

Few things to note:

- 1) This is a super draft document, no full proof reading/grammar and spelling check/formatting yet. Some sequence of the paragraphs need to refine.
- 2) This Literature review is not a complete version, as I am still working on that.

The whole part of 'Liveness' is basically missing.

Data Performativity in net art**Introduction:**

This PhD research arises from the emergence of net art<sup>1</sup> practice since the mid 1990s with the proliferation of the Internet economy and digitalized data culture. Our environment becomes more participatory and distributed, and bound by different technologies and digital content. Our ways of living have changed significantly in the past 15 years and social media has become the mainstream platform to entertain and to socialize. For instance watching film extends from cinema and home DVD to online micro video; similarly communication has broadened from fixed line on a one-to-one basis, to a social media platform and group conversation software ('many-to-many'). Data is generated around the clock across a globalized infrastructure, the Internet, and stored digitally on databases. Net artists, since the 90s, continue to use these readymade raw materials - the cultural data - and utilize the Internet to produce artwork that is situated in online or virtual environments; in addition, the artworks are perform in a mediated space with certain degree of physical manifestation which is achieved through the mapping of data into kinetic movement, sound and visuals. Artwork presents the materiality, agency and temporality of networked data in the form of performance or installation. In this emerging environment, indeed, net art requires ceaseless critique. This research intends to contribute to the discussion of net art movement with the focus on data manipulation, which constitutes towards what I call 'data performativity'.

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<sup>1</sup> According to Bosma, "net art is art based in or on Internet Cultures. These are in constant flux. Net art's basis in Internet cultures means that a physical (hard-wired or wireless) connection to the Internet is not necessary in individual net art works" (2011, p.24) net art started in mid 1990s where a group of artists used Internet as an artistic medium.

**Data Performativity:**

By examining the notion of 'data performativity' in net art which spans art, performance, media, culture and technology, I aim to foreground the performativity of data as part of the critical study and examination of net art, with a possible extension towards other form of art. The term 'performativity' in a broad sense is an expression of action either in verbal or non-verbal means, and this imperative "indicates that the issuing of the utterance is the performing of an action" (Austin, 1975, p.6) Although Austin referred to the utterance as the act of speech by human, many theorists employ the notion of 'performativity' on other non-linguistic areas such as gender performativity (Butler, 1990), performativity in interactive and participatory art (Saltz, 1997), posthumanist performativity (Barad, 2003) and software code performativity (Mackenzie, 2005; Cox, 2013). We perceive the liveness of performing data through the utterance, the expression of action, in many different ways such as visuals, sound or kinetic movement. In this research, I will examine the theory of liveness from media, performance and Internet culture, so as to contextualize and articulate data performativity in net art. Depiction of liveness from a net artwork, in a way is to study the process of data manipulation and construction that leads to the performativity of data. Therefore, I would argue that the state of being live in net art is performed by the manipulation of data with machine code, which collaborates with other human and non human forces within the network environment, such as data and database construction, system to system negotiation, collective assemblages within globalized networks, machine coding from artists and other network contributors. With different agencies and entities participate in the data manipulation, these tensions possibly and arguably reconfigure on the conception of liveness.

Conceivability, the construction of liveness is a complex and connected process with different visible and invisible forces. In the artwork of Net Portrait (2012)<sup>2</sup>, a kinetic installation, it connects to the social media platform Twitter<sup>3</sup> and able to access the tweets data that are sent

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<sup>2</sup> See the project here: <http://www.siusoon.com/home/?p=710>

<sup>3</sup> Twitter is a microblogging service, enables its users to communicate via the online social networking service since 2006. See <http://www.twitter.com>

by every individual. The invisible connection between writers and computers are all become possible to influence the kinetic movement of the spinning cocktail umbrella. This dynamic artwork is subject to the manipulation of code, artist's configuration and system interaction that allows a heterogeneous influx of data. Borrowing from the characteristics of rhizome, a metaphor used by Deleuze and Guattari (1987) in *A Thousand Plateaus*, liveness in net art has multiple connection points with no beginning or end point; a connection that allows non-hierarchical structures of representation and interpretation. (p.7) The Internet platform is open for any time and any types of entry, this is the nature of a closely connected system. This is how net artists employ networked data and re-represent the “[c]ollective assemblages of enunciation function directly within machinic assemblages” (ibid).

Instead of announcing the end or the death of a net art era (Baumgartel, 1998; Lichty, 2004; Amerika, 2007, pp.113), I would argue that net art is perpetually transforming, due to new developments in the network involving technological, economical, political and cultural factors. As Olia Lialina (2009) suggested “[T]here is a generation of people who are very much interested in experimenting with the net, but they do it in another way..., they can experiment with the mass medium, with services that millions of people are in, with Facebook, with Youtube, with Myspace...like expansions in Wikipedia, for example, so they are playing with these things.” (2009) All these factors inspire and inform the artistic practice. Thus, there is a need to contextualize net art, not least for archival purposes, but also as an expansion of the knowledge base and critical literature, in order to inform and expand the artistic practices of net art.

### **Net art vs Mapping art:**

The focus of this research will be on net art, particularly on using authentic networked data as an artistic expression. The form of art, with no definite format, could be networked data in relation to sound, image, video, text, kinetic object. For example, on the artwork Net Portrait (2012) by Winnie Soon and Karen Sam Norgard, as mentioned earlier, the networked data of smiley faces from Twitter is extracted by a customized software program. The collected data,

targeted message arrivals, will then trigger the spinning of painted cocktail umbrella (see Figure X) on-the-fly, demonstrating the continuation of snapshots network assemblages. Lev Manovich (2002) and Roberto Simanowski (2011) use “mapping art” to generalize this form of art. These digitalized data could be materialized easily, because data can be copied, translate and map into sound, visual or even movement in the case of Net Portrait. This kind of “[m]apping one data set into another, or one media into another, is one of the most common operations in computer culture, and it is also common in new media art” (Manovich, 2002). Net Portrait could be explained as the mapping of Twitter’s text content to the kinetic motion of the physical objects (cocktail umbrellas). Indeed, mapping is more than operational as Manovich acknowledges “the politics of mapping of computer culture”. (Ibid) It is not just an operational mapping to describe the transformation of immaterial to materialized form of data expression. It is because there are many forces that influence the decision of mapping and how the work has become, in particular the politics of data selection, filtering, capturing and manipulation.

A similar term that commonly used as well is visualization. As Manovich described as the “subset of mapping” (ibid). Nevertheless, there is often a blurring line between mapping and visualization. The term visualization is used nowadays to describe “[data transformed] into a visual representation”(Ibid), for easier analysis and extraction of hidden patterns from massive amount of data. Similarly, sound artists will use the term “sonification”, “where datasets are represented as sound”; like visualization, data is mapped into “auditory symbols” instead of “visual symbols”(Ballora, 2011). All these terms (mapping, visualization, sonification) have an underlying purpose for dataset study. I would like to differentiate the consumption and intention of using networked data in artistic and design practice. There are basically incremental of artworks that employ networked data as stated above, in addition, this research has a distinct focus on networked data that is inherited from Internet Cultures, therefore it is more appropriate to group this specific forms of art under the umbrella of net art. As Christiane Paul, a curator and Internet Art Critics, traces the development in net art since the mid 1990s and suggests that the path is now upgraded from Networked Art 1.0 to Networked Art 2.0, as artworks focuses on physical manifestation, crowd sourcing and

collective production in net art practice(Paul, 2011). The genre of net art marks an important check point in contemporary art, and digitalized data remains the key source for artists to manipulate from the beginning till now.

