, expressing through sensors) express points of view on the environment, culture, economy, transports, energy and politics.

The ubiquitous accessibility of the information about how multiple agencies re-interpret space reveals novel uses for it, thus defining a new *structure* for public space.

The experience of space/time in urban contexts comes out deeply modified, as we progressively mutate our interpretation of presence, space and relation, adding the wide array of usage grammars for space and time to our vocabularies of tools which we use to navigate everything, from maps, to spaces to written text.

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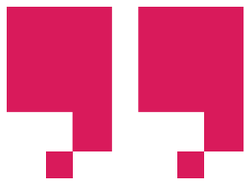
Digital information starts contributing to the affordances of the objects, buildings and other things we find in the space around ourselves, as we progressively, pragmatically and *naturally* adopt the idea of having the availability of additional sensorialities which are externalized onto devices and which shape our experience of the world, just as our eyes, ears, fingers...

A mobile phone call can transform a park bench into a temporary, ubiquitous office. A social mapping service can alter our perception of space. An augmented reality system can make visible information on pollution, mobility, energy of the place we are in. A wearable technology can create a new sense connected to remote objects, events, quantities. A real-time digital conversation analysis system can interconnect thoughts, visions, desires and emotions of people and organizations, materializing them onto a novel form of digital space in which identity, privacy and ethics must be redefined.

These methodologies for real-time observation of cities can be described as a form of "ubiquitous anthropology," based on the idea that we can take part in a networked structure shaped as a diffused expert system, capturing disseminated intelligence to coagulate it into a framework for the real-time processing of urban information.

In this context infoaesthetic representations become enablers to enact radical strategies to maximize the accessibility and usability of this information.

A mobile phone call can transform a park bench into a temporary, ubiquitous office. A social mapping service can alter our perception of space.



Together, all these elements describe something which we might refer to as "ubiquitous user generated search engine," through which citizens become preferential channels for the production of relevant information about themes which are fundamental for our daily lives, giving shape to a scenario in which the concepts of citizenship and political representation can be reinvented, tending towards a vision in which people can be more aware and benefit from added opportunities for action, participating to an environment designed for ubiquitous collaboration and knowledge which is multi-actor, *multi-stakeholder*, in real-time: the city. ■

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RELEVANT PROJECTS

ConnectiCity, including the Atlas of Rome, ConnectiCity Neighborhood edition, Architettura rel:attiva.
http://www.artisopensource.net/category/projects/connecticity-projects/

CoS, Consciousness of Streams
http://www.artisopensource.net/category/projects/consciousness-of-streams-projects/

Nuclear Anxiety
http://www.artisopensource.net/category/projects/nuclear-anxiety/

Squatting Supermarkets
http://www.artisopensource.net/category/projects/squatting-supermarkets-projects/

The Electronic Man
http://www.artisopensource.net/category/projects/electronicman/

VersuS, the realtime lives of cities
http://www.artisopensource.net/category/projects/versus-projects/

