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.
Not Here Not There

Volume Editors
LANFRANCO ACETI AND RICHARD RINEHART
EDITORS
ÖZDEN ŞAHİN, JONATHAN MUNRO AND CATHERINE M. WEIR

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The Leonardo Electronic Almanac acknowledges the kind support for this issue of 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-
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 Biennale 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 biennials’ 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.’”

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 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.” 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 – 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 rescaled 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 gallerists 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 Tunick for his art events / human installations.

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 by-passing 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 capitalist 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, military and corrupt politicians. They work for years.
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 engage audiences with minimal hassle and at relatively low costs. These are the reasons why I believe that this collective strategy of representation summarized by “site vs. non-site”...
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ConnectiCity, augmented perception of the city

by

SALVATORE IACONESI & ORIANA PERSICO

Salvatore Iaconesi
La Sapienza University of Rome
ISIA Design Florence
Rome University of Fine Arts
IED Rome
salvatore.iaconesi@artisopensource.net

Oriana Persico
La Sapienza University of Rome
oriana.persico@gmail.com

1. INTRODUCTION

We constantly re-program the spaces around us. Bradford
As pointed out by Edward Krupat and William Guild, and Jack L. Nasar and Susan L. Scheiberg 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.”

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.

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

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

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 and altering our understanding of the spaces around us.

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.”

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 space, in both its form and function, creating a definite shift in the definition of (urban) landscape: from a purely administrative one, constantly 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.

The possibility to access these multiplied definitions of space alters 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 suggested that the augmentation of architecture, should include the concepts which originally underpinned the inception of the World Wide Web. Allowing 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...
forms of reading/writing of spaces, symbols and configurations, moving fluidly across digital and physical domains.

Nicola Green 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 using Geo-referencing, Geo-Parsing and Geo-Coding techniques;
- 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;)
- 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;
- 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 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;
- 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.

**Relattiva presenza**
The first prototype was designed in Mexico City at the Franz Mayer Museum, and it was titled “relattiva presenza.” The occasion for this project was the presentation of the paper “architettura relativa” 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.

“Relattiva 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 Coyocan 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, 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 “relattiva 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 “RelAttiva 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 Coyocan 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.
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 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, 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).
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. 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 Bokm 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 99,000 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.
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.

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 an area 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-

![Image](image-url)
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 on the map and in Air, 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 protesters, around 12,000 information elements have been found to be of significant strategic value in understanding police movements and strategies, and enabling us to highlight how multiple agencies re-interpret space reveals novel positive scenarios.

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 6 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.

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 and temporal configurations expressed in cities 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 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.
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.

These methodologies for real-time observation of cities can be described as a form of "ubiquitous anthropol ogy," 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.

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

ConnectCity, including the Atlas of Rome, ConnectCity Neighborhood edition, Architettura relattiva
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
REFERENCES AND NOTES

29. Shuq Abe et al., “Mining personal experiences and opinions from Web documents,” Web Intelligence and Agent Systems 9, no. 2 (2011).
INTERVIEW

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 meanings and awareness, and with the possibility to enable and include.

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). “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 A.I. In that project, which was greatly inspired by Julian Oliver’s Arter-
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. Art 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 Deleuze’s dérives; by Asger Jorn’s and Pinot Galizio’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).

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 30 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.
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.

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.


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.


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.


Deadly Cuts To The Arts

A New International Initiative of the Museum of Contemporary Cuts in collaboration with Operational and Curatorial Research

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