AUGMENTED REALITY APPLICATIONS IN HAND-HELD DEVICES IN THE LIGHT OF BAUDRILLARD'S "SIMULACRA AND SIMULATION"

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ABSTRACT

Baudrillard is one of postmodernist theorists that criticize the unreality of the culture which we live in. He suggests that human interactions with virtual reality media and unreal technologies, achieve nothing; He even fears that society will fall prey to these media subjectivity. The virtual reality media capability to produce simulated reality could mislead society into voluntary detachment with the real world. The latest development in virtual technology has made it available within the consumer market in the form of augmented reality application. An application based on a concept that merges virtual data within the physical environment, a different approach compared to common virtual reality technology where user is immersed within a virtual environment. Instead of detachment, augmented reality offers attachment with reality. While it is still too early to study augmented reality technology's impact on society, a study on Baudrillard's critiques will nevertheless gives a valuable insight on how designers could make use of augmented reality technology to shape society with a sense of consciousness of the real world.

Keywords: Baudrillard, augmented reality applications.

ABSTRAK

Baudrillard merupakan salah satu tokoh dalam filsafat postmodern yang mengkritik kehadiran media dunia maya dalam budaya hidup manusia saat ini. Baudrillard melontarkan pendapat bahwa interaksi manusia dengan media tersebut tidak membawa manfaat. Lebih jauh lagi dia mengkhawatirkan bahwa masyarakat dapat menjadi obyek bagi media. kemampuan media tersebut untuk membentuk dunia impian yang dapat menarik masyarakat untuk semakin menjauh dari kehidupan nyata. Perkembangan terakhir dalam teknologi virtual telah memungkinkan kehadirannya secara luas di pasar dan dalam jangkaun daya beli konsumen melalui aplikasi augmented reality. Aplikasi dengan konsep untuk memungkinkan pengguna melihat dunia maya terintegrasi ke dalam dunia nyata. Suatu pendekatan yang berbeda dibandingkan dengan aplikasi yang menggunakan teknologi virtual reality pada umumnya yang berusaha untuk menghadirkan pengguna ke dalam dunia maya. Bukannya semakin menarik pengguna menjauh dari dunia nyata, aplikasi augmented reality justru semakin menarik pengguna untuk berinteraksi dengan dunia nyata. Walaupun masih terlalu dini untuk mengetahui seberapa jauh dampak teknologi augmented reality bagi masyarakat, pemahaman terhadap kritik yang dilontarkan oleh Baudrillard setidaknya mampu memberikan wawasan bagi pelaku desain media dalam memanfaatkan teknologi augmented reality dan menerapkannya sedemikian hingga membantu dalam meningkatkan wawasan dan kepedulian masyarakat terhadap dunia nyata.

Kata kunci: Baudrillard, aplikasi augmented reality.

INTRODUCTION

For the 'message' of any medium or technology is the change of scale or pace or pattern that it introduces into human affairs. (McLuhan, 2006, p. 246)

The emergence of smart phones in the market has made it possible the availability of virtual reality technology within the affordable reach of consumer market. Augmented reality, a concept within the realm of virtual technology, has appeared in the form of applications available to be integrated within consumers' everyday mobile hand-held devices. These applications could revolutionize how user sees the physical world. Where once application is confined within the 2 dimensional boundaries of the screen, is now extendable to the limits of the physical world around us. User will be offered with the ability to 'interact' in real time with the physical world. However, some would consider this as deterrence in progress, a critical view based on critique on media by Jean Baudrillard's almost 30 years ago as published in *Simulacra and Simulation*. He proposed that simulation could alter society's perception on reality.

This essay will study whether human interaction with virtual reality, in the form of mobile hand-held devices' augmented reality applications, as a form of simulation, is susceptible to Baudrillard's negative view. While the purposes of this essay is to give insight to designers on how they should make use of augmented reality technology in the design of digital media application.

BAUDRILLARD'S SIMULACRA AND SIMULATION

Jean Baudrillard is considered one of the most prominent philosophers in the post-modern era, an era that raised awareness and consciousness, and taught us to be critical of our surroundings. According to Butler (2002, p. 2) most post-modernist philosophers view everything as political undertakings; their writings often follow Marx.