### **Importance of Digitalized Data:**

The word data refers to facts - plural of datum -, which means “something given” (Oxford Dictionaries); derived from Latin, its usage can be traced back to the mid 18<sup>th</sup> century. Historically, data was often used in “specialized scientific fields”. (ibid) The word data is sometimes used interchangeably with information in modern use. Strictly speaking, digitalized data is just value that can be reproduced with digital technology; this value has to be processed or interpreted to become information that humans can understand. For example, the data of Global Positioning System (GPS) is 45.6652750 and -121.1064333, the values refer to the latitude and longitude in Northern Harrier, United States. Of course, some data is quite easily readable, such as text messages from Twitter, it is a complete language already. Although a computer machine simply stores in binary code, it should be noted that it must go through the process of machine translation (the encoding and decoding). Nowadays, data such as files, email, photos, books, video are stored in a database, shifting from storing in hard disk of personal computer to centralized and networked “cloud storage<sup>4</sup>”. (Examples of online services include Dropbox, Yahoo flickr, Google gmail)

The notion of ‘reproduction’ in art can be traced back to the early 1960s in the United States, the Pop art movement where artists used popular imagery and reproduced various form of art via the technology of screen printing. Notable examples include *Campbell’s Soup Cans* and *Marilyn Diptych* (1962) by Andy Warhol. In the music scene, as Eduardo Navas (2007, 2010)

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<sup>4</sup> “Cloud storage is a model of networked online storage where data is stored in virtualized pools of storage which are generally hosted by third parties.” For more general elaboration, see here: [http://en.wikipedia.org/wiki/Cloud\\_storage](http://en.wikipedia.org/wiki/Cloud_storage)

<sup>5</sup>described, it was also very common to combine “pre-existing materials” and (re)produce new forms of art. Navas framed it as “remix”, a creative process of reproduction. “The concept of Remix that informs remix culture derives from the model of music remixes which were produced around the late 1960s and early 1970s in New York City”. The Remix Culture has been acknowledged by various theorists and writers. (McLuhan & Fiore, 1967<sup>6</sup> ; Amerika, 2011, Lessig, 2004; O’Neil, 2006, 2007, 2008; )

In the late 1970s, the birth of the personal computer allowed everyone to reproduce any kind of digitalized data by simply knowing the technique of ‘copy and paste’. In the 1980s, a simple COPY<sup>7</sup> command in MS-DOS (Microsoft Disk Operating System) enabled files to be copied from one directory to another. Subsequently, the function of copy and paste have been implemented in just any software from word processing, to graphic tools, to development application. Similarly, the ‘upload’ function in any Internet file transfer software or in web pages (See figure X) has allowed users to make a copy and upload from their local computer to the entire public domain since the 1990s. This is a new way of cultural reproduction technique to produce digital objects, the data. As described by media theorist Jussi Parikka, “copying, the verb, designates a shift in the cultural techniques of reproduction from humans to machines, and copy, as noun, presents itself as the key mode of becoming-object of the digital culture.” (Parikka, 2008)

With the advent of technology, digital art such as video, photography, games, net art all require the cultural techniques of copy and/or remix. For the Internet nowadays, it even more rigorous to allow sharing, duplicating and curating data and information, for example, the Retweets function in Twitter, the Share function in Facebook and blogging activities. Hence, a substantial amount of data is generated and distributed. This digital object is not merely

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<sup>5</sup> Eduardo Navas first published the article “Regressive and Reflexive mashups in sampling culture” in Vague Terrain, an online journal platform. He then further revised the article in 2009 and published in 2010.

<sup>6</sup> Although McLuhan didn’t use the word ‘remix’ explicitly in their book “The Medium is the Message: An inventory of Effects”, the book embodied the idea of remix, as he wrote “The Medium is the Massage” is a look-around to see what’s happening. It is a collide-o-scope of interfaced situations.’ (McLuhan & Fiore, 1967, p.8-10)

another copy of the “same discrete [object], but coding cultural products into discrete data and communicating such coded copies across networks: seeding and culturing.” (ibid)

Most data is stored on the network nowadays. Data is easily digitized, traced, tracked and distributed via software technologies in both visible and invisible ways. On the one hand, we are aware of the data generation via daily activities, for instance, emailing, online chatting, watching streaming video or breaking news and knowledge searching. These data stored with cloud technology, enable different applications from various interfaces to access and retrieve information in a speedy manner. On the other hand, other invisible types of data might not explicitly inform the user that s/he is being tracked. Such examples are: online behaviour tracking<sup>8</sup> from websites for advertising or profiling<sup>9</sup>; CCTVs located in many different places of a city.

#### **Overview of data fields:**

Needless to say, data is a growing area of interest for artists, designers, technologists and scientists because of the value of the information; one can predict and analyze personal behavior to future market trends. Unprocessed data has no meaning until someone tries to access, retrieve and manipulate it. Our digitized culture is characterized by a proliferation of data; in order to study the meaning of this data and to extract information from it, academic new disciplines are formed in the areas of information graphics, data journalism, scientific visualization, or data visualization world wide. The objective of these disciplines is to analyse and visually represent information extracted from raw data. At the University of San Diego in United States, Lev Manovich, a former faculty, a cultural and media theorist, had founded a

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<sup>7</sup> COPY command in MS-DOS, allows to copy one or more files to other location. See here:

[http://en.wikipedia.org/wiki/List\\_of\\_MS-DOS\\_commands#COPY](http://en.wikipedia.org/wiki/List_of_MS-DOS_commands#COPY)

<sup>8</sup> Firefox Add-On Collusion, allows users to see through all the websites that are tracking their movements in real time. Mozilla, mozilla - Collusion. Available at: <http://www.mozilla.org/en-US/collusion/> [Accessed November 16, 2012].

<sup>9</sup> According to The International Council on Human Rights Policy, profiling refers to a border processes of data gathering about individuals with a view to assigning categories and predicting behaviour. See: The International Council on Human Rights Policy, 2011. [Navigating the dataverse: Privacy, Technology, Human Rights](#), Geneva: International Council



software studies initiative in 2007, with a focus on Cultural Analytics, to study “the use of computational methods for the analysis of massive cultural data sets and flows” (Manovich, 2008)<sup>10</sup> in the area of digital humanities. Whilst in Europe, the University of Reading has a Data Assimilation Research Centre<sup>11</sup> which focuses on the analysis of geosciences data. In Asia, the Information Design Lab<sup>12</sup> from the School of Design, The Polytechnic University is dedicated to the design of information communication.

According to Ben Fry, a software artist, data visualization is about accurately representing the quantities and relationships in it; it should also “highlight its features in order of their importance, reveal patterns, and simultaneously show features that exist across multiple dimensions.” (Fry, 2008) Visualization has a pragmatic function in both design and art. Expression of interest in data has also been observed in the industry; companies have started setting up their own research lab or projects in data visualization. Such prominent examples are the “DataArt”<sup>13</sup> project launched by the BBC Learning innovation; the Data Visualization Lab<sup>14</sup> launched by the New York Times and the Many Eyes<sup>15</sup> project from IBM Corp in 2007. Those examples demonstrate that data art practice has gained currency in recent years.

