ARTWITTER
The Reinterpretation of Social Networks

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Abstract

Ant farm was a collective group of architects established in 1968 in San Francisco. Through critiquing the reversal of TV and automobile, Ant Farm reinterpreted television into Inflatable Architecture and Inflatocookbook, and reinterpreted automobiles into the Media Van and Truckstop Network. Ant Farm created a techno-utopia for “nomads” in the 1960s. By bridging their designs with the media theories from Marshall McLuhan, I develop a method from McLuhan’s Laws of Media, called Media Interpretation, to decomposed Ant Farm’s design process.

The Media Interpretation contains four processes: taking advantage of what the media enhance, rejecting what the media reverse, redesigning what the media retrieve and participating in what the media make obsolete.

Based on the background research, my thesis shifts its focus on the pervasive media from 1960s to today and applies the method of Media Interpretation as a design and critical tool. My thesis chooses social networks to critique, from which I reinterpret social networks into an application Artwitter. Through combining social networks with augmented reality, Artwitter enables its users to post their moments as texts, graffiti or virtual objects in the physical world. Artwitter extends the mechanism of social networks to offline social awareness to engage its users into social interaction in the physical space. Artwitter also releases the power of crowd-sourcing physical spaces to explore the potential of reconstructing the physical world with virtual objects.

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1 Introduction

Today digital media are changing our society radically from all perspectives: the prevailing digital technologies raise questions of what architecture should be and how the relationship between human and the physical environment can be redefined. Architecture today is not only constructed by concrete, steel, glass, wood and other physical materials, but also constructed by virtual objects and our experiences.

In my daily life, I realize that the online communities are so powerful that they distract our attention from the physical space. I have experienced in public space where almost everyone was focusing on the screens of their phones. We do occupy the space, but we are not connecting with our physical environment.

To address the central questions of the future design of architectural space and urban form in terms of media, a question related to how the design of physical spaces detaches from the conventional design thinking should be addressed. The spaces in architecture should not be merely a conventional design equipped with the new media, but a different design paradigm that further extends into a broader urban context. Media Ecology raises three assumptions about media: “media is infused in every act and action in society; media fixes our perceptions and organizes our experiences; media ties the world together.”

The question about mediate architecture drives me to investigate to the last era of radical social change the 1960s. It was an age at the point of the maturity of electric media and the emergence of digital media. In this surge of radical change, a series of groups of architects emerged in this counterculture movement after the World War II. They included the Archigram, Coop Himmelblau, Haus- Rucker- Co, Ant Farm, Buckminster Fuller and Reyner Banham. They were architects who had realized the social changes brought about by electric media and tried to explore new forms of mediated architecture and society that broke away from the mass produced architectures of modernism, the fixedness and heaviness of the brutalism and homogenization of modern urbanism through a series of architectural experiments and performative events.

My background research starts from the practices of Ant Farm and the theories of Marshall McLuhan.
2 Background

This chapter investigates the practices and ideas a group of architects, called Ant Farm, and also a media theorist, called Marshall McLuhan.
2.1 The past media evolution

The 1960s is an age at a point of the maturity of electric media. According to McLuhan, the history of media is divided into four periods: the tribal age, the literate age, the print age and the electronic age. Electric media were the pervasive media in 1960s. In McLuhan’s idea, before the invention of electric media, media was an extension of the human body. Electric media was extending humans’ nervous systems, whereby our thought and behavior and the way we sense the world were altered. He also claimed that the electric media would change the way we communicate and further cause transformation of our society².


Figure 3. a series of groups of architects emerged in this counterculture movement after the World War II
2.2 Research on Ant Farm and Marshall McLuhan

2.2.1 Ant Farm

Ant farm (Figure 4) was a collective group of architects established in 1968 in San Francisco by Chip Lord and Doug Michels, later joined by Curtis Scherier. Their work included architecture, installations, and media arts.

Ant Farm’s work was a critique of the pervasive media in the 1960s—televisions and automobiles and a promotion of the nomadic life style as a counterpoint of the existing society. According to an architectural theorist Felicity Scott, Ant Farm’s work was “based on the promise of a new, cybernetic society in which people are free to follow nomadic patterns and form their own fluid, evolving communities based on common lifestyles, vibes and where their heads are at.” Their work was also an “investigation into the potential geopolitics of quickly expanding communication networks.”

Figure 4. Ant Farm
2.2.2 Marshall McLuhan

Marshall McLuhan (Figure 5) studied media theoretically as a social phenomenon in the 1960s. In his theory, he broadened the concept of media and developed a scientific method to understand the social impacts of a medium.

He defined the power of a medium as not the information it carries, but the way it works as a tool for content delivery. According to him, media are the extension of the human body. The ways that media work, in his perspective, created new pressures, therefore extending the existing social structure and generating new needs and new technological responses. McLuhan defined this technological development as recursive loop in which “every technology creates new stresses and needs in the human beings who have engendered it and the new need and the new technological response is born of our embrace of the already existing technology.”


Figure 5. Marshall McLuhan
2.2.3 Laws of Media

Marshall McLuhan summarized a scientific methodology to understand the social effects of any media or technology in the theory—*Laws of Media*—(Figure 7) by dividing the effects of a medium into four sets: Enhance, Reverse, Retrieve, Obsolesce.

Enhance: What the medium amplifies or intensifies.

Reverse: What the medium does when pushed to its limits.

Retrieve: What the medium recovers which was previously lost.

Obsolesce: What the medium drives out of prominence.
I try to understand two pervasive media—automobiles and televisions—in the 1960s by McLuhan’s analytical tool: the Laws of Media.

**Laws of Media on automobile (Figure 7)**

**Enhance**: What automobiles amplify or intensify is the speed of movement.

**Reserve**: What automobiles do when pushed to their limits is suburban sprawl.

**Retrieve**: What automobiles recover which was previously lost is the nomadic Obsolesce: lifestyle. What automobiles reduce is the prominence of community.
Laws of Media on television (Figure 8)

**Figure 8. Understanding Television by the Laws of Media**

**Enhance:** What television amplifies or intensifies is graphic information.

**Reserve:** What television does when pushed to its limits is consumerism.

**Retrieve:** What television recovers which was previously lost is non-professional.

**Obsolesce:** What television reduce the prominence of social interactivity.
The reversal of media

When the pervasive media were pushed to the limit, according to McLuhan’s theories, they reversed. As we witness in the 1960s, the pervasive media gained an irrational influence on urban form and social interactivity. Humans always failed to avoid pushing media to their limits: automobile contributed to traffic jam and suburban sprawl (Figure 9) and television contributed to consumerism (Figure 10).