Baudrillard's writings are mainly focused on studies and critiques of society in a world of signs. His first publication in 1968, *The System of Objects*, theorizes how sign and symbol values have replaced use value and exchange value in the modern capitalist society. It contributes to expanding Marxist studies, giving a new approach in understanding the modern capitalist society. For Kellner (1991, p. 9), this book gave an insight of the framework that defines Baudrillard's thought.

However in the 70's, his writing shifted to the analysis of media, simulation and how they affect society. It could be suspected that this shift is a result of the ubiquity of electronic media in society, especially that of the television. It is also important to note that the emergence of virtual reality technology, introduced by researchers in MIT and University of Utah in the 60's and 70's, could also be a determining factor.

Through *Simulacra and Simulation*, a collection of essays published for the first time in 1981, Baudrillard proposes a theory that society is now living in a time where images in the form of simulation precede the real and is altering their perception on reality. He elaborates this theory within various subjects ranging from history to science fiction, politics to economy, and film to literature. It pictured how society consumption behaviour preferred the simulated instead of the real, the consumption of the meaningless, which in result will affect the social behaviour towards what is real, a state of ignorance, which in his argument fabricated by the ruling system as part of political undertakings.

What is interesting to note about his essays in *Simulacra and Simulation* is the absence of evidence.

His views and judgements are mainly subjective, and could not be considered a scientific study. Nonetheless this is a valuable discourse source in the study of media and society.

In *The Precession of Simulacra*, Baudrillard (1997, p. 6) presents the four phases of images:

It is the reflection of a profound reality;
It masks and denatures a profound reality;
It masks the absence of a profound reality;
It has no relation to any reality whatsoever: it is its own simulacrum.

He shows that there is a clear difference between the first three phases and the final phase; that of a link with reality. The absence of origin or reality makes it 'no longer of the order of appearances, but of simulation' (Baudrillard, 1997, p. 6).

Simulation today according to Baudrillard (1997, p. 1) 'is the generation by models of a "real" without origins or reality'. What he meant was that simulation has reached the phase to be considered real, yet it doesn't actually exist. For example one could create a simple note with a keyboard, tweak the pitch in sound-editing software to mimic a whale's sound and then recording it. A person who listens to the recording will eventually mistake it for a recording of a real whale. It is not the sound of a whale, but considered to be one because it meets all the physical characteristics that one could perceive as a whale sound.

The view of simulation that he proposed, however, could be considered to contradict itself. It stated that simulation generates the models of a real, and if it generates the model of the real it must have borrowed the properties and characteristic of the real. Thus it does have a link with the original or reality. His idea is mainly focused on that of the tangible quality of the real as a whole, overlooking properties of objects that make it perceivable as real (e.g. dimension, tangible by the senses). The illustration mentioned in the previous passage could be used to explain this contradiction, for the author of the whale sound to be able to reproduce the whale sound he or she must have heard a whale sound before as reference, otherwise it is impossible to reproduce it. The listener or audience also must have heard the real sound of a whale before, otherwise they would be sceptical or critical of the sound.

In *Simulacra and Science Fiction* Baudrillard (1997, p. 121) proposes 'the three orders of simulacra: simulacra that are natural, simulacra that are productive, and simulacra of simulation'. He clearly states that the third order, 'simulacra of simulation is founded on information' (Baudrillard, 1997, p. 121).

Looking at Baudrillard's third order of simulacra, one might imagine the world of the real as created by simulation, such as that illustrated in *The Matrix* (1999). From an interview with *Le Nouvel Observateur* he rejects this notion, saying that the movie misinterpreted his theory. *The Matrix* more closely represents that of the Platonic idea of illusion (*The Simile of the Cave*) or the first order of simulacra, where the human was either in the real world or in the simulated world, two completely separate worlds (http://www.ubishops.ca/BaudrillardStudies/vol1_2/g enosko.htm), while the third order of simulacra is concerned with an intermingling relationship between society as the real and the simulated.