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on Human Rights Policy. Available at:

[http://www.ichrp.org/files/reports/64/132\\_report\\_en.pdf](http://www.ichrp.org/files/reports/64/132_report_en.pdf) [Accessed November 16, 2012]

<sup>10</sup> “The term Cultural Analytics was coined by Lev Manovich in 2007”, their recent projects involves studying the data sets from various social media platforms, such as images from flickr, video from youtube. See here: <http://lab.softwarestudies.com/2008/09/cultural-analytics.html>

<sup>11</sup> The Data Assimilation Research Centre is a multi-disciplinary area which spans across Department of Meteorology, Department of Mathematics and Physical Science. See here: <http://www.met.reading.ac.uk/~darc/about/>

<sup>12</sup> Information Design Lab. Available at:

<http://www.sd.polyu.edu.hk/web/Research/InformationDesignLab> [Accessed November 17, 2012]

<sup>13</sup> DataArt with BBC Backstage. Available at: <http://www.data-art.net/> [Accessed November 17, 2012].

<sup>14</sup> Frons, M., 2008. The New York Times Data Visualization Lab. Available at:

<http://open.blogs.nytimes.com/2008/10/27/the-new-york-times-data-visualization-lab/> [Accessed November 17, 2012].

**Scope of networked data:**

In this research, however, I intend to explore data beyond visualization or design, which means that I will not undertake to analyze data patterns. I will not be concerned with the discovery of hidden patterns, beautifying data, or enhancing navigational and interactivity interfaces. These issues have been widely discussed within various academic disciplines, as well as within the cultural and creative industries. This research will be focused on networked data in the art.

**Networked and Open Data:**

I use the term 'networked data' rather than 'open' or 'public' data, and aim to incorporate the wide range of data that is sourced from the Internet in many different ways. The term 'Open' and 'Public' usually refers to data that is officially available and free "for anyone to use, for any purpose." (Open Data Institute, 2012) This notion of 'open access' was appeared in the context of publicizing scientific data in 2004, which was discussed in the meeting of the OECD (Organisation for Economic Co-operation and Development) Committee. Most developed countries (such as Germany, United States, United Kingdom, Japan, Sweden) signed a declaration to commit to making scientific research data transparent to the public.

"Transparency: making information on data-producing organizations, documentation on the data they produce and specifications of conditions attached to the use of these data, available and accessible internationally."

(OECD, 2004)

In 2010, the new constitution of Kenya was ratified to allow citizens to have the rights to access their information. (Business Daily, 2010) Then in 2011, "President Mwai Kibaki launched the Kenya Open Data Initiative, making key government data freely available to the public" (Kenya Open Data, 2011). Other countries also have similar acts such as U.S.

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<sup>15</sup> IBM Research and the IBM Cognos software group, Many Eyes. Available at: <http://www-958.ibm.com/software/data/cognos/manyeyes/> [Accessed November 17, 2012].

Government, U.K Government, New Zealand Government in launching open data websites. Therefore, open data gained a high currency in recent years in government bodies, this is also one of the the reasons for the demand of visualization in recent years, which makes data more accessible for the public audience.

The availability of public data is also observed with the Web 2.0 era<sup>16</sup> since the early 2000s. Application Programming Interface (API)<sup>17</sup> becomes one of the important features for developers for most of the Web 2.0 services, allowing the open access to their database. “[T]he [web 2.0] idea was a concerted intent to create APIs that engendered collaborative, non-walled, data sharing.” (Soon, 2010) Livejournal, one of the earliest Web 2.0 blogging services, provides “various types of interfaces ... in multiple formats” (ibid). As such, APIs became one of the methods of making net art, allowing you to use official standards to extract the raw materials of networked data from the Internet and re-appropriate into net artworks.

#### Networked art 1.0:

“The Internet is itself performative, through its changeability and dynamics. To a large extent net art reflects this performativity, and so-called online interventions and performances have emerged right from the start.” (Net.Specific)

The history of net art can be traced back to the availability of the Internet during the 1990s. In a general sense, it “is art based in or on Internet Cultures...Net art’s basis in Internet cultures means that a physical (hard-wired or wireless) connection to the Internet is not necessary in individual net art works”. (Bosma, 2011) To emphasize again, there is a distinction between “net art” and “art on the Internet”. (Aarns, 2001) Furthermore, not everything put on the Internet is an artwork, such as posting a digitalized oil painting on a webpage, (Ibid) unless someone declares it as an art work (conceptually) or the author’s intention of artistic

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<sup>16</sup> The first Web 2.0 conference was in 2004, taking the principle of “The Web as platform”, with the characteristics of dynamics, collective intelligence and data. See more: <http://oreilly.com/web2/archive/what-is-web-20.html>

<sup>17</sup> I have written an article about public interfaces for art making in 2011. There will details discussion about web 2.0 and data access. See here:

expression represents a critique of a social, economical and political environment. There basically a philosophical and historical debate on what is art and what is not, however I do not intend to discuss about this topic, but more to emphasize there is a distinction between the above mentioned areas. For Net art, it is not a matter of 'display' with the Internet as the medium, but some artists use the characteristics of the performative nature of the Internet to make dynamic artworks. Net art "could be specific Internet services or protocols (e.g http, ping, e-mail, IRC), the altering and typing of specific (artistic) software, the utilisation of specific scripts or the use of search engines and hypertext formats. " (ibid) The concrete characteristics that Aarns has stated was to use anything based on the Internet "as artistic material". (ibid)Therefore Net artworks might or might not be happening on the Internet. Though most early net artworks ran within the context of the Internet, particularly on web browser as the first widely used browser Mosaic<sup>18</sup>, was first released in 1993, followed by Netscape Navigator (1994) and Internet Explorer (1995). (Wands, 2006, pp.184) This is a visual gateway where artists can generate and display data on, share and disseminate via the Internet.

Net art is a field and some curators or critics put it as a movement. (Frederic Madre, 2000; Armstrong, 2012; ) Nevertheless, some net artists such as Olia Lialina refused to name it as a movement, it is just a first generation of the Internet. As she said, "It is a movement maybe [net art] close with avant-garde...the art that doesn't need galleries, that doesn't need critics, that doesn't need institutions."(Lialina, 2009) The origin of the name net art with the distinctive dot in between the words as "net.art". This special word was picked up by one of the pioneer net artists Vuk Ćosić, who received an email in 1995 and accidentally saw the term "Net. Art"<sup>19</sup> from an unreadable text in ASCII format. He then started to use this term and it spreads over in the Internet. And now, you will find those terms such as net art, Net. Art, Internet Art and

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[http://pjim.newschool.edu/issues/2011/04/pdfs/ParsonsJournalForInformationMapping\\_So on\\_Winnie.pdf](http://pjim.newschool.edu/issues/2011/04/pdfs/ParsonsJournalForInformationMapping_So on_Winnie.pdf)

<sup>18</sup> As browser can read Hyper Text Markup Language and display the appropriate content. Browser with the capability to display hypertext and images. The browser "Mosaic later becomes the Netscape browser which was the most popular browser in the mid 1990's.", see: <http://www.investintech.com/content/historyinternet/>

<sup>19</sup> The unreadable message was due to the incompatibility of software to decode the original message send from anonymous mailer. The message is like this: [...] J8~g#|\;Net. Art{-^s1 [...]

Network art <sup>20</sup>are basically interchangeable. Many early net artists embraced net.art which emphasizes independence and freedom, without the control by any institutions. Its breakthroughs situates artworks outside a gallery-museum matrix and presents in a virtual environment without any cost (Paul, 2005; Dietz, 2005<sup>21</sup>; Wands, 2006, pp.184), also potentially it reaches different audiences globally.