LINKS TO PERSONAL WEBSITES, INCLUDING PORTFOLIO, PREVIOUS WORK, CURRICULUM

http://www.artisopensource.net
http://www.fakepress.it

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REFERENCES AND NOTES

1. John Douglas Porteous, "Home: The Territorial Core," *Geographical Review*, vol. 66, no. 4 (1976): 383–390.
2. Edward Krupat and William Guild, "Defining the City: The Use of Objective and Subjective Measures for Community Description," *Journal of Social Issues* 36 (1980): 9–28.
3. Jack L. Nasar, "Perception, cognition and evaluation of urban places," in *Human Behavior and Environment: Public places*, eds. Irwin Altman and Ervin Zube, 31-56 (New York: Plenum, 1989).
4. Susan L. Scheiberg, "Emotions on display: The personal decoration of work space," *American Behavioral Scientist* 33, no. 3 (1990): 330–338.
5. Mark Gottdiener, *The social production of urban space*, (Austin: University of Texas Press, 1994), 28.
6. Frank E. Horton and David R. Reynolds, "Effects of Urban Spatial Structure on Individual Behavior," *Economic Geography, Perspectives on Urban Spatial Systems* 47, no. 1 (1971): 36–48.
7. Mathew Zook and Mark Graham, "From Cyberspace to DigiPlace: Visibility in an Age of Information and Mobility," in *Societies and Cities in the Age of Instant Access, ed.* Harvey J. Miller (London: Springer, 2007).
8. Mathew Zook and Mark Graham, "Mapping DigiPlace: Geocoded Internet Data and the Representation of Place," in *Environment and Planning B: Planning and Design* 34, no. 3 (2007): 466 – 482.
9. John Zeisel, *Inquiry by Design: Environment/Behavior/ Neuroscience in Architecture, Interiors, Landscape, and Planning* (New York: Norton & Company, 2006).
10. Malcolm McCullough, *Digital ground : architecture, pervasive computing, and environmental knowing* (Cambridge, MA: MIT Press, 2004).
11. Kaveh Fattahi and Hidetsugu Kobayashi, "New era, new criteria for city imaging," *Theoretical and Empirical Researches in Urban Management* 3, no. 12 (2009): 63–72.
12. Paul Du Gay, *Doing Cultural Studies: The story of the Sony Walkman*, (London: Sage, 2000), 17.
13. Michael Bull, *Sounding out the city: Personal stereos and the management of everyday life* (London: Berg, 2000).
14. Salvatore Iaconesi and Oriana Persico, *RWR Read/Write Reality vol. 1* (Rome: FakePress Publishing, 2011).
15. Rowan Wilken, "From Stabilitas Loci to Mobilitas Loci: Networked Mobility and the Transformation of Place," Mobility, New Social Intensities and the Coordinates of Digital Networks, *Fibreculture Journal* 6 (2005).
16. David Morley, "What's 'Home' Got to Do with It?: Contradictory Dynamics in the Domestication of Technology and the Dislocation of Domesticity," *European Journal of Cultural Studies* 6, no. 4 (2003): 435–458.
17. Gilles Clément and Claude Eveno, *Le Jardin planétaire* (Chicago: University of Chicago Press, 1999).
18. John P. Eberhard, *Brain landscape: the coexistance of neuroscience and architecture* (Oxford: Oxford University press, 2009).
19. Almo Farina, *Ecology, Cognition and Landscape* (New York: Springer, 2010).
20. Derrick de Kerckhove, *The architecture of intelligence* (Basel: Birkhäuser, 2001).
21. Nicola Green, "On the Move: Technology, Mobility, and the Mediation of Social Time and Space," *The Information Society* 18, no. 4 (2002): 281–292.
22. Marsha Berry and Margaret Hamilton, "Changing Urban Spaces: Mobile Phones on Trains," *Mobilities* 5, no. 1 (2010): 111–129.
23. Michael F. Goodchild, "Citizens as sensors: the world of volunteered geography," in *The Map Reader: Theories of Mapping Practice and Cartographic Representation,* eds. Martin Dodge, Rob Kitchin and Chris Perkins, 211–221 (Chichester, UK: John Wiley & Sons, 2010).
24. Michael D. Lieberman, Hanan Samet, "Multifaceted toponym recognition for streaming news," in *SIGIR '11 Proceedings of the 34th international ACM SIGIR conference on Research and development in Information* (2011), 843–852.
25. Teng Quin, Rong Xiao, Lei Fang, Xing Xie and Lei Zhang, "An efficient location extraction algorithm by leveraging web contextual information," in *GIS '10 Proceedings of the 18th SIGSPATIAL International Conference on Advances in Geographic Information Systems* (2010), 53–60.
26. Jochen L. Leidner and M. D. Lieberman, "Detecting geographical references in the form of place names and associated spatial natural language," *SIGSPATIAL Special, Newsletter, Special Issue* 3, no. 2 (2011): 5–11.
27. George Shi and Ken Barker, "Thematic data extraction from Web for GIS and applications," in *Spatial Data Mining and Geographical Knowledge Services (ICSDM), 2011 IEEE International Conference on, Proceedings* (2011), 273–278.
28. Maged N. Kamel Boulos, Antonio P. Sanfilippo, Courtney D. Corley, Steve Wheeler, "Social Web mining and exploitation for serious applications: Technosocial Predictive Analytics and related technologies for public health, environmental and national security surveillance," *Computer Methods and Programs in Biomedicine* 100, no. 1 (2010), 16–23.
29. Shuya Abe et al., "Mining personal experiences and opinions from Web documents," *Web intelligence and Agent Systems* 9, no. 2 (2011).
30. Anne Lisa Gentile et al., "Extracting Semantic User Networks from Informal Communication Exchanges," in *The Semantic Web. ISWC 2011, in Lecture Notes in Computer Science* 7031 (2011): 209–224.
31. Ken Snyder, *Tools for Community Design and Decision Making. Planning Support Systems in Practice* (New York: Springer, 2003).
32. Ken Snyder, "Putting Democracy Front and Center," *Planning* 72, no. 7 (2006): 24–29.
33. Janet Davis et al., "Simulations for Urban Planning: Designing for Human Values," *Computer* 39, no. 9 (2006): 66–72.
34. Christopher Alexander, "The origins of pattern theory: the future of the theory, and the generation of a living world," *Software, IEEE* 16, no. 5 (1999): 71–82.
35. Christopher Alexander et al., "A pattern language. Towns, buildings, construction," *Computer and Information Science* (Oxford: Oxford University Press, 1999), http://www.amazon.fr/exec/obidos/ASIN/0195019199/citeulike04-21. (accessed October 10, 2011).
36. Nikos A. Salingaros, "Theory of the urban web," *Journal of Urban Design* 3, no. 1 (1998): 53–71.
37. Nikos A. Salingaros, "Urban space and its information field," *Journal of Urban Design* 4, no. 1 (1999): 29–49.
38. Hans Schaffers et al., "Integrating Living Labs with Future Internet experimental platforms for co-creating services within Smart Cities," in *Concurrent Enterprising (ICE), 17th International Conference* (2011), 1–11.
39. Maurice Mulvenna et al., "Living labs as engagement models for innovation," in *eChallenges*, (2010), 1–11.
40. Mark Pallot et al., "Living Lab Research Landscape: From User Centred Design and User Experience towards User Cocreation," *First European Summer School "Living Labs"* (2010).
41. Edward Tufte, *Visual Explanations: Images and Quantities, Evidence and Narrative* (Cheshire, CT: Graphics Press, 1997).
42. William S. Cleveland and Robert McGill, "Graphical perception: Theory, exper- imentation, and application to the development of graphical methods," *Journal of the American Statistical Association* 79, no. 387 (1984): 533, 554.
43. Robert Spence, *Information Visualization* (Boston, Massachusetts: Addison-Wesley, 2001).
44. Burkhard Wünsche, "A survey, classification and analysis of perceptual concepts and their application for the effective visualisation of complex in- formation," *APVis '04: Proceedings of the 2004 Australasian symposium on Information Visualisation, Darlinghurst, Australia*, (2004), 17–24
45. Patrick Hanks and James Pustejovsky, "A Pattern Dictionary for Natural Language Processing," in *Revue française de linguistique appliquée* 10, no. 2 (2005): 63–82.
46. Ville H. Tuulos and Henry Tirri, "Combining Topic Models and Social Networks for Chat Data Mining," *WI '04 Proceedings of the 2004 IEEE/WIC/ACM International Conference on Web Intelligence, Proceedings* (2004), 206–213.
47. Robert Plutchik, *Emotion, a psychoevolutionary synthesis* (New York: Harper & Row, 1980).