Ant Farm was engaged in the countercultural movement of critiquing these social changes. They created video art work as a critique of the television and automobile. They also created architectural experiments and performances to promote their ideas of social ecology and mobility.

Figure 9. Suburban Sprawl

Figure 10. Consumerism
The timeline of the technologies from the 1900s

Figure 11 is the timeline of the emergence of new technologies from the early 1900s, which can be used to look at Ant Farm in a broader social and technological context.
The timeline of Ant Farm's works

Figure 12 is the timeline of Ant Farm’s works. Their works included installations, architecture, urban designs, video art and performances.

Figure 12. The Timeline of Ant Farm’s Works
2.3 Media Interpretation as critical and design method

My thesis looks back to the analytical results of the automobile and television by using McLuhan’s *Laws of Media*. From here, I decomposed ant farm’s design methodology of media interpretation into four process (Figure 13):

*Figure 13. Media Interpretation*

- **Enhance-**
  - Take Advantage of
  - Takes advantage of the enhancement of automobiles and television.
- **Reversal-**
  - Reject
  - Rejects the reverse of automobile and television.
- **Redesign**
  - Redesigns and promotes the retrieve of automobiles and television.
- **Participate**
  - Participate
  - Participates in the obsolesce of automobile and television.
2.4 From automobile to Media Van

Ant Farm reinterpreted the automobile into the Media Van and the Truckstop Network (Figure 16) by taking advantage of the speed of movement, rejecting the suburban sprawl, redesigning and promoting the nomadic lifestyle and participating in their new form of community. They envisioned the lifestyle of citizens with Media Vans (Figure 14) and the Truckstop Network (Figure 15) as a way to “redefine territory within communications networks rather than through older forms of geography.”


Figure 14. Media Van

Figure 15. Truckstop Network
Figure 16. Reinterpreted the Automobile into Media Van
2.5 From TV to inflatable architecture

Ant Farm reinterpreted the television into an inflatable architecture and Inflatocookbook (Figure 18) by taking advantage of the graphic information, rejecting consumerism, redesigning and promoting the non-professional knowledge and participating in their new form of social interactivity. The inflatable architecture provided a new kind of self-controlled environment. In the meantime, Inflatocookbook (Figure 17) enable everyone to build their own inflatable architectures. As Scott claimed, “It demonstrates a type of architectural “knowledge” about new relations of production and new forms of power as they emerged in Media.”


Figure 17. Inflatable Architecture and Inflatocookbook
Figure 18. Reinterpreted television into Inflatable Architecture
2.6 Techno-utopia for Nomad

Their design was extended into a subcultural urbanism and lifestyle, including the Truckstop network connected by TV cables, facilitating the nomads who lived in the Media Van and an inflatocookbook as a guidance enabling everyone to create inflatable architecture by themselves. As Scott said, their design was not “an escape into nature” but “something closer to an investigation into the potential geopolitics of quickly expanding communication networks.” They envisioned a techno-utopia, as a “fragmented city distributed between major American cities”, for the nomadic lifestyle." (Figure 19)

3 From 1960 to Today

In this chapter, my thesis shifts its focus on the pervasive media from the 1960s to today and to apply the method of Media Interpretation developed from the research on Ant Farm’s works and McLuhan’s theories as a design and critical tool. My thesis places the new subjects today into Ant Farm’s design framework.
3.1 Changing Subjects

Through critiquing the reversal of the pervasive media- TV and automobile- Ant Farm reinterpreted them into inflatable architecture, Inflatocookbook, Media Van and Truckstop Network, and created a techno-utopia for nomads in the 1960s.

Three subjects have changed today: First, the technology has changed from electric media to Internet media; second, the communities have changed from techno-utopia to heterotopia; third, the humans have changed from nomad to digital nomad.

Electric Meida    →    Internect Media

Techno-utopia    →    Heterotopia

Nomad           →    Digital Nomad
3.2 Pervasive media today- social network

My thesis chooses the pervasive media today the social network to critique.

Here is definition of social network: Social network is online platforms to build up social relations among people who share similar interests, activities, backgrounds or real-life connections.

I try to understand the pervasive media- social network- today by using McLuhan’s analytical tool: the Laws of Media. (Figure 22)

Enhance: What the social network amplifies or intensifies is connectivity and information generation.

Reverse: What the social network reverses is disconnection in physical space.

Retrieve: What the social network retrieves is news broadcasting.

Obsolesce: What the social network makes obsolete is face to face communication and interaction.

Enhance: What the social network amplifies or intensifies is connectivity and information generation.
Reverse: What the social network reverses is disconnection in physical space.
Retrieve: What the social network retrieves is news broadcasting.
Obsolesce: What the social network makes obsolete is face to face communication and interaction.
3.3 From Nomad to digital Nomad

In the 1960s, “nomad” was used by Marshall McLuhan to refer to people living in the electric age as nomadic information gatherer. As he wrote “…the food-gatherer reappears incongruously as information-gatherer. In this role, electronic man is no less a nomad than his Paleolithic ancestors.” The nomadic information gatherers were referred to those who liberated themselves from the mechanical age and were no longer bonded to daily repetitive tasks. Electric, in McLuhan’s perspective, would eventually lead to digital mobility.

From the 1960s to the 1970s, riding the wave of countercultural movement, nomads also emerged as road nomads. “Nomadic truckitecture” was invented by Chip Lord referring to those automobiles transformed into mobile dwellings. The road nomads lived like hermit crabs, carrying their shells to shelf themselves. The shells are like their automobiles and what they carried- baggage, cables, disks, batteries and so on. In contrast to McLuhan’s idea, truckitectures were more of physical mobility than digital mobility.