One of the main capabilities of the Web is the **hyperlink**, which means a web page is not in a linear structure (with sequential chapters). As we normally read in a physical book, the audience can jump from one page to another subject of his/her choice; it has the possibility to hyperlink indefinitely. A lot of the early net artists challenged browsers as the only function as static information display, and made artworks that focuses on exploring the possibility of art using hyperlink features. For example, in [My Boyfriend Came Back from the War](#) (1996)<sup>22</sup> by Olia Lialina **(See Figure X)**, used an earlier nested 'frame'<sup>23</sup> feature that is written by HTML (HyperText Markup Language that was invented by Tim Berners-Lee) and made a hypertextual narrative story with the combination of images and text. Audiences felt compelling emotion just like in a cinema. It is a generative project in a closed-system, each time audience reaches the pre-defined story path differently base on the branch he chose, that is the frame's click, and the visual will display accordingly. Another example, Shredder 1.0 (1998) by Mark Napier **(See Figure X)**, again an art project performs in a web browser. Shredder 1.0 deconstructs a website that the URL (Uniform Resource Locator) is input by a user, then the page presents an abstract composition combined on-the-fly with the web page's source code,

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See here: <http://www.nettime.org/Lists-Archives/nettime-l-9703/msg00094.html>

<sup>20</sup> A book "Network Art: Practices and Positions" was edited by Tom Corby, he defines Network Art is about "discourses around creative practices concerning networks and information technologies focus on the technology itself" (2006, p.2) and he admitted most of the works described in his book as network. "Muct of the work in this book could easily be described as net art, and throughout the reader will notice that the terms 'net art', 'network art', and 'Internet art', are used interchangeably." (iBid)

<sup>21</sup> In an article "From Browser to Gallery (and Back): The Commodification of Net Art 1990-2011", (see here: <http://pooool.info/from-browser-to-gallery-and-back-the-commodification-of-net-art-1990-2011/>) Jennifer Chan mention about the idea of independence and freedom by providing the evident quote reference from Christiane Paul and Steve Dietz. "...characteristics of so-called new media art have introduced a shift from the object to process...digital art resists "objectification" and has changed traditional notions of the "art project.""

<sup>22</sup> For the artwork, see here: <http://www.teleportacia.org/war/war.html>

hyperlinks and images. Basically audience can select the available URLs or input their own. It aims to give audience an alternative way of information display by using customized programming code (PERL<sup>24</sup>). He embraced “information as art”. (Napier, 1998) As you can see, net art tied closely with technological environment such as computer language and network protocol. Artists intended to explore new possibility of this linking Internet’s feature.

Basically, you will find early net artists implement this ‘linking’ feature in a subverted and unusual way. For Jodi (a collective with two artists, Joan Heemskerk and Dirk Paesmans), one of their classic example was the subversion of their webpage display (<http://www.wwwww.jodi.org/>) since 1999, the form of display fills with green color and non-understandable, random-like text that with hyperlink. However, when you view the page source from the browser, you will see a decent graphic (ASCII Art<sup>25</sup>) instead. (See figure X) The hidden information demonstrates the politics and the interpretation of computer code with the presentation of the unknown form. Other net artist Alexei Shulgin who made the work Link X<sup>26</sup> in 1996 (See figure X), the grouping of words are thematic and understandable by human, for example one of the groups contains the words “never, never, always, today, now, maybe”, however all the individual word is hyperlink to different website which may or may not be relate to the denotation of that word. For “today”, it currently links to a news broadcasting site/ Wilst for “now”, it links to National Organization for Women. As indicated, it is just about current moment, which means it is subject to change by the Internet economy in any time and demonstrates the chaotic Internet culture. Some of the links even without any owners and the domains is opened for purchase. Therefore the result is unpredictable and dynamic in a way it is not constant. The company/organization will not be always there when you click the link today or few years ago. Shulgin and Jodi’s work are totally in opposite, with the known word

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<sup>23</sup> Frame allows to display with more than 1 web page on the same browser screen using the HTML language, frameset. See here:

[http://en.wikipedia.org/wiki/Framing\\_\(World\\_Wide\\_Web\)](http://en.wikipedia.org/wiki/Framing_(World_Wide_Web))

<sup>24</sup> Perl is a programming language, a powerful web language to create dynamic website in early days. See example here: <http://www.mediacollege.com/internet/perl/>

<sup>25</sup> ASCII art is an earlier graphic design technique, a coding scheme which bases on 128 characters to produce graphics. See here: <http://www.geocities.com/spunk1111/asciinfo.htm>

<sup>26</sup> See the artwork here: <http://desk.nl/~you/linkx/>

and structured grouping as the poetic text presentation, but might not be making any sense for the interpretation, the content or nature of the website that is hyperlinked to the audience.

Other than exploring the possibility of 'linking', net artists also engaged with readymade digital objects using traditional style of representation or mapping strategy to convey the beauty of composition and design. An early winning award<sup>27</sup> art project, Alex Alulgin used the readymade arrays of a HTML form such as buttons, text fields, radio buttons, check boxes to produce a representational net artwork in 1997 named Art Form. (See Figure X). During 1999 to 2001, Lisa Jevbratt has made several versions of visualization project based on IP address(Internet Protocol). In his work <1:1 Interface: Every(IP)> (See Figure X), a coloured visual representation of all valid IP address that was retrieved by several customized crawlers. "The image is composed of pixels each representing one website address stored in the IP database. The location of a pixel is determined by the IP address it represents. ... The color of a pixel is a direct translation of the IP address it represents, the color value is created by using the second part of the IP address for the red values, the third for the green, and the forth for the blue value." (Jevbratt, 2006) Other similar project as Web Stalker by I/O/D<sup>28</sup> in 1998, it is an alternative downloadable browser which visualize the complexity of the web's hyperlinks. It is like a visual but is an abstract map instead. "[This] map is a basic real-time dynamic visualization of the underlying link-node structure of the web" (I/O/D, 2001, pp.276) One of the possible way to critique net art is to use the traditional paradigm, that is meaning and interpretation via visual representation. In addition, you can even use design principles to analyze the aesthetics components such as composition, use of color and layout of the work. However, what I intend to discuss here with above examples is the use of 'readymade digital objects', Internet data, by net artists since the 1990s, before the web 2.0 era with massive data generation, artists have been already explored various visualization technique and mapping strategies on net art projects. The readymade data such as IP address and web hyperlinks, attracts artists to re-appropriate it. Usually, grabbing those data like above mentioned net art projects require code writing. Here the project 1:1 Interface: Every (IP) and Web Stalker both

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<sup>27</sup> The work Form Art has been awarded Honorary Mention in Priz Ars Electronica in 1997. See the project here: <http://www.c3.hu/collection/form/>

required the artist to write a program for web crawling, an automated process to grab and copy latest available data from the Internet. For Jevbratt's project, she has to build a database for data storage, such that further manipulation and analysis can be done. As mentioned in earlier paragraph, data visualization is not the main subject of this research, but how data is performed in net art remain a focus throughout the entire thesis. By describing the logic behind the artwork, there is a little hints for us to start to understand the process of data refashioning.