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SALVATORE IACONESI

interviewed by
Lanfranco Aceti & Richard Rinehart

Is there an 'outside' of the Art World from which to launch critiques and interventions? If so, what is the border that defines outside from inside? If it is not possible to define a border, then what constitutes an intervention and is it possible to be and act as an outsider of the art world? Or are there only different positions within the Art World and a series of positions to take that fulfill ideological parameters and promotional marketing and branding techniques to access the fine art world from an oppositional, and at times confrontational, standpoint?

Describing boundaries is a delicate operation. And, obviously, the definition of 'border' includes the definition of the 'idea of border' and of "strategy according to which you define 'border'" of the person/organization who is creating the definition in the first place. As in statistics: results largely depend on what you choose to measure, how you choose to measure it, how you choose to interpret it, how you choose to communicate it. Same world, same data, different results.

So, actually, we particularly enjoy (and find significant) evading this kind of question.

As in the past, art has always been active/reactive in relation to other domains: sciences, technologies, politics, humanities, economy, market, marketing, activism, ecology, architecture, design.

Where Art comes about is in the coagulation of meaning.

Stepping aside from the possibility/opportunity to classify things, and looking at the scenario from a different point of view, art manifests itself whenever elements of current times interconnect and create meaning, significance, emotion, vision. Artists cannot avoid being 'contemporary.' Artists manifest themselves by acting as sensors to their own time, and 'connecting the dots' into the creation of artifacts, processes, actions or *interventions* which are particularly significant for their context. And, by doing so, they generate imagination, emotion, sensation and, most of all, the perception of possibility.

From this point of view: being inside/outside the Art World is not really a concern for Art, but, rather, for the possibility to sell art, which is obviously a perfectly interesting domain for investigation (just look at Hirst, for example, or, before him, at Warhol and his art as business / business as art).

And Art cannot avoid being *interventionist*. Art is a direct intervention on reality (as are architecture, design, sciences, business, communication). And, thus, art-as-intervention is that which creates a 'new-real.'

In this, the confrontational dimension also loses importance, as do all dichotomic approaches.

The focus on conflict has never really been successful, after all. We can see that even in contemporary times, in which the dynamics of *hacking* have already been absorbed by corporations, who commonly use the languages, grammars and visions of *hacking* for their own purposes.

What is really significant is *construction*, together with the creation of opportunities for *consciousness* and *awareness*, and with the possibility to *enable* and *include*.

This is, probably, a good description of *intervention*: to take an existing context and *construct* a space *in-between* which *enables* people to form *consciousness* and *awareness* of a certain set of possibilities.

"In *The Truth in Painting*, Derrida describes the *parergon* (*par-*, around; *ergon*, the work), the boundaries or limits of a work of art. Philosophers from Plato to Hegel, Kant, Husserl, and Heidegger debated the limits of the intrinsic and extrinsic, the inside and outside of the art object." (Anne Friedberg, *The Virtual Window: From Alberti to Microsoft* (Cambridge, MA: MIT Press, 2009), 13.) Where then is the inside and outside of the virtual artwork? Is the artist's 'hand' still inside the artistic process in the production of virtual art or has it become an irrelevant concept abandoned outside the creative process of virtual artworks?

Contemporary art projects are progressively more focused on process than they are on objects.

In this scenario, the possibility to discern something that we can call 'inside' from something that we can call 'outside' is mainly a matter of communication and interaction (which is a subset of communication).