From the 1970s to the 1980s, nomad culture was developed into a theory called “nomadology” by Deleuze and Guattari. In nomadology, nomad was referred to a status without identity to overcome the limitations of nationalism and to resist the hierarchy of centralization. The environment was as well turned into a smooth space, in which structures was detaching from the center and creating a new center as an iterative process. In contrast to migrants who were reterritorialized, nomads decentralized in smooth space and were not defined by movement. From Deleuze and Guattari’s nomadology, nomad culture went beyond the limitation of digital and physical mobility and was developed into a mental mobility, a multidimensional interrelationship between humans and the environment.

From 1983 to 1991, Steve Roberts was the first one to practice the nomadic life by combining the primitive technologies of physical and digital mobility, at a time when cellular phones did not yet exist and online service was for text only. He made himself a computerized recumbent bicycle and equipped it with a solar-powered primitive computer and communication technologies, whereby he began his nomadic life as a freelancer writer who worked in the move instead of in the office. It took Steve Robert 8 year to pedal about 14000 miles around the US.


In the 1990s, Tsugio Makimoto and David Manners published a book called *Digital Nomad*. In *Digital Nomad*, the authors were predicting that the development of computer and telecommunication technology would bring human back to nomadic state. Human were no longer hounding to a fix place, but could work wherever and whenever they wish. They also explored the technology triggering this lifestyle, but also pointed out that this was more to nomadism than the technical ability. However, what Tsugio Makimoto and David Manners explored were only the lifestyles of global nomads.

In 2003, William Mitchell explored the nomad culture in *Me++: The Cyborg Self and the Networked City*, the implications for the human body and the human identity what he called the networked city.

Throughout the history, I found that the meanings of nomad culture were developed along with advances in transportation and communication. Before the invention of electric technology, nomads only existed on the physical level. Humans were the first born nomads living while moving for resources. After the invention of trains, automobiles and other transportation tools, the speed of transportation was tremendously increased. Transportation shrank the concept of distance. Humans gained more freedom in moving. Since the notion of space was changed by these transportation technologies, cities were planned to fit it better. Suburbs and highways emerged, and our lifestyle
changed. The invention of electric technologies brought larger changes for humans. They broadened nomad culture from the physical level to the virtual level. Before the invention of electric media, communication was restricted to limited formats and slow speed. We communicated by talking face to face or sending mails. Electric technology such as TV, radio and telephone greatly increased the capacity of information and enabled information to be sent and processed instantly. McLuhan was the first media theorist who brought the idea of the digital nomad into our attention when elaborating the invention of electric media. In Ant Farm’s work, digital nomad culture was incorporated into their architectural projects such the Media Van, Truckstop Network and inflatable architecture to explore the “geopolitics of quickly expanding communication networks” and to redefined “territory within communications networks rather than through older forms of geography.” Later on, with the invention of cell phones and wireless network, information in different formats could be sent in a second. In the practice of Steve Roberts and the theory of Tsugio Makinoto, humans were proved to be geographically free. They defined digital nomads as humans who live and work on the move.

In my thesis, I define digital nomads as those who have pushed the media of social networks to their limits, suffering from the reversal of social networks. Digital nomads maintain permanent connectivity online by their mobile devices while they disconnect offline and move less and less.

1960s
McLuhan's nomadic information gatherer

1970s to 1980s
Nomad culture was development into a theory called "nomadology" by Deleuze and Guattari

1960s-1970s
Road Warrior

1983 to 1991
Steve Roberts's first practice of a nomadic life
1990s
Tsugio Makinoto and David Manners published a book called Digital Nomad.

Nomads with different portions of physical, digital or mental mobility was classified by Yasmine Abbas into different catalogues.

2003
Mitchell explored in Me++: The Cyborg Self and the Networked City

Figure 23. The Timeline of the Concept of "Digital Nomad"
3.4 From techno-utopia to Heterotopia

Utopia is a word derived from Thomas More’s book, *Utopia* (Figure 24). In this book, Utopia is a fictional island, a society with imaginary social morals, social classes, laws, cultures, including everything to make it functional. Utopia served as a critique of the existing society at that time.  

Techno-utopia was representative of Ant Farm’s work. Techno-utopia was a technological oriented society envisioning the development of technology would eventually lead to an ideal society. It was a society “based on the promise of a new, cybernetic society in which people are free to follow nomadic patterns and form their own fluid, evolving communities based on common lifestyles, vibes and where their heads are at,” according to Scott.

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The concept of heterotopia was elaborated by Foucault in his paper, “Of Other Spaces”. He described a heterotopia as a space that disrupted the continuity and normality of common everyday places. Because they broke down boundaries within and between places into spaces of ‘otherness’, Foucault called them heterotopias.

The term heterotopia was further developed as a word to describe the transformation of art and everyday life by Gianni Vattimo in The Transparent Society. He described the radical transformation of art and everyday life since the 1960s as a “transition from utopia to heterotopia”. According to him, utopia was referred to “generalization of design, a universal social hygiene with regard to forms and rehabilitation of existence”, while heterotopia referred to social aesthetics, the “experience of beauty characterized by mutual recognition within a community” and “an unfolding capacity of the aesthetic product to ‘make world’”.

The term heterotopia was also developed by urban researchers Michiel Dehaene and Lieven De Cauter to describe the transformation of public spaces in their book, Heterotopia and the City. According to them, the debate on the public-private dichotomy had “worn out its analytical force” and “heterotopia” brought new life to the irreconcilable debate in our age. Heterotopia was used to describe the transformed contours of public and private spaces from the age of mass media to the age of social networks.
In my thesis, instead of designing a techno-utopia based on the critique of social network, my thesis claims that by using the technology of social network, any “subcultural society” is no longer imaginary, but can be defined as an “enacted utopia”, which can be also defined as a heterotopia.

First of all, communities on social network exist as virtual layers in our physical world. As Ensslin, Astrid, and Eben Muse said, “The foundational feature of virtual worlds is that they are places”. They do exist as multilayers and are symbiotic with our world, but do not belong to anywhere. Moreover, the invention of augmented reality makes it possible to embody virtual layers in our physical world, as “a place without a place, that exists by itself”.

Second, communities in social network emphasize on different users’ generated contents, such as crowd-sourcing, moment sharing and improvisation. As Siebers described heterotopia, they are built on the “embrace of differences, where different forms of talk are allow to exist simultaneously, and where heterogeneity does not inspire conflict.”
3.5 The heterotopia for digital nomads

In summary, by analyzing the three changed subjects, my thesis characterizes the third column of key words to describe my view of the Internet: heterotopia for digital nomads, based on the chart from the preface of Understanding Media (Figure 25).