Oppositely, some of the net artists produce artworks like those artist who employs the essence of anti-aesthetics from Dada movement, producing anti-art cultural works without actual artistic style, but with a radical attitudes towards political and cultural scene using the techniques like collage or data re-appropriation. Heath Bunting developed a webpage in 1998 named <<\_readme>><sup>29</sup>, a page with full of light gray fragmented text with hyperlinks. Each word hyperlinks to a corresponding web domain. Again like the work of Link X, addresses on the commoditization of domain names. Besides, Bunting also criticizes how giant corporation like Yahoo filtered out certain kinds of website in their search engine. Another notable project again developed by Mark Napier in the same year as Bunting, Digital Landfill<sup>30</sup> (see figure x) is a free clean up service for user to copy their spam, garbage and unwanted data in his website. User can also view the historical landfill from others with title and date, however the content was filled with fragmented text in a non-readable format, like an overlapping text collage but wasn't in a poetic or visually pleasing way. He criticizes the shifting user behavior from "gathering information to filtering out the noise". (Rhizome, 1998) In both projects, there is a sense of randomness or chance if we reference from Dada movement, because the author and the audience will never know who will contribute to the landfill or the content of the domains. Again, the sense of unpredictability and dynamics appears within the collective assemblage. Artist re-appropriate data with its immaterial properties.

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<sup>28</sup> See the art project here: <http://bak.spc.org/iod/>

<sup>29</sup> See project here: [http://www.irational.org/\\_readme.html](http://www.irational.org/_readme.html)

<sup>30</sup> See project here: <http://www.potatoland.org/landfill/>



Besides, some of the early net artworks demonstrates the glitch aesthetics because of the exploration and representation of the malfunction, noise and error of the network and the technology became the central theme for many net artists. The term 'net.art' per se was, indeed, an error within the unreadable ASCII text. (Scott, 2005) As for Jodi's work, 404 Error (1998)<sup>31</sup>, the first page of the work displayed with a sharp color background with a large size text of "404". 404 error is known for browser's error display when it couldn't connect to Internet or failed to display a web page. (This 404 status code is also known as not found<sup>32</sup>) The artwork emphasizes the desired and anticipation of a destination address. The subverted color display and animated square icon depicts a sense of playfulness. (See figure X) Similar browser work, Global City (2002)<sup>33</sup> by Sawad Brooks, the work displays as a mashed of three different web pages from online newspapers, the data such as text and images were overlapping with each other made you couldn't read the content properly and gave a sense of error display. (See figure X) These glitches became a creative expression by artist which are differences from fine art; they were not aim to seek representational aesthetics, or anti-aesthetics as <<\_readme>> and Digital Landfill which expressed the social and political concern. However, similar to the dada movement, some net art takes the form of glitch, like the simple found concept (404 error) or found data (online newspaper data), to express the notion of irregularity and unusualness in a conceptual level. As Rosa Menkman described "[the] glitch is a powerful interruption that shifts and object away from its flow and ordinary discourse, towards the ruins of destructed meaning." (Menkman, 2011, pp.29) The aesthetics of glitch lies on "a crazy and dangerous kind of moment(um) instantiated and dictated by the machine itself." (ibid) The machine here is the machine code that used behind the browser. The display is controlled by the HTML from 404 error and the Perl script from Global City, to display an unexpected and uncanny interface.

Net art was championed via Nettime, an electronic newsletter and bulletin system board founded by Geert Lovink and Pit Schultz in 1995. Besides Rhizome, an open platform also

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<sup>31</sup> See project here: <http://404.jodi.org/>

<sup>32</sup> The status code defined by The World Wide Web Consortium(W3C):  
<http://www.w3.org/Protocols/rfc2616/rfc2616-sec10.html#sec10.4.5>

<sup>33</sup> See the project here: <http://artport.whitney.org/commissions/codedoc/brooks.shtml>

setup in 1996, founded by Mark Tribe, allowed various discussion and distribution of net art practices, news, interview and criticism. Many artists involved heavily in the exchanging and spreading of net art, including the above mentioned artist such as Heath Bunting, Vuk Cosic, Olia Lialina, Alexei Shulgin and many others.

Net Art became more recognizable internationally with commission on net art projects<sup>34</sup> (For instances: Use Nor Ornament exhibition in 2000; Uncomfortable Proximity by Graham Harwood in 2000; Online site-specific monument by Jon Winet and Margaret Crane in 2002; Online ASCII work in City-Wide Film Festival by Vuk Cosic in 2001) by organization and new genres established in various festivals. In 1995, category of “World Wide Web” was added in Priz Arts Electronica, a significant yearly prizes focuses on electronic art since 1987 in Austria. They revised the name to “.net” in 1997 to 2000. Started from 2001 to 2006, the name changed to “Net Vision / Net Excellence”. Since 2007, the category of “Digital Communities”<sup>35</sup> includes all the projects that associated with software, web 2.0 applications, networked data and so forth. The notion of “net” keeps expanding with new technology advancement in network, software and hardware. Another important contemporary art festival is Documenta, an exhibition takes place in Kassel, Germany for every five years. In 1997, there was a Net Art section at Documenta X curated by Simon Lamunière and Catherine David. The settings of this section was an office style presentation with several desktop computers. (See Figure X<sup>36</sup>) 10 selected Net Art projects with few commissioned were presented in various offline terminals without the connection with the Internet, the whole setup was unusual and concerns were raised by artists because of the organization has missed out the whole point of ‘net’ art, then the forum<sup>37</sup>'s thread was followed by responses from both Simon and Catherine separately. Presenting net art projects in physical space was actually challenging and involved a degree of technological complexity and reconfiguration of space.

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<sup>34</sup> The examples that I illustrate here were reference from an essay that is written by Sarah Cook. See here: Cook, S., 2006. Context-specific curating on the web (CSCW?). In T. Corby, ed. Network Art: Practices and Positions. Oxon, New York: Routledge.

<sup>35</sup> See the full list of Digital Communities here: <http://www.aec.at/prix/en/kategorien/digital-communities/>

<sup>36</sup> Grab image here: <http://vagueterrain.net/journal11/domenico-quaranta/01>

Other than the major festivals, various institutions (ZKM-net\_condition, 1999; Videotage-101010zzz, 2010; Plato Art Space-Regeneration.011, 2011) and independent curators (After the Net 1.0 to 3.0 by Joasia Krysa from 2008 to 2010; Speed Show vol.1: Tele-Internet by Aram Bartholl, 2010) started to comprehend net art exhibitions as part of the contemporary art practice. Online curating started to emerge as well with net art projects display on a specific portal site. (Whitney Museum- Artport, 2002; Istanbul Contemporary Art Museum- ///--Reload---///, 2002; chico.art.net, 2004-2010) Net Art is flourished, continued to grow and transform with the participation of institutions, artists and curators. The ever changing of technologies, economy, political and cultural environment reshape the definition of Net Art, where more different types of art forms could be included.

### **Networked Art 2.0:**

Many forms of net art has been evolved together with the advancement of technologies and the social shift of Internet Culture. Christiane Paul demarcated Networked 2.0 and Networked 1.0 with the juxtapose of corporate web 2.0 and web 1.0, which is highly driven by the Internet Culture and the profound of technologies. (Paul, 2011) The term Web 1.0 was generally referring to website that contains static pages, without much interaction and dynamic information though the pages with multimedia objects as text, images and hyperlinks. By the time during early 1990s to early 2000s, bulletin board system, mailing list, personal and corporate websites were widely used by Internet users to publish their content and user need to make an effort to check it actively to obtain the updated content. According to Tim O'Reilly, the turning point is after 2001, "[t]he bursting of the dot-com bubble" where users are much more participatory, community-based platform is highly driven by user-generated data. (O'Reilly, 2005) Web 2.0 is not a standard set by any one, but a new Internet behavior and culture that was originally observed, discussed and coined in a conference brainstorming session in 2004 between O'Reilly and MediaLive Internation. The 2.0 is not replacing the 1.0, but to exist in parallel. (Paul, 2011) Artists embed this wave of characteristics and blended into their execution. Substantial vocabulary were emerged with different applications in the Web