We don't particularly find attractive the notion of *virtual artwork*, as it misses some points: the word *virtual* bears too many implications at cultural level, implying that it is *not-real*. Instead we truly believe about the *reality* of the projects which use technologies such as digital worlds, augmented reality and ubiquitous technologies. And we prefer describing them as *neo-real*.

In our project called *Squatting Supermarkets*, presented for the first time in 2009 at the Share Festival in Turin, Augmented Reality was used to create an intervention in supermarkets all over the world, using the logo of products as *markers* for AR. In that project, which was greatly inspired by Julian Oliver's *Artvertiser*, we used computer vision to augment the experience of supermarkets, to enable free expression in a typical location in which very few voices and points of view are expressed.

In this kind of work – which, basically, consists into conceiving and implementing a free/libre, accessible, tool for expression which enables anyone to intervene in a space – it is impossible and misleading to go and look for boundaries.

As for disciplines: arts, interaction design, engineering, architecture, social sciences all combine into an harmonious whole, and the artwork would simply not exist without taking into account all contributions.

As for times and spaces: they are not determinable, as people will be able to use it whenever they want, wherever they want, by simply pointing their smartphone at a certain product, capture its label image, and add augmented content to it; in whichever part of the world, whenever they wish.

As for people and usages: the technology at the base of the artwork is free and open source (it is released as GPL3) and anyone can re-enact the project whenever they wish, or they can even grab the technology and use it for something completely different; this has happened many times already, with people using it in university classes, activist projects, entertainment and other art projects; and we probably even know a limited number of the usage scenarios which have been enacted.

So, in the end: where does it start/finish? Our answer is that the question can be placed in a better format, as if it is possible to barely identify a *start* (is it?) it is definitely impossible and meaningless to describe an border. Because most of the artwork's significance is in its capability of constantly breaking that border and

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to establish new visions, new relationships, new possibilities, new opportunities. New realities.

Virtual interventions appear to be the contemporary inheritance of Fluxus' artistic practices. Artists like Peter Weibel, Yayoi Kusama and Valie Export subverted traditional concepts of space and media through artistic interventions. What are the sources of inspiration and who are the artistic predecessors that you draw from for the conceptual and aesthetic frameworks of contemporary augmented reality interventions?

Even if we use augmented reality in our practice, we have some difficulty in defining *augmented reality interventions*. AR is used in ways which form an ecosystem together with other elements to create an experience which brings on the meaning of the artwork. As with all art, we specifically value those practices which are able to create a *new-real*, a possibilistic view on the world which is able to reinvent reality.

Our inspiration comes from many places. Choosing randomly among them, we grab many insights from Dada and Surrealism, and the idea of questioning perception and society to create space for new possibilities; from the idea of *social sculpture* as described by Beuys; from the concept of *Business Artist* described by Andy Warhol; from the generative works of art by Sol LeWitt; from the view on the city of Benjamin, Lefebvre, de Certeau; from the *Images of the City* by Kevin Lynch; from Bateson's ecosystems; from Bhabha's views on the encounter of different cultures; from the ideas of interstices described by Goffman, to the idea of *engineered undesign* expressed by Koolhaas; from the interpretations of space of Setha M. Low to Christopher Alexander's patterns.

If we focus on art and critique, we have been truly influenced by the Critical Arts Ensemble's interventions on public space; by Debord's *dérives*; by Asger Jorn's and Pinot Gallizio's interventions.

Recently, on the themes of the augmentation of reality, we have been particularly influenced, as already said, by Julian Oliver's works.

In the representation and presentation of your artworks as being 'outside of' and 'extrinsic to' contemporary aesthetics why is it important that your projects are identified as Art?

Art has a very interesting role in society. It is both a sensor and an actuator. It acts on a strategic level, to identify and assess nodes for discussion, and it acts on the pragmatic level, to enact instances which are able to activate people and organizations, generating visions, emotions and opportunities for further expression.

In synthesis: it creates new space.

What has most surprised you about your recent artworks? What has occurred in your work that was outside of your intent, yet has since become an intrinsic part of the work?

It is amazing when a work of art gets disassembled and re-combined and re-assembled in other forms, enabling further forms of expression. In our work we release both the work itself and the technologies and methodologies which were used to create it. Often, people grab things and re-use them for other purposes, even in ways which are very far from their initial intended usage scenarios. This is one of the most outstanding goals which can be achieved in contemporary arts: the possibility to enable further expression, both by creating vision and by providing tools (of conceptual, methodological and technological nature).

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This also constitutes one of our main critiques to many art forms using augmented reality.

Many of them are based on the Layar platform. While we have nothing against using the tools which are available for expression, we feel that this practice misses many opportunities and produces a series of dangerous scenarios.

On the level of *missed opportunities* we feel that the use of a *free*, but not *libre*, technology in this kind of work is rather superficial: the idea of intervention in space by using a tool which is not *libre* is quite contradictory and limited. And we see these practices as being quite limited in scope. Yes, we know, now, that we can have a nice idea, design some 3D objects and interactivity for it and place it somewhere using AR and Layar; but there is no real development, advancement or progression in this. We are re-producing an idea under different forms, but we're not producing any other tools or any other vision or possibilistic scenario.