The pervasive social networks today can be described by the keywords in the third column.

“Digital nomad” refers to those who push the social network to the limit and suffer from the reversal of the social network.

“Connect” refers to the status of digital nomads, which is permanent connectivity.

“Multilayer” refers to the structure of the world between the physical and the virtual.

“Crowd-sourcing” refers to the new pattern of collaboration that emphasizes the contribution of every social unit.

“Moment” refers to the contents we generate in the social network.

“Symbiotic” refers to the increasingly closer relationship between the physical and the virtual.

“Improvisation” refers to interaction between digital nomads.

Through critiquing the reversal of the pervasive media- the social network, my thesis reinterprets them into Artwitter, a mobile application combining the technology of social network and augmented reality, and creates a heterotopia for digital nomads today.
<table>
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<th>Print</th>
<th>Electric</th>
<th>Internet</th>
</tr>
</thead>
<tbody>
<tr>
<td>citizen</td>
<td>Nomad</td>
<td>Digital nomad</td>
</tr>
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<td>build</td>
<td>Wander</td>
<td>Connect</td>
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<td>center</td>
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<td>soliloquy</td>
<td>Chorus</td>
<td>Improvisation</td>
</tr>
<tr>
<td>Authority</td>
<td>Power</td>
<td>Crowd-sourcing</td>
</tr>
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*Figure 25. The Chart from the Preface of Understanding Meia*
4 Artwitter

In this chapter, my thesis interprets the social network into Artwitter by combining augmented reality with Twitter. Arttwitter extends the mechanism of social networks to offline social interaction, by combining social network with localized based augmented reality, which embraces the connectivity of social networks to engage its users into authentic connection offline.
4.1 Introduction to Twitter and Augmented Reality

The word “Artwitter” is coming from the combination of AR (augmented reality) and Twitter (a pervasive social network).

4.1.1 Twitter

Twitter: Twitter is a global online social network that enables users to “twit” and read short 140-character messages and images online called “tweets”. Messages and images broadcasted by the users are publicly spread in their social network online.


Figure 26. The proportion of Different Kinds of Contents Generated on Twitter

Figure 27. The Global distribution of Twitter’s Users
4.1.2 AR (Augmented reality)

AR (Augmented reality): a technology to augment our view of the physical world with digital-generated objects. According to the existing application, computer-generated inputs such as sound, videos, graphics and 3-dimensional objects can be applied to modify our physical world. Virtual objects can be located by using target recognition and GPS location, and can be seen through the cameras of our devices.

Figure 28. Application of AR in commercial

Figure 29. Application of AR in public art by RE+ PUBLIC
Application in the House of the Future

Figure 30. Application of AR in the House of the Future
4.2 Interpret Social Network into Artwitter

From my thesis’s background research, I decompose Ant Farm’s design process into four steps, which I define as Media Interpretation. Media Interpretation provides a framework for design based on critiquing the pervasive media. Based on the framework of Media Interpretation, my thesis designs Artwitter from my critique and reinterpretation of the social network.

Media Interpretation reinterpreted the social network into Artwitter (Figure 31):

**Taking advantage of the enhancement of the media:** Artwitter takes advantage of the connectivity and information generation of the social network.

**Rejecting the reversal of the media:** Arttwitter rejects the disconnection in physical resulting from the reversal of the social network.

**Redesigning the retrieve of the media:** Artwitter redesigns news broadcasting.

**Participating in the obsolete of the media:** Artwitter encourages its users to participate in physical interaction.
Media Interpretation

Enhance -
Take Advantage of

Reversal -
Reject

Redesign
Participate

Retrieval -
Obsolesce -

Media Interpretation

Enhance -
Connectivity
and information
sharing

Reversal -
Information overwhelm,
disconnected in physical

News broadcasting
Physical interaction

Retrieval -
Obsolesce -

Figure 31. Reinterpreted Social Network into Artwitter
4.2.1 Introduction to Artwitter

Artwitter is a mobile phone application which focuses on building up connection in the physical space rather than in cyberspace, by combining the technology of social network and augmented reality. Artwitter enables its users to place texts or graffiti in the physical space called “Artweets” which can be seen through the cameras of our mobile phones. The Artweets are visible to public or specific recipients. The size of the Artweet increases by the numbers of likes and comments it gets.

Figure 32. The Logo of Artwitter

Figure 33. Scenario of Artwitter
Augmented reality (AR)
is a live direct or indirect view of a physical, real-world
environment whose elements are augmented (or
supplemented) by computer-generated sensory input.

Twitter
is an online social networking service that enables users to
send and read short 140-character messages called
"tweets."

Figure 34. Artwitterbook
4.2.2 How does Artwitter work

Figure 35. Type in text or create graffiti to share your moments, ideas and mood

Figure 36. Attach the your desired location
pop up Artweets to

Figure 37. The other users around you within 100 meters
Figure 37. The moment shows up when the sender is within 100 meters
Figure 38. The moment disperses when the sender left
Figure 39. Other users who see the Artweet can "like" or comment by tapping the button on the screen.
Figure 40. The filter function allow the its users to filter the moments in a space by different tag. Such as by gender, by timeframe, by age, by season, by weather, by popularity, by event.
Figure 41. The author of the Arctweet will receive notice when people liked or commented on his Artweet
Figure 42. The size of the bubbles increase by the numbers of likes you get.
4.2.4 Precedents in combining social network to AR

Sharing Journey

In 2013, I collaborated with Orit Giguzinsky and Jonathan Speiser to created an app called Shared Journey. Shared Journey creates a system that enables users to leave private messages in the public space in a way that is only visible to the message receivers. The system will notify a user when they get a message, telling them where the message is located.

The technical solution is to create an Android application that allows users to capture an image to create a virtual target. Using image feature recognition software, the virtual target can be detected by other users with their mobile phone cameras. The image target can be sent to friends along with the location where the target was saved and a hint that would enable the receiver to find the target. Furthermore, we can enable the user to create virtual objects on this target using OpenGL. When a user correctly scans a target that is sent to them, the original virtual objects added by the originator of the target will become visible to the recipient.