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<sup>37</sup> See the full details here: <http://www.heise.de/tp/artikel/4/4079/1.html>

2.0 era such as community, sharing, tagging, social media, comment, review, pushed technology; the development of Telecommunication infrastructure such as broadband and fiber-optic communication, Wi-Fi and mobile data on handheld devices, all these are facilitating the “culture of participation” as described by Shelly and Frydenberg. Data is massively generated in a collective and recurring manner:

“Many Web 2.0 sites promote a culture of participation by inviting users to become part of an online conversation through reading and commenting on others’ blogs or writing their own, editing articles on Wikipedia, sharing multimedia, or using collaborative tools. The resulting new and updated content, known as harnessing collective intelligence, encourages people to return to these Web sites.” (Shelly and Frydenberg, 2011, pp.9)

The whole environment not only encourage participation for Internet users, but also for developer. Company such as Google, Amazon and LiveJournal released their Application Programming Interface (API) in the early 2000s, where developer from outside parties able to use these API to build additional services on top of its existing application or to offer extra services for their own application. For instance, according to Troy Wolverton, a writer from CNET News, “Web site operators will be able to incorporate Amazon’s product reviews and descriptions as well as its search system, wish lists and other features. Amazon will not charge Web site owners who use its features.” (Wolverton, 2002) Therefore, anyone can retrieve the data via an official method and build any kinds of services (whether it is commercial, art-based or personal project) base on the provided standard. This definitely offer a much greater possibility of net artist from different background to explore the available data on the Internet. The data could be instance or archive, able to configure with various parameters and make query to the platform’s database.

An artist collective Jodi, has explored Google Maps API<sup>38</sup> in [globalmove.us](http://globalmove.us)<sup>39</sup>, a performative and automated drawing that is coded with HTML, Javascript and the API. (See figure X) The

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<sup>38</sup> See here: <http://code.google.com/apis/maps/index.html>

<sup>39</sup> See the project GeoGoo developed in 2008 here: <http://globalmove.us/>

user experienced a changing interface caused by the readymade web icons on a google map, which challenge our perception in map reading as well as stretching the limit of Google's service in an artistic context. This notion of hacking and use of readymade icons, data or resource, exploring the limit and use of technology, are always an interest area for net artist. (Such as those mentioned perviously- Olia Lialina, Mark Napier, Alexei Shulgin) Other Asian artist Winnie Soon, who employed Google RSS technology and a program class base on Yahoo! Babel Fish application (an online real-time translation application) to real-time filter the online data from blogs and news broadcasting channel in her work 5'stars identity<sup>40</sup>. (See figure X) Any sentence related to chinese culture and identity was extracted and was translated on-the-fly to different languages, resulted in multi-sensory of visual text display, haptic vibration and sound alert performance by the five mobile devices. Audience experienced the re-appropriation and performative daily digital objects via execution of computer code, an unusual way of seeing and experiencing the dynamics of the Internet.

Twitter as one of the important social media applications, with 200 million monthly active users in 2012<sup>41</sup>, created in 2006 by Jack Dorsey, allows user to send and receive text message (also known as tweets) with no more than 140 characters. It also provided standard API<sup>42</sup> for public use as well. People for example tweets personal message, breaking news, promotional and marketing announcement. Some even use this as a key platform to communicate with others daily, as well as to use this platform as a political means to spread out any desired messages. The data<sup>43</sup> in twitter is a very rich content pool include people from almost all over the world including European countries like United Kingdom and Ireland. Asia countries like Indonesia, Japan and Malaysia, United States, South America like Mexico and Brazil, and even Kenya. Many artists from different regions see this as a captivating source and tried to map, translate, visualize, represent and perform in a very different forms of net arts. A performative

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<sup>40</sup> See the project 5-stars identity developed in 2009 here:  
<http://www.siusoon.com/home/?p=544>

<sup>41</sup> See the company announcement here:  
<https://twitter.com/twitter/status/281051652235087872>

<sup>42</sup> See here: <http://blog.twitter.com/2006/09/introducing-twitter-api.html>

<sup>43</sup> See 2012 Social Network Analysis Report as a reference here:  
<http://www.ignitesocialmedia.com/social-media-stats/2012-social-network-analysis-report/>

browser display: To visualize the location of tweets in Real-time geolocated tweets (2012)<sup>44</sup>, A World of Tweets (2010)<sup>45</sup>; Use of expressive keywords display such as twistori (2008)<sup>46</sup>, Happyrain (2011)<sup>47</sup>. Physical print out the tweets as a physical sculpture, containing live and archive text - Murmur Study (2009)<sup>48</sup>, default to public-tweetleak (2009)<sup>49</sup>. Static tweets display in a sculptural form like 276. On Color Blue (2009)<sup>50</sup>. Kinetic Installation which filtered by specific keywords such as Pupufu (2009)<sup>51</sup>, Where is your art (2010)<sup>52</sup>, Net. Portrait (2012)<sup>53</sup>. Datascape (2012)<sup>54</sup> performed in a live setting with dancer and projection. Although there are still many artworks with twitter as the key readymade source that haven't been listed here, the fact that we can see from above all examples are net art is expanding and transforming, in a way net art could span across design, visualization, performance, kinetic art and sculpture; and it is highly subject to the current web technologies development. The differences of the collective intelligence here when compare with 1.0 is the scale and quantity of data. It shifts the type of works from the domain names, protocols, web URLs, manual input by audience to a continuous and automated process of user-generated content.

These automated and process-based artworks is sustained with the data that is generated by user's activity as well as platform supported, stored and display the globalized data, leading to a continuous and dynamics active sphere, the system that runs round the clock without a definite start and end point. Theorist Jack Burnham commented upon the shift of the artwork nature from an artifact, a static object to an "art system" due to the advancement of technology. (Burnham, 1968) These type of artwork can be called living sculpture (for those net art) as opposed to what we normally understood as sculpture in fine art, which is a fixed object; or

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<sup>44</sup> See the project here: <http://pure-waterfall-1016.herokuapp.com/>

<sup>45</sup> See the project here: <http://aworldoftweets.frogdesign.com/>

<sup>46</sup> See the project here: <http://twistori.com/>

<sup>47</sup> See the project here: <http://www.zeitgeistbot.com/happyrain/>

<sup>48</sup> See the project here: <http://christopherbaker.net/projects/murmur-study/>

<sup>49</sup> See the project here: <http://www.defaulttopublic.net/tweetleak/index.html>

<sup>50</sup> See the project here:

<http://www.brooklynmuseum.org/community/blogosphere/2009/02/18/1stfans-twitter-art-feed-artist-for-march-2009-joseph-kosuth/>

<sup>51</sup> See the project here: <http://www.whyixd.com/?p=278>

<sup>52</sup> See the project here: <http://pressmeprocess.blogspot.hk/2010/08/twittering-on-art-in-istanbul.html>

<sup>53</sup> See the project here: <http://www.siusoon.com/home/?p=710>

<sup>54</sup> See the project here: <http://www.siusoon.com/home/?p=781>

kinetic sculpture, as described by Burnham, in contemporary art that moves in a mechanical way. Living Sculpture is not merely about an active system, including the interaction within the highly volatile sphere, but also the seamless connection between computer, database and network, the fragmented chunks of data flows into the relational database, juxtaposed with other different data sources, then a possibility to combine with others to form a filtered stream from this hidden container. Burnham then further discussed the concept of data system in the information processing structure explicitly in 1970 which was based on cybernetics<sup>55</sup> analogy, "such information is only obtained by expanding the energy of systems outside the one receiving information. Thus the art system has maintained its vitality by constantly reaching outside of itself for data." (Burnham, 1970) Burnham told us there was more than one system, and it was constantly expanding, like a living structure.