When different skills and competences combine we, instead, are able to go much further, being able to both produce novel tools and novel visions and scenarios, which we can then release for public use.

This is an ethical approach which we feel as being central to the arts of the contemporary era.

And, on the level of *dangerous scenarios*, we also feel that delegating the content and experiences of art to the closed, non-standard, inaccessible platforms of commercial service providers constitutes a dangerous scenario for the preservation of art and for the access to the cultural history of these times for the years to come.

This is the reason why we release all the technologies we produce under open licenses.

Again, in synthesis: we feel that the most exciting opportunity in contemporary art is to create new, accessible, free, usable spaces for reflection, re-interpretation and action; we are truly satisfied and amazed when this happens in real-life, and we do everything which is in our power to conceive and implement works of art which can foster further forms of expression in other people and organizations. ■

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SALVATORE IACONESI

statement & artwork

In our work scientific approaches harmoniously interweave to poetics in the observation of contemporary reality:

the study of history joins the observation of human life in the understanding of the present and to liberate the fluid and dynamic imaginaries of possibility. We want to describe a dimension of the future which is accessible ,reachable, and insightful.

This process – scientific and theoretical in its conception; (neo)material and pragmatic in its implementation – produces radical effects at the levels of methodology and of the generation of the visions and of the opportunities for social transformation. What we propose is an alchemical process – in its sense of connection, fusion and hybridization of disciplines and methodologies – aimed at achieving understanding and awareness.

Our main focus is the comprehension of the contemporary mutation of human beings. Digital technologies and networks have revolutionized the ways in which we study, work, collaborate, communicate and relate: the practices of our daily lives – just as the ones of science and academia – come out as completely transformed.

Talkers Performance, 2006, Salvatore Iaconesi and Oriana Persico. A dance performance in which the body of the dancer is controlled through web interfaces. Image courtesy of the artists. © Iaconesi and Persico, 2006.

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Talkers Performance. Salvatore Iaconesi and Oriana Persico. A dance performance in which the body of the dancer is controlled through web interfaces. Image courtesy of the artists. © Iaconesi and Persico.

This has cognitive impacts on our understanding of fundamental elements of our world: dimensions such as time, space, identity and relation constantly mutate altering the concepts of public and private, privacy, intimacy, interpersonal relationships. We perceive cities, spaces, bodies as different. Networks and technologies – now ubiquitous and accessible – transport us into new and unexpected locations, *in-between* continents, languages, cultures and emergent relations; enabling new forms of associative knowledge, synthetic memories, non-linear, multi-author, real-time narratives.

Angel_F, 2007, Salvatore Iaconesi and Oriana Persico. An artificial intelligence, born as a spyware, learns how to speak on social networks. Image courtesy of the artists. © Iaconesi and Persico, 2007.

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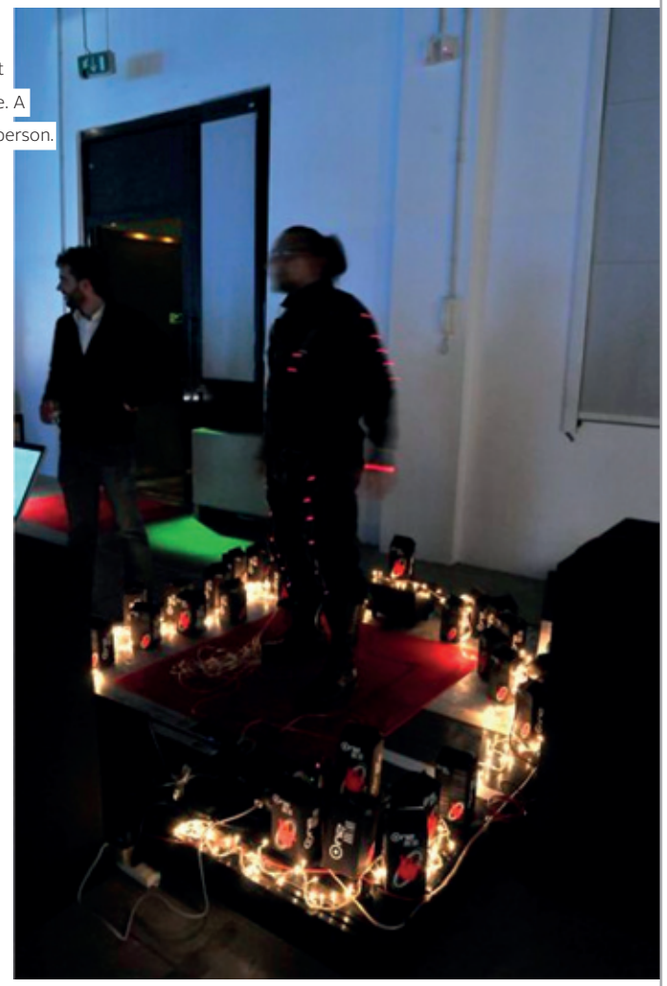

OneAvatar, 2007, Salvatore Iaconesi and Oriana Persico. The suit connects the body of the performer to the avatar on Second Life. A videogame in which you shoot the avatar and inflict pain on the person. Image courtesy of the artists. © Iaconesi and Persico, 2007.