*Figure 44. The App Sharing Journey*
Figure 45. Login page

Figure 46. defining the location

Figure 47. object list

Figure 48. composing message

Figure 49. sending message

Figure 50. receiving the message

Figure 51. viewing the location

Figure 52. view the message

Figure 53. a map showing all the location of the received message
Trace

Traces is an app for iPhone and Android designed to bring emotional meaning and physical relevance to digital interaction and content sharing. It enables its user to send messages directly not to people, but to places by GPS that can be received by waving one's phone five meters within the location. The message is designed with augmented reality that can be seen through the cameras of our phones.

Beau Lotto's research shown that people feel more meaningful and closer to the senders by receiving messages on Trace rather than by conventional messaging app. He said, “Our research shows that people rate content received through Traces as better and more meaningful than the same content received through conventional messaging apps. It also increases their sense of closeness to the person or brand sending it.”

Figure 54. The User Using Trace to Receive Messages
ZeeWhere

ZeeWhere is an app that enables its user to detect the other users around by location, friends and popularity through augmented reality. The camera on the phone will detect the ZeeWhere users and show their profiles to the users. More than connecting people through common friends, ZeeWhere focuses on connecting its users to the people around. Chat and follow are allowed between strangers.33
The idea of Twitter 360 is that it uses your phone's camera view combined with your GPS position to show you where those people, which you follow, last follow tweeted from. The practical use in its current state is arguable but if, instead, their information overlayed onto the real scene were tags of locations where people had tweeted in the past, that could be more interesting. Rather than being about where your friends are now, it suddenly becomes more about the context of what people were looking at to inspire them to tweet in the first place - a bit like a series of very minor event blue plaques but possibly interesting nonetheless.
Photos Around

Photos Around is another interesting take on this kind of thing. Rather than tweets, the information overlay this time, to anyone holding up their mobile phone camera to the world, are tags with photos attached to them. The app leverages online place-based picture service Panoramio and let’s you stand in the location where those shots were taken. It’s an application that’s probably more touristy than anything else but it does bring up an interesting idea of having media associated to a virtual tag - something we’ll get on to in a minute. 


Figure 57. The Scenario of Photos Around
4.2.5 Graffiti by augmented reality

Second Surface

Second Surface is a multi-user spatial collaboration system based on augmented reality. The purpose of Second Surface is to create an environment for creative collaboration to enhance human communication and expressive activities. It is a system that allows real-time interaction for user-generated contents on top of the physical environment. Users are allowed to collaboratively place three-dimensional drawings, texts, and photos on the top of everyday objects. Second Surface explores the integration of collaborative virtual spaces with the physical space."
Figure 59. The Diagram of How Second Surface Works

Figure 60. The Diagram of How Second Surface Works
4.2.6 Current limitation of augmented reality

The major trouble with these applications are the ways they work. There are two ways to implement augmented reality by using our current smart phones: one is target recognition by the camera and the other one is location recognition by GPS.

The problem of camera recognition is the ability of the camera to detect features under varying conditions, such as varied lighting. Under the wrong conditions, features could become unrecognizable to the camera.

The problem of location recognition is the frustratingly inaccurate GPS system. It consults the Internet and then tells users what GPS thinks is supposed to be nearby. In terms of functionality, GPS is arguably no better than getting the same information on a map³⁶.

4.2.7 Introduction to Project Tango

Project Tango technology gives a mobile device the ability to navigate the physical world similar to how we do as humans. Project Tango brings a new kind of spatial perception to the Android device platform by adding advanced computer vision, image processing, and special vision sensors. Motion tracking allows a device to understand position and orientation using Project Tango's custom sensors. Depth sensors can tell you the shape of the world around you. Understanding depth lets your virtual world interact with the real world in new ways. Project Tango devices can use visual cues to help recognize the world around them. They can self-correct errors in motion tracking and relocalize in areas they've seen before.\(^37\)

4.3 Taking advantage of social networks

4.3.1 Connectivity

Social networks like Twitter and Facebook focus on building up permanent connectivity among their users online in the following ways. First, all the personal information the user post online is transparent to all the user online friends. Second, the user is allowed to share one’s moments by texts, photos and videos, and updated one’s latest statuses to their friends. Third, friends are encouraged to respond to what your friends have posted. Forth, these social networks also connect their users to strangers through mutual friends, common groups and similar interests.

Figure 63. Social networks keep their users updated to their friends by seeing what they see and going where they go.
These social networks also connect their users to strangers through mutual friends, common groups or similar interests.

Figure 64. These social networks also connect their users to strangers through mutual friends, common groups or similar interests.
4.3.2 Information generation

User-generated content is another important enhancement of social network. The content is “built on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of User Generated Content.” For example, Twitter and Facebook enables their users to create personal profiles including blogs, photos and videos. According to Schaik, everyone’s homepages are rendered into something like fukinuki yatai, the Japanese painting style, “creating an urbanity out of friends’ homepages rearranged into a synchronicity that has nothing to do with the hierarchies of the real city.”

User-generated content enhanced by social network can be categorized into four kinds: "online- not real time, online- real time, offline- not real time, offline- real time.” “Online- not real time” refers to BBS, SNS, blogs and Youtube; “online- real time” refers to real time comments in videos; “offline- not real time” refers to O2O services such as Yelp; “offline- real time” is the realm Artwitter targets.

Figure 65. The Four Catalogues of User-generated Contents
Crowdpilot is an app that focuses on enhancing offline-real time UGC designed by Lauren McCarthy. The app is designed to let people in the user's social network monitor the user's conversation and provide advice by instant message. The app is to help people to succeed in dating by crowd-sourcing the conversation and providing real-time feedback on their social interactions. 

![Diagram of Crowdpilot app interface](image)

**Figure 66. The Interface of Crowdpilot**
4.4 Rejecting the reversal of social network

4.4.1 Disconnected in the physical space

Social networks like Twitter and Facebook focus on building up permanent connectivity among their users online by sharing moments, photos, videos and so on. These social networks also connect their users to strangers through mutual friends, common groups or similar interests. These social networks have built online communities parallel to our physical world. As we are happily embracing the connectivity of the social network, some people, like Whitney, begins to realize that “our isolated online life has, perhaps ironically, become the latest problem for technology to solve. Whether it’s Silicon Valley’s elite advocating we disconnect more, or PandoDaily’s own Francisco Dao longing for a youth spent driving around in cars with friends, we’re finally talking about how technology has failed to better connect us offline.”