The third order of simulacra represents a real world where perception of reality is defined by simulations. An understanding of the real world is based upon something that is not real. An example of this is the US invasion of Iraq. The decision to invade Iraq is based upon information and data suggesting that it is hiding weapon of mass destruction. The decision that affects the life of millions of people is based upon a trust on simulation. A more accurate Hollywood representation of the third order of simulacra would be the movie *Eagle Eye* (2008), where the fate of a nation and its survival is decided by a super-computer, making decisions based on numerous simulated scenarios and possibilities.

This intermingling is what worries Baudrillard. From his earlier theory on the consumer society, he believed that the consumption of products as signs will eventually be the consumption of simulation. This is the consumption of something with no real value, for simulation is just a reproduction of the code of the real. The increasing demand and consumption of simulation will only lead to repeated reproduction of the code of the real. What is considered new is actually another form of combination of the old, repeated over and over again even further away from the real and this eventually will replace it; misleading society into accepting it as the real. There will be no progress but instead it will only be the deterrence of progress. This is what he might consider as the implosion of society.

Other essays from *Simulacra and Simulation* elaborate the problem above. *Apocalypse Now* and *Holocaust* illustrates the consumption of simulation that leads to the misinterpretation of the real in cinemas and television (images and sound). It is clear from Baudrillard's point of view that the visual media holds an important part in the consumption of simulation. The emergence of new technology in visual media that is able to represent simulations in a more realistic way will only make the society vulnerable in accepting it as the real. Society will prefer the beauty and the excitement that the media has to offer compared to that of the dull and grim reality of the real world; a voluntary detachment from the real.

AUGMENTED REALITY

According to Karen Carr et al. (1995, p. 5) virtual reality 'is concerned with the stimulation of human perceptual experience to create an impression of something which is not really there'. This is a very broad definition which reflects the various research and experiments done to achieve this, but it eventually narrows to the fields of digital technology.

Augmented reality is a form of virtual reality. The term was first coined by Thomas P. Caudell in 1992, then a Boeing engineer, to describe the concept of displaying virtual information within the real world to enhance users' perceptions. The concept itself dates back to the 60's and 70's as a form of interactive virtual reality described by Ivan Sutherland, a prominent researcher and pioneer in the development of virtual reality. He used this concept as part of his research to study the 'application of virtual reality in practical medical' (http://design.osu.edu/carlson/history/lesson17.html accessed 29.11.09). Hollywood has taken the concept further by visualizing it in more fashionable ways in movies such as *Minority Report* (2002) and *Iron Man* (2008).

Although the research on augmented reality dates back more than 30 years, it has not developed much in progress and popularity due to technological limitation. The computational speed and capability of computers at that time was not sufficient to process the high input of data necessary for a real-time image processing application.

Nowadays, with the technological advancement in real-time image processing capability of computers and its application on mobile and hand-held devices, augmented reality has gained more popularity. From GPS to smart phones' applications, augmented reality has become a more ubiquitous technology.

As described earlier, augmented reality can be defined as the merging of virtual content with the physical world. Unlike common virtual reality where users are immersed in the virtual world, augmented reality tries to visually immerse digital content within the physical world, thus creating a montage of the real and the virtual. The purpose of this, as hinted by its name, is to enhance and enrich the visual representation of the physical world by altering or completing it with digital data, making it more useful or entertaining for the viewer.

The simplest example of augmented reality in everyday life is the GPS devices equipped in most luxury cars. It displays the current location of the vehicle within a simplified graphic of the site map, adding additional information such as direction arrows, street names and distances, making navigation faster and more convenient.

Another variant of the GPS is an application for the iPhone 3GS called NearestTube. Unlike the common GPS devices available in automobiles, it provides commuters with real time navigation direction through the maze of urban sidewalks and alleys to the nearest underground subway terminal simply using their existing iPhone 3GS device.

For the following years more and more applications that use the augmented reality concept and technology will be available for mobile or hand held devices users, ranging from everyday tasks to education and entertainment. It is gaining popularity due to its practical nature. It does not need a special environment and hardware like a common virtual technology device does, and it can be incorporated by means of an application into users' existing devices.

The working concept behind augmented reality application in hand-held device is actually simple. It makes uses of the input hardware (e.g. camera, GPS and accelerometer) already available in