AngeL_F, 2007, Salvatore Iaconesi, Oriana Persico. An artificial intelligence, born as a spyware, learns how to speak on social networks. Image courtesy of the artists. © Iaconesi and Persico, 2007.

It becomes difficult, if not impossible, to clearly define borders and delimitations: in space/time, concepts, disciplines. Technologies such as Augmented Reality allow imagining (and designing) reality as an infinite multiplication/stratification of points of view, literally building 'cities-over-cities.' Assuming isolated disciplinary approaches becomes tendentially irrelevant. Mash-up, remix, re-combination, re-contextualization, re-enactment and squatting become fundamental strategies.

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Squatting Supermarkets, 2009, Salvatore Iaconesi and Oriana Persico. An augmented reality supermarket. Scan the products' labels and turn them into places for augmented, emergent narratives. Image courtesy of the artists. © Iaconesi and Persico, 2009.

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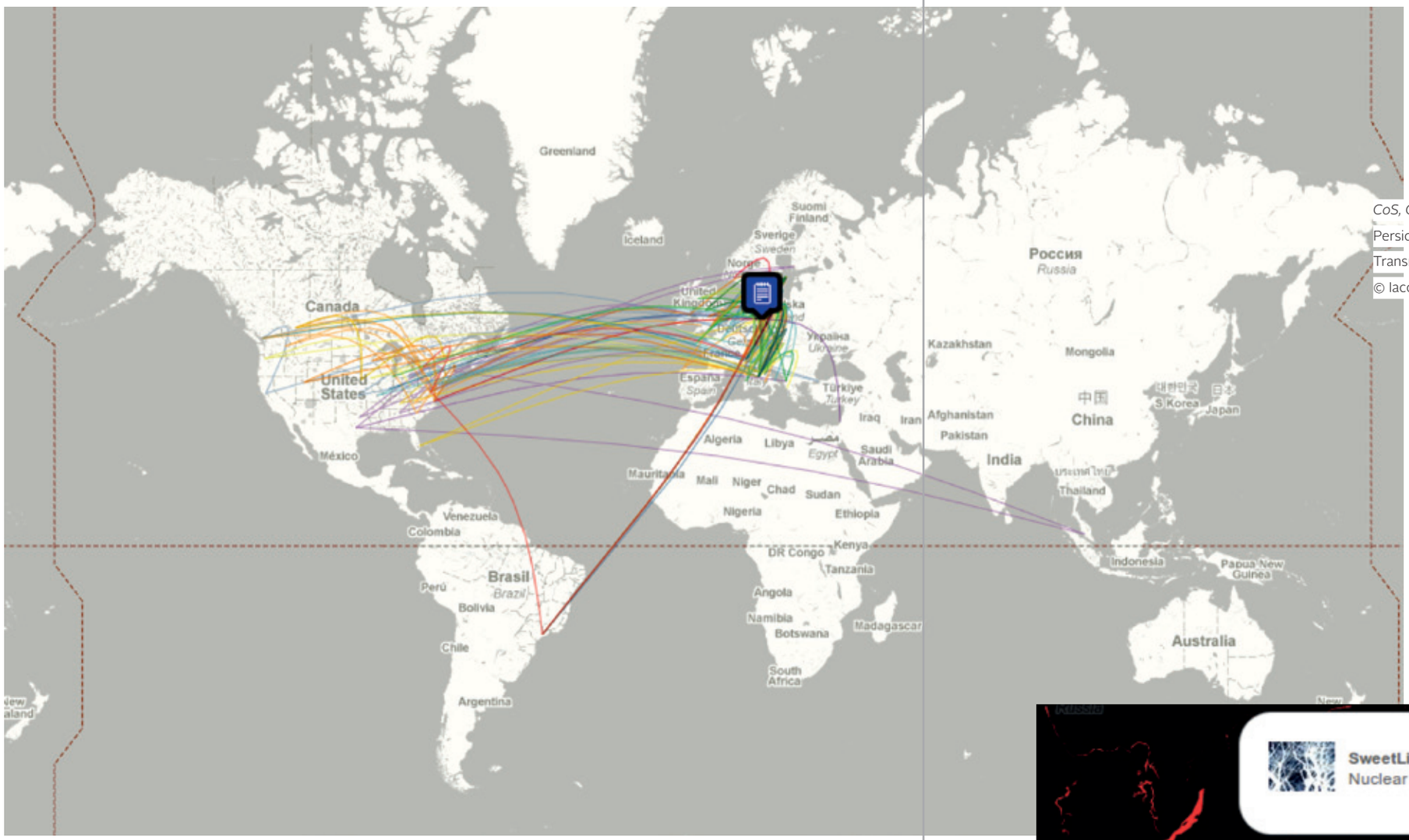
ARTWORK



CoS, Consciousness of Streams, 2011, Salvatore Iaconesi and Oriana Persico. A real-time emotional map of the planet. Presented at Transmediale festival in Berlin. Image courtesy of the artists. © Iaconesi and Persico, 2011.