In my daily life, I realize that the online communities are so powerful that they distract our attention from the physical space. I have experienced public spaces where almost everyone was focusing on the screens of their phones. We do share the space, but we are not connecting to physical spaces and the people around us.

Figure 67. The Stolen Soul by Antoine Geiger

Figure 68. The Stolen Soul by Antoine Geiger
4.5 Redesign the news broadcasting

In the redesign process, my thesis focuses on the third column of keywords developed out of the existing two columns to describe the Internet age. The redesign process is elaborated by the redesign of each key word.

<table>
<thead>
<tr>
<th>Print</th>
<th>Electric</th>
<th>Internet</th>
</tr>
</thead>
<tbody>
<tr>
<td>citizen</td>
<td>Nomad</td>
<td>Digital nomad</td>
</tr>
<tr>
<td>build</td>
<td>Wander</td>
<td>Connect</td>
</tr>
<tr>
<td>center</td>
<td>Margin</td>
<td>Multilayer</td>
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<tr>
<td>Mechanical</td>
<td>Organic</td>
<td>Symbiotic</td>
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<tr>
<td>literature</td>
<td>Journalism</td>
<td>Moment</td>
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<tr>
<td>soliloquy</td>
<td>Chorus</td>
<td>Improvisation</td>
</tr>
<tr>
<td>Authority</td>
<td>Power</td>
<td>Crowd-sourcing</td>
</tr>
</tbody>
</table>

Figure 69. The Chart from the Preface of Understanding Media

Figure 70. From Online to Offline

trust
trigger
feedback
4.5.1 Connect

Traditional social networks build global network for permanent connection with our friends online by sharing moments, photos and videos. They also connect their users to strangers through mutual friends, common groups or similar interests. Traditional social networks connect people online from different times and spaces, while Artwitter connects people to people as well as people to physical spaces in the real world, by redesigning the mechanism of social network. From posting moments online to posting moments in physical spaces, Arttwitter shifts our focus from the screens to the physical world.

Artwitter creates social awareness and the sense of community in the physical space. Social awareness is defined by Dourish as “an understanding of the activities of others, which provides a context for your own activity". By understanding the activities of individuals and communities is critical to success in social interaction.

Traditional social networks build social awareness online. A traditional social network such as SMS allows its users to change their status when they log into the system. The system notifies their friends that they are available to chat. The users can further change their status to busy, do not disturb, out for lunch or any other specific details. Recent social networks such as Facebook and Twitter have been developed into a status of permanent connectivity.

Users are assumed to be permanently online. Their status is revealed by the moment they post with more detail. Online awareness can be also achieved by allowing users to know the number of users who are browsing the same content. However, despite providing this information to enhance social awareness, a traditional social network fails to address the following issues: first, a user’s awareness in social network only exists online by looking at the screen or checking updated information constantly. Second, the awareness is not community awareness but is limited to people to whom the users have connected. Third, social networks are not designed to enhance the awareness in the physical space around their users.

Artwitter enables its users to post Artweet such as text, graffiti and virtual objects into the physical space. The moments posted in the physical space serve as a trigger for the people in the same space to judge on. Consensus creates communities. Moreover, the Artweets will disappear when the sender leave the space. This feature guarantees that all the current Artweets are connected to the current occupants in the space. By associating the Artweets with the users around them, Artwitter enhances the awareness of presence and the sense of community in the physical space.
Figure 71. The Global Social Networks

Figure 72. Artwitter Connects Its Users in the Physical Space
4.5.2 Multilayer

“Multilayer” in traditional social networks refers to virtual worlds as online communities parallel to our physical world. It also refers to the multiple identities of the users online. The virtual worlds and identities created by social networks are not coherent with our physical world. Artwitter redesigns the concept of “multilayer” by creating multiple layers of Artweets in the physical space. All the user-generated Artweets are attached to specific locations and become elements of a space. The physical space is no longer only constructed with physical materials, but is also built on user-generated content such as, texts, graffiti and virtual objects layer by layer.

The users of Artwitter not only can experience the current moments of the other users and the space, but also the moments filtered by different tags. The filter of Artwitter enables its users to filter all the historical moments posted in a space. The moments can be filtered by date, by season, by gender, by group and so on. They are the stories and narratives of the space.

Furthermore, the development of virtual layers might lead to an imaginary future. For example, by adding virtual layers to our real world, Artwitter allows every user to experience the virtual layers in a city based on its different historical moments, different cityscapes, buildings and events. Also, once the users are able to add virtual objects to our bodies, one can dress adjusting to different situations, different communities and the
tastes of different people at the same time.

The billboards on the street might become virtual too. The information displayed on physical billboards is limited to their sizes and formats. Virtual billboards can show information in different formats, such as images, texts, videos and 3D objects. Virtual billboards can also be interactive with the customers. Based on the profiles of different users, the virtual billboards can also adjust themselves, targeting different users' interests.

However, social alienation might become a new social problem once Artwitter is pushed to its limit. The physical environment will be obsolete. Since the physical space has become a stage or white board for placing virtual layers, decorations or advertisements might be replaced by virtual objects. Also, viewing the virtual layers in the physical world requires the assistance of mobile devices. Therefore, for those who cannot afford a smart phone, they will be totally excluded from the virtual world. They cannot see what the others see. They can only see a blank physical world.
Figure 73. Multiple Identities in Traditional Social Networks

Figure 74. Multiple Layers of the Space by Using Artwitter
4.5.3 Moment

Sharing moments is essential to social networks. It is obvious that our major actions on social network are sharing, posting, liking and commenting. According to Foad and Melanie, “It is in human nature to share and shape the world that is surrounding us.” Recent studies discovered that the positive feedback on social network touched on the brain’s reward center, “nucleus accumbens”. That is why everyone keeps posting moments and enjoys receiving feedbacks from connected friends. Built on the mechanism of posting moments, Arttwitter introduces augmented reality into the system. Arttwitter enables its users to post augmented reality “Arttweets” which can be tagged on their desired targets in the physical world. In traditional social networks, we post our moments online which can be only read in the browsers. By using Arttwitter, we tag our moments in the physical world.