Other than the influences from readymade and Dada art movement on this data process as discussed earlier, Burnham (1968) further pointed out the system approach was the concept of Happening, a term coined by Allan Kaprow in 1958, which describes the close relation of event and everyday life, and this is what Burnham suggested as "environmental situations". (Ibid) Those "unheard-of happenings and events" should be observed and these will become the materials for artistic creation. Kaprow was one the key explorers in the Fluxus movement in the 1960s. The name Fluxus implies the fluidity of flow as well as a continuous of change. Many artist (such as John Cage, George Brecht, amongst others) were involved in this art movement. As Kaprow described the features of Happening in his earlier article, including the intimate and fleeting nature, open-ended and fluid form, impermanence and emergence. (Kaprow, 1961) All these characteristics are the essence of living sculpture, the art system that we are experiencing nowadays in net art. The flow of the living data manifests and performs as an art system, from physical kinetic object, to machines.

Christiane Paul also presented networked art 2.0 with crowd sourcing, that is artist outsource different tasks for others in order to complete the work. This is different from interactive art.

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<sup>55</sup> Cybernetics is the scientific study of communication system within humans, machines and animals, particularly on the feedback and control of information. This term was coined by

Interactive art can be explained as the real time interaction with the system, where it will trigger a feedback to the participant. You could choose to interact in different level or duration. However for crowd sourcing, it is literally a task is being assigned. Each individual has to complete the assigned task (with instruction) in order to complete the final work. The outcome of the work can be displayed without the Internet. However, the process of making this artwork happen required the crowd collaboration from the Internet. The artworks from Aaron Koblin, an artist and designer, can be best illustrate this. He recruited thousand of workers through Amazon's Mechanical Turk web service and paid for US\$0.02 each by just "draw a sheep facing to the left" for his art project, the sheep market in 2006<sup>56</sup> (See figure X). As a result, different style of paintings were received and Koblin document the process of drawing for each worker as a massive database to analysis the data such as time spent, average wage, approximate collection rate. Other similar project, Ten Thousand Cents (2008), required thousands of labour to digitally draw a pixel of a US\$100 bill through an online customized drawing tool. (See figure X) This hundred dollar, on one hand, was the total cost for production and also the available purchase price for the final completed \$100 note drawing by ten thousands anonymous artists. From these two projects, the output is the live recorded data, like a video documentary to playback the process in a convincing way, because massive number of labours were actually involved and collaborated, went through the Amazon's service to receive payment. Instead of using existing Internet data, Koblin utilized the properties of Internet, that is distributed and globalized, particularly participatory in Web 2.0 era, to reflect the current economic situation in the world as Myers stated, our society will be lack of permanent jobs with good salary, the responsibility will be broken down to a tiny task like the "assembly line". (Myers, 2007) These works critically examine Internet culture, issues of social and political economy like some of the works mentioned in Networked 1.0.

There are other games-like interaction projects have not been covered in details in this thesis because those area normally discussed in other genres as virtual reality, participatory or

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Norbert Wiener.

<sup>56</sup> See the project here: <http://www.aaronkoblin.com/work/thesheepmarket/index.html>



interactive art. Those projects such as Telegarden (1996)<sup>57</sup>, Can you see me now? (2001)<sup>58</sup>, Second Life (2003)<sup>59</sup>, with a significant performative element, using Internet as a medium to interact with physical audience in a direct and live setting. Audience can take an active role to control or command the object (such as watering and planting a physical site), other person (such as Blast Theory in Can you see me now?) or virtual object (such as Avatar in Second Life), as well as participate directly and be able to change the outcome of the work. Basically, those are the projects didn't involve networked data that is based on existing Internet Culture, indeed they are the artworks that use Internet as a vehicle to attain mixed reality.

[ Here need an intermediate conclusion or summary ]

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<sup>57</sup> Telegarden is an interactive robotic installation, audience can via internet to interact with a living plant. See here: <http://queue.ieor.berkeley.edu/~goldberg/garden/Ars/>

<sup>58</sup> Can you see me now is? a chase game that is simultaneously happen online and in the physical streets. See here: [http://blasttheory.co.uk/bt/work\\_cysmn.html](http://blasttheory.co.uk/bt/work_cysmn.html)

<sup>59</sup> Second Life is a 3D virtual world allowing users to interact and socialize there. See here: <http://www.secondlife.com>

**Net Art – performance:**

At the Microwave International New Media Arts Festival (2012), Peter Ride, as one of the keynote speakers, showed the art project “Listening Post<sup>60</sup>” (See figure X), a sonic and networked piece, by Mark Hansen and Ben Rubin. He mentioned the average time for audience to watch the piece is 20 minutes, which is relatively rare when compare with other artworks or even other many interactive works in the Science Museum, but still it is something unexpected, particularly the context which is not purely art base. Surely you can say the work comes with benches in front of the work, resting there possibly could prolong the stay. Although the official suggested duration is 30 minutes instead, Ride still seems surprised with the collected data, however, he showed no clue on it. I remembered I visited the same work in the same location in 2009, I stayed there for 30 minutes not because I was tired and need a rest, but more I know I am watching like a piece of performance requires my attention with my eyes, looking at the dynamic text on the monochromatic LED screen, as well as listening to the computerized voice. All the text is unique, unlike usual video art that you saw in art gallery with looping feature, this piece is performing uncensored text in real-time from thousands of public Internet Chat rooms, bulletin boards and online forum. Two Hong Kong media art curators, Ellen Pau and Joel Kwong, also sat together in front of the work for 20 minutes, watching the poetics flow of information.

All these incidents remind there is a need of language to critique, to appreciate, to analyze and to articulate this type of live networked piece. If you tell other you go to watch a performance or film, people expected it is a durational piece without questioning, but what if it is an art installation? The name Multi-sensory installation unable to capture the full essence of the live process, it is not a performance that we commonly known, to perform on a stage or in a screen with a clear audience and object or performer demarcation. It worth to have a thorough articulation with a critical conceptual framework to describe the performance of networked data, as I would argue, the essence of the piece is from data. Data performs via the

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<sup>60</sup> See the project here: Hansen, M. & Rubin, B., 2003. Listening Post. Available at: <http://www.earstudio.com/projects/listeningpost.html> [Accessed November 17, 2012].

manipulation of machine code, negotiation within system, and the materiality and the immateriality of digital object to give you a sense of liveness. The whole living sculpture performs with live data that each utterance is unique and cannot be reproduced, it is a production.

### **What is performance?**

Performance 'is that any action that is framed, presented, highlighted, or displayed' (Schechner, 2002 ) Under this definition, the discipline of performance studies is constantly reshaping due to different forms, situation and technology have emerged. It is no longer confined to the 'stage' (what we have commonly known), for instance, theatre, musical, drama and dance etc. In fact, it could be extend to other open stages such as street, sport playground or even your home. Auslander has used 'staging the relationship' (Auslander, 2008, p.10) with Television to describe the preparation of creating a concert environment at home, for instance: to switch off the light; to turn on the Television; to pour a glass of wine. (ibid). You set up a stage for 'someone' to present 'something', in other words, to make someone ready to perform. As stated by Schechner, the word 'perform' relates to the notion of doing as a being. (Schechner, 2002, p.28) The noun "someone" as a performer, could be human and/or non-human agency, such as a mobile rings as its existence, she raises her hand as her existence. Performance can be studied via activities from everyday life. (Auslander, 2003, p.1) Alternatively, it can be examined via media and technology. With the proliferation of technologies and interfaces such as Internet, tablet device and game console, the knowledge of performance is expanding. Terms such as cybertheatre (Chatzichristodoulou, 2010), interactive performance (Sparacino, Davenport, and Pentland, 2000), networked performance (Remote-encounters, 2012), robotic performance (Schlossman, 2008) are used to describe new performing production. As a consequence, performance is a 'broad spectrum' (Schechner, 2002), keeps expanding its articulation with different intervention and collaboration of agencies.