NuclearAnxiety, 2011, Salvatore Iaconesi and Oriana Persico. After the Fukushima nuclear disaster, a planetary, real-time conversation on nuclear energy. Image courtesy of the artists. © Iaconesi and Persico, 2011.

Interstices – the borders which don't exist, the spaces *in-between* – are the fluid spaces in which intersubjective and intercultural experiences take place, creating scientific, cultural, economic, political, artistic, social richness.

Our desire: to "wear" this modality. Interstices, recombination of places, spaces, concepts; methodological mash-up; squatting of practices, places and disciplines; re-contextualization of technologies and techniques.

Our goal: to enable the emergence of vision, of poetics-politics, of the scenarios of possibility and imagination.

Our methodology: produce "new real." Arts and science; science and politics; politics and poetry; poetry and architecture; architecture and hacking; hacking and design; design and networks; networks and peer-2-peer. Peer-2-peer and art.

Our media: human beings; their presence in the world; their mutation. ■

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The Electronic Man, 2011, Salvatore Iaconesi and Oriana Persico. In occasion of the celebrations of Marshal McLuhan's Centennial, a global augmented sensoriality. Image courtesy of the artists. © Iaconesi and Persico, 2011.

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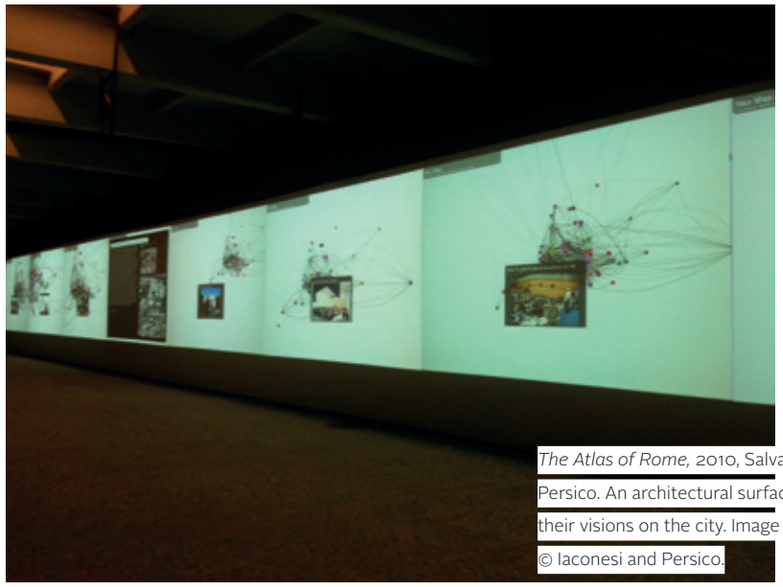
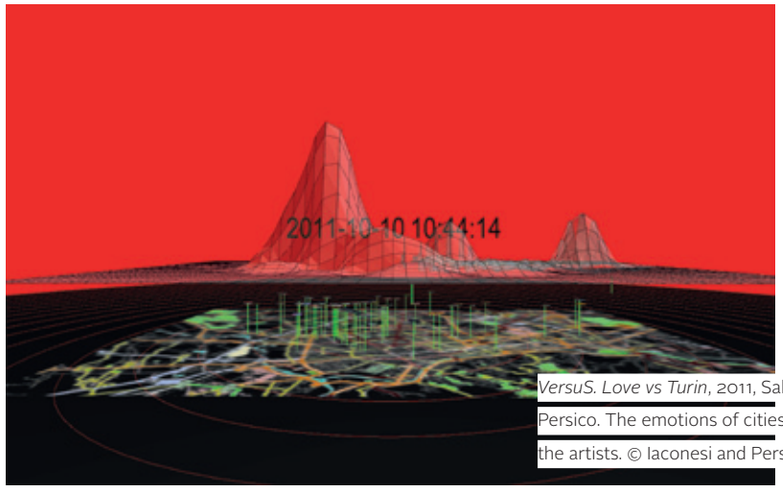
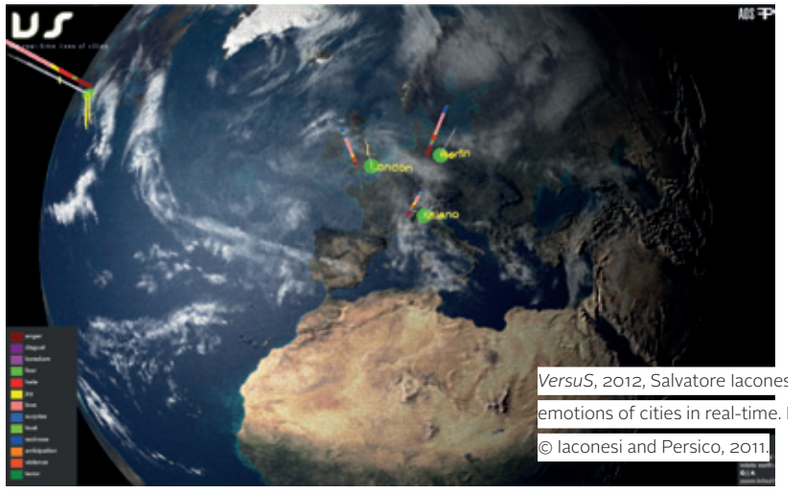