Users have to look at the screens of their mobile phones when using social networks or Arttwitter. What is the difference between looking at the screen and looking through the screen? My thesis argues that the scenarios in the screen of traditional social networks are not coherent with our social awareness in the current physical space. But by using Arttwitter, even though the users are seeing the world by looking at their mobile phones, the virtual space and the physical space are coherent in time and space. The moments posted in the physical space can be associated with the space itself.


Is virtual graffiti legal or illegal? Graffiti has been existing as a way of posting moments offline to raise social awareness. It is used by many street artists as a way to express underlying social and political messages. It is said that the true power of graffiti is as a social medium to promote change by raising awareness about social issues and motivating people to act on them. However, painting graffiti on public or private properties without permission is considered an act of vandalism. Therefore, is placing virtual texts, graffiti and objects in public spaces considered vandalism? There is no current regulation forbidding putting virtual graffiti in public spaces or even private spaces. But my thesis claims that the true power of Artwitter challenges the existing laws in redefining not only public and private spaces, but also physical and virtual spaces. As professor Goulthorpe has mentioned, considering how evil it is to put a virtual infant outside the house of someone who had abortion recently or to place a condom outside the house of someone who had an affair of cheating his wife. Even without actually saying anything, the subtle meaning could be an
Figure 75. The Moments We Posted Online can Only be Read On the Screen

Figure 76. The Moments We Posted on Physical Spaces can be Seen through the Screen
4.5.4 Improvisation

Social network provides a framework that embraces the improvisation of its users. Improvisation relies on our perception of the environments to trigger non-programmed responses. However, the interaction on traditional social network is purely digital. According to the neuroscientist Beau Lotto’s research, our interaction in purely digital environment fails to engage with our perception of the physical environment, but what we perceive in the physical environment is essential to our connection with the physical world. Artwitter redesigns the improvisation by connecting our perception of the virtual world with the physical environment. By combining augmented reality with social network, the environmental stimulus encourages more meaningful improvisation.

The goal of Artwitter is not designed to replace the physical world, but to put the virtual world into the real world to augment the real world. Artwitter enables its users to enter a room not only see the architectural design of that space, but to see the narrative of the space, the mood of the space and the experience that happens in the space. As Beau Lotto states, if we can self-story in the way that truly engages the brain in a way that evolves to make meaning in the physical world, with interaction with people we truly care about, in ways that are truly meaningful, then we had great potential of changing ways we perceive ourselves in the world in the future.
But is there any difference between seeing the world directly or seeing the world through the screen? I think there is. First of all, wearable devices might be better for Artwitter, since using the mobile phone to look at the world is not intuitive, and it also occupies the users' hands, blocking direct contact of the users' bodies and the environment. Second, the camera has a smaller and low quality view compared to our eyes, using Artwitter actually shrinks the size and degrades the quality of our view. Third, using the mobile phone to see the world actually blocks the direct eye contact between users. Since social interaction requires eye contact and body language, whether using Artwitter on mobile phones will improve or block social interaction requires more research.

Figure 77. The Interaction on Traditional Social Networks is Purely Digital
4.5.5 Crowd-sourcing

Social network releases the power of crowd-sourcing. Crowd-sourcing emphasizes the contributions of every individual. Every moment, text, photo and comment that the users post contributes to the consolidation of the community. By using Artwitter, the physical space is no longer a static design, but an evolving space by the crowd-sourcing of every user. The original physical space serves as a framework for user-generated texts, graffiti and virtual objects.

Traditional social networks such as flickr and panoramio equipped with spatial and temporal references are a source of knowledge about the places and the communities of the people. The photos in flickr and panoramio are linked to the places where they were taken, with dates and times of the shots. The data can be collected and sorted to analyze the spaces as well as the occupants. Therefore, the application of crowd-sourcing data by using traditional social networks affects the space indirectly. By analyzing the data of a space, we promotes better and further intervention of the space.
Artwitter makes this virtual layer visible to augment our physical space. The data in the cloud of Artwitter not only can be used for analyzing the spaces and occupants such as flickr and panoramio, but, more importantly, Artwitter is turning the physical space into a space between physical and virtual. To some extent, physical space is not only constructed by concrete, steel, glass, but also by virtual objects and experiences as well. Arttwitter enables its users to share and shape the physical environment surrounding us by posting their moments. The posted Artweets connects our experiences and thoughts to spaces and objects in the real world, and further become elements of the space. Architecture and physical spaces are no longer static, but integrated with the occupants’ moments in the formats of texts, graffiti or virtual objects.

Artwitter fosters social aesthetics, as was defined by Vattimo, the “experience of beauty characterized by mutual recognition within a community” and “an unfolding capacity of the aesthetic product to ‘make world’. The posted Artweets help to reveal and enhance the underlying identity — the unique meaning, value, and character — of the physical and social form of a community. This identity is reflected through the community’s character or sense of place. A community’s sense of place is not a static concept; rather, it evolves and develops over time, reflecting the spectrum of social values within and around the community.


50. https://www.planning.org/research/arts/briefingpapers/character.htm
4.6 Participating in the obsolete of social network

By increasing social awareness and presence in physical world and reimagining the physical space, Artwitter’s ultimate goal is to connect its users to the physical space they share and encourage them to participate into the obsolescence of social network- social interaction in the physical space.

The approaches that encourage people to reimagine and reinvent public spaces and strengthen the connection between people and the places they share are defined by PPS (Project for Public Spaces) as “placemaking”. The research of PPS found that “it is a crucial and deeply-valued process for those who feel intimately connected to the places in their lives”. They also have developed the approach of placemaking into the idea of the lighter, quicker, cheaper transformation of public spaces. In order to achieve Artwitter’s ultimate goal, it is useful to learn from PPS’s approaches of “placemaking”.

Artwitter’s idea is to bring its users’ attention from online communication to offline spaces. It redefines the boundary of virtual spaces and physical spaces, and further extends to redefine public spaces and private spaces. By sharing and posting moments in the physical space, Arttwitter turned physical spaces into what Deleuze and Guattari defines as “smooth space”. Every user can take ownership of streets, plazas and other public spaces by posting their ideas.


Artwitter can be utilized to push the idea of “placemaking” further by augmenting the physical world by the virtual world. First of all, Arttwitter needs no physical intervention in the public space. In the traditional approach, most of the facilities are temporary and will be removed after the event, but Arttwitter keeps all data in the cloud and sorts it into different layers of the space. Moreover, because Arttwitter does not need to be built on the existing conditions and regulations, it is applicable to every place and situation.