## **Performer in Net Art**

Philip Auslander, a researcher and theorist in performance art, considered Listening Post as a piece of machine performance. 'Listening Post itself is a performer' (Auslander, 2005) In traditional performance, there is a performer who is acting out the script. Therefore in these type of artworks, computer executes the machine code, in a way the machine acts upon the pre-written code, and the code embed with different performing and aesthetics effect such as speaking computerized voice and displaying temporal text. There are many parameters that artist could configure and to set up the structure, allowing the influx of data. Therefore both essential elements of a performance, technical skills and interpretation skills of a performer as described by Auslander, appear via the execution of machine code. During the program running process, it actively grabs and manipulate the data from the Internet. Therefore, in Auslander's term, Listening Post is a live performer, able to 'appropriates these social performances [of others] and reframes them as objects of aesthetic attention" (ibid) The social performances here is the networked data that with conversation, notes and happening from social context. It is no double that this type of net art carries the essence of performance. In other words, computation extends the notion on how we understand artistic performance, including the non human forces such as machine and code.

As described by Auslander, the notion of 'live' is a complex term, particularly in technological modern era, the actual meaning and its cultural importance change accordingly. (ibid) Not only in the field of performance, the word live also appeared in other media such as Radio, Television and Internet Culture with different interpretation. In the following, instead of using a historical approach to discuss the development of liveness, I will map out different theorists and contexts in various fields that include this discourse. The aim is to give an understanding and overview on what does liveness means? How does it relate to Data Performativity? What are the strategies for liveness construction in digital art? I intend to provide a critique of liveness in digital culture as a critical theoretical framework here.

**Liveness in Television:**

The easiest way to understand liveness in Television (TV) would be 'live broadcast'. A term that we commonly hear when there is live sport event as world cup, or some special incident unexpectedly happened and requires to broadcast the live news, interrupting what you are currently watching on the TV. What you see from the TV screen is the actual happening from other site, the television is transmitting a live event in present. As described by Paddy Scannell, "[the events] existed in real time, the time of transmission being the same time as and corresponding with the time of reception." (Scannell, 1996, p.153) Live is happening in two sites, one is the actual site, the other is the instant replay that is just passed away. (Scannell, 1996, p.172) In some of the cases like sport events, you will hear the voice from the commentators or the ambient sound at the present moment as described by Scannell, therefore the transmission is a combination of two sites, two times into a single feed. This is a "reply involves both 'live' and non-'live' element at one and the same time" (Marriott, 1996, p.71) as originally outlined by Stephanie Marriott in 1996. The non-live element that mentioned by Marriott is complex, on one hand it is live because it has actually combined with the live event to transmit at once. On the other hand, it is a "narrative reconstruction"(Ibid), composing a story of the actual site. With the combination of both elements, they successfully create the live atmosphere for the absent audience as they will feel just like they are present in the actual event. As pointed out by Scannell, live broadcast "offers the real sense of access to an event in its moment-by-moment unfolding. This presencing, this re-presenting of a present occasion to an absent audience, can powerfully produce the effect of being-there, of being involved (caught up) in the here-and-now of the occasion." (Scannell, 1996, p.84) Audience able to "witness [the] remote events as they happened. Television provided its audiences with a powerful sense of co-presence with the events it showed." (Ellis, 2000, p.32) The live unfolding of the event, creates "the mood of expectancy" (Scannell, 1996, p.84). In addition, in view of the demand of 'immediacy', there basically hard to have a well rehearsed and prepared script like other recorded TV program. Same for the technical production as well, the demand of real time transmission which makes it hardly to do any editing with fine-production techniques or effect at that particular moment. This authentic transmission also excites the

audience to chase and stay in front of the TV, to wait for the next unfolding instant and real moment as if they were present at the actual event.

Breaking news is another example of 'live broadcast', but they are different from event such as sport as mentioned above. Sport event is still something predictable. Win or lose in either team as the ultimate result, but just the parameters (such as scoring points ) be the variable for the event. Nevertheless, breaking news such as earthquake, terrorism, tsunami, could be totally unexpected and shocking. Paddy Scannell has written an article about the difference of 'immediate present' and 'historic present'. (Scannell, 2004) It is because incident happened in such an unpredictable manner, even live broadcast with immediate present, and able to eye-witness the process of event, however, reporters with lack of information to analyze the whole. What you see is the most original and factual visual images. Historic present, in the contrary, is a heavily mediated narrative, normally broadcast in the end of the day or in the following day, presenting with a full picture and background of the incident. The archived became mediated, politically reported in a more organized and with more commentary, history, background of the present. After all, these two types of live broadcast both deepen "the meaningful character of existence" via the "power of live broadcasting".

Although TV program is not a wholly live event, which is pre-recorded, it still can be described as liveness in general broadcasting sense. The images on the screen is always in motion as it produced, contents are always available and the presentation of these content is planned and strategic. It is different from film in a way that the commentators, reporters, singers are all address to the camera lens, they are addressing directly to their audience, even they are not physically in the same space. It gives the home audience that they are telling and talking to them directly, even could be in a personal and present manner such as using the present tense lines "Stay with us", "today", "here", "we". (Ellis, 2000, p.31-33) It successfully gives the illusion of liveness by using all these rhetoric.

Additionally, the TV content is about reality, social and everyday life. As discussed by Heath and Skirrow, TV has the capacity to transmit 'real' information, the reality on how we perceive

the world.(Heath and Skirrow, 1977, p.7) Furthermore, many TV programs simulates the actual situation such as office setting or home setting. The program's substances are based on the social and cultural environment, in other words it is social reality. In a way, TV "shares the present moment with us" as mentioned by Ellis. (Ellis, 2000, p.74) "The very act of broadcast transmission itself creates a sense of instantaneous contact with the audience." (Ibid) This contact is not a physically presence contact like you meet up with your friends at a coffee shop, but a socially connected mind that links to the real world. As a result, audiences are more engaged as they feel the situations are somehow similar to what they are experiencing in real life. Therefore the notion of liveness is a social construction.

Technically speaking, the video and audio are both transmitting in live, even they are regard as recorded program. As Ellis states, "recored programmes are able to claim the status of liveness for themselves simply because the act of transmission attaches them to a particular moment." (Ellis, 2000, p.30) Therefore, the decisive criterion of liveness is not about the 'actual event', or put it as the literally live, as described above. Once you switch on the power button, "the television image is continually moving...[t]he scanning beam is constantly trying to complete an always incomplete image. ... It is structurally in motion. Each television frame is always in a state of becoming." (Feuer, 1983, p.13) It is a "continuous scanning process", without any frozen snapshots of events, blank screen or the idea of finished, "that exists--lives--as a process." (Zettl, 2012) Particularly TV program could be finished according to the program guide, but next one will on show and continue to fill in all the remaining time slot. Even in the mid night, channel might just show some old episodes or repeated programs, at least it never stop, you could anytime just plugin, still able to catch the context.

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