The Atlas of Rome, 2010, Salvatore Iaconesi and Oriana Persico. An architectural surface in which citizens can publish their visions on the city. Image courtesy of the artists. © Iaconesi and Persico.



VersuS. Love vs Turin, 2011, Salvatore Iaconesi and Oriana Persico. The emotions of cities in real-time. Image courtesy of the artists. © Iaconesi and Persico, 2011.



VersuS, 2012, Salvatore Iaconesi and Oriana Persico. The emotions of cities in real-time. Image courtesy of the artists. © Iaconesi and Persico, 2011.

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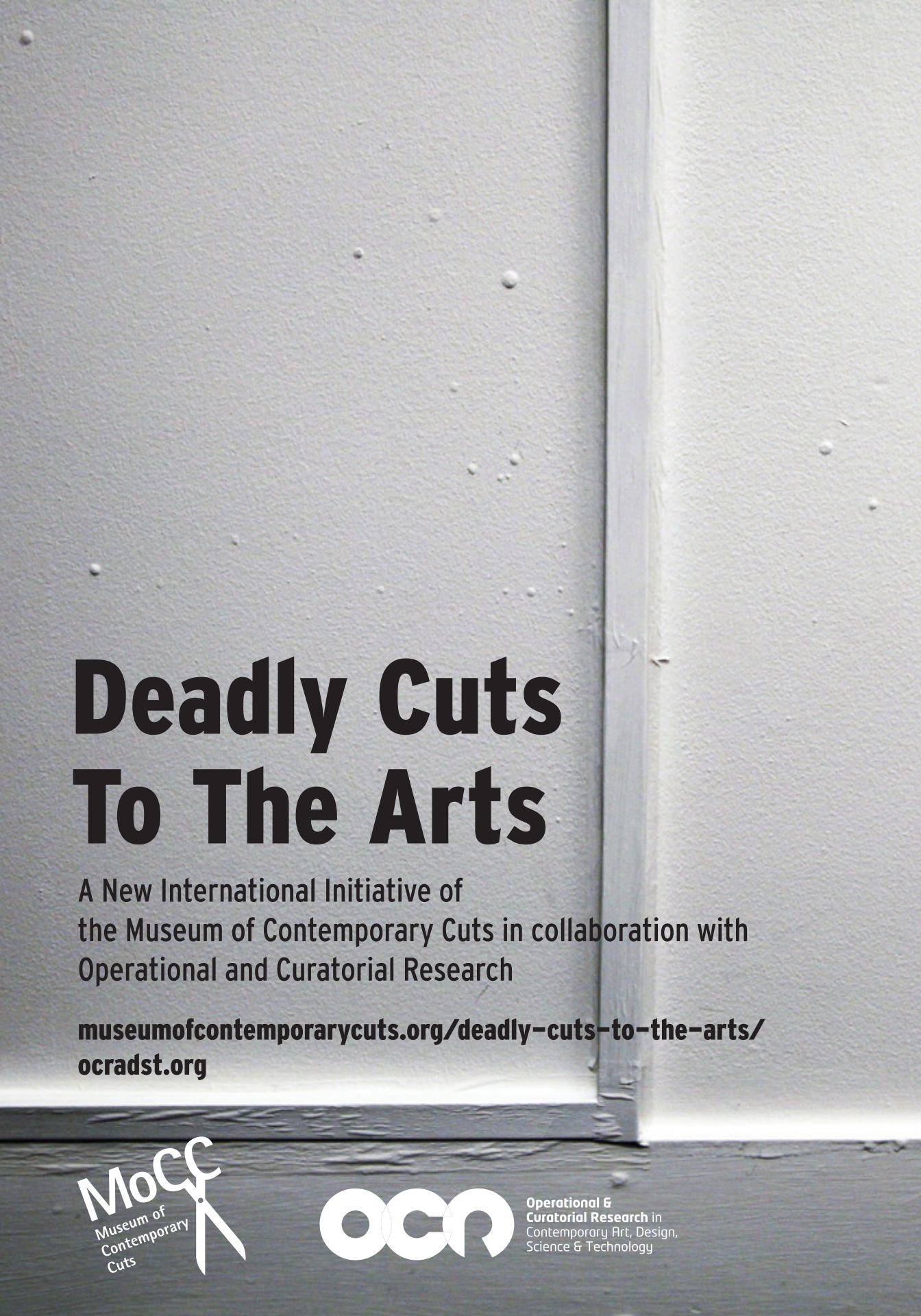

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