Through the collective moments of its users, Arttwitter enhances the user’s social awareness in the physical world and helps us to reimagine and reinvent the public spaces. Through proper guidance, Arttwitter can become a community-driven process. In the research of PPS, physical spaces decline when the people who stay there lose their connection and no longer feel part of a community. Building up communities creates public spaces and triggers more active engagements of its users. As theorist Yochai Benkler argues, “the psychological satisfaction of making connections with other people is exactly why users bother to create and contribute content without monetary compensation”.


This image is reimagining the Grand Place in Brussels, Belgium. After a stage play, people gather on the plaza talking about the show and posting their moments. The moments they posted become the current mood and narrative of the space, connecting the people to the places and experiences they share.
Figure 80. Social Alienation by Using Artwitter

Mr Y is a cleaner of the plaza. He cannot afford a smart phone that can install Artwitter. Every day when he is cleaning the plaza, he is excluded from the plaza. He cannot see what the others sees and feel what the others feel. This new social alienation reminds me of the intention of "one laptop per child" project initiated by MIT professor Nicholas Negroponte.
The Lobby 7 at MIT is a place that is usually transformed by the hackers at MIT. The place serves as a forum where self-made installations and decorations are allowed to transform the space as a response to some events or festivals. I have experience the scenarios of “Back to the Future”, “Gravity”, “Jurassic”, “Halloween” and so on.
By using Artwitter, space-hacking will be accessible to all its users rather than the privilege of hackers. It also improves our traditional space-hacking as follows. First, space-hacking using Artwitter can happen at any time and at any place. Second, it turns space-hacking into a community-driven process. Everyone in the community can contribute their efforts. Third, different space-hackings can happen in the same space, competing for their popularity.

Figure 82. Space-Hacking by Using Artwitter
Mr Z lives in a house without any decorations: four blank walls and some pieces of necessary furniture. But he is actually living a decent life in the aid of Artwitter. Augmented reality helps to decorate his house by virtual objects, such as wall paper, tiles, hanging pictures, a clock and even a TV. Specific furnishing companies might develop a new business of virtual furniture designers and providers online.
But I can imagine that new commercialism will emerge out of this trend, as companies find ways to import their products into our homes and daily lives virtually. When we start to use the services provided by commercial companies to decorate our homes, commercials will probably be embedded into the products. In this case, commercials exist not only on TV, webpages and billboards, but will control our daily lives.
5 Conclusion

The development of this thesis is searching for answers to the questions of what architecture should be and how the relationship between humans and the environment can be redefined, as the pervasive media - social networks- are transforming physical spaces and design approach today.
5.1 Contribution

In the development of this thesis, I have develop a novel approach of design- Media Interpretation- based on the understanding of media. The approach has been developed by revisiting the last media revolution and by bridging Ant Farm’s projects with Marshall McLuhan’s theory.

Through the theoretical discussion, I redefine the three changing subjects today based on the research of the 1960s. Pervasive media have changed from electric media to Internet media; social units have changed from nomads to digital nomads; spaces have changed from utopia to heterotopia.

In this framework, my thesis reinterprets social networks into an application called Artwitter, by combining AR (augmented reality) and Twitter. My design process is greatly inspired by Ant Farm: The first step is to understand the medium; the second step is to oppose what the medium reverses; the third step is to figure out how the medium works and redesign it in a contrasting way.

I illustrate how Artwitter is redesigned contrary to traditional social networks based on a series of keywords: “connect”, “multilayer”, “moment”, “improvisation” and “crowd-sourcing”.

Artwitter is able to provide some answers to my initial questions of what architecture should be and how the relationship between humans and the environment can be redefined.
First, Artwitter redefines the boundary between physical and virtual as well as public and private. Placing virtual objects into the physical world raises questions of what virtual world is. Placing a virtual object in the physical which can be seen by everyone has similar impact of placing the same physical object in the physical world. Therefore, placing virtual objects challenges the existing regulation of how vandalism and invasion of privacy is defined.

Second, Artwitter redefines the process of architectural design. The design of a space becomes the collective contributions of its occupants. People in the space will not only see the architectural design, but also the experience that happened in the space, which at the same time, enhances the social awareness of the occupants. Architecture is not only constructed by physical materials, but also by virtual objects and our experience, which become the narrative and mood of a space.

Third, Artwitter redefines online and offline social awareness. By allowing users to post their moments into physical space, Artwitter extends the mechanism of online social awareness into the physical world. As PPS’s research shows, physical spaces decline when the people who stay there lose their connection and no longer feel part of a community. By using Artwitter, social awareness is no longer determined by the program and spatiality of architecture, but by the occupants themselves as well.
5.2 Questions

There are questions remaining to be explored.

First, can physical objects in the end be totally replaced by virtual objects or what is the limitation of virtual objects? Physical objects which have scent, texture and temperature cannot be replaced by virtual objects. But when devices allow artificial light to be projected into our eyeballs combined with natural lights, can physical objects which only provide visual atmosphere be completely replaced by virtual objects?

Second, how to prevent Artwitter becoming a tool in the control of commercials? It is unavoidable that commercial companies will utilize Artwitter to embed their commercials everywhere into our life. But can we treat them as part of our space or do we need to erase them? As we know, Time Square is famous and attractive because of its overwhelming commercial billboards.

Third, what regulations will be released if Artwitter become a pervasive medium? Graffiti and littering are considered vandalism today, but how will them be treated in virtual forms? Are they still treated as vandalism or not? How to people protect their own properties by forbidding other users posting something unpleasing on them?
6 Reference


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Figure 64. These social networks also connect their users to strangers through mutual friends, common groups or similar interests (Collaged by the author)

Figure 65. The Four Catalogues of User-generated Contents

Figure 66. The Interface of Crowdpolit (Image by the author)

Figure 67. The Stolen Soul by Antoine Geiger (www.theplaidzebra.com)

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Figure 69. The Chart from the Preface of Understanding Media (Image by the author)

Figure 70. From Online to Offline (Image by the author)

Figure 71. The Global Social Networks (Image by the author)

Figure 72. Arttwitter Connects Its Users in the Physical Space (Image by the author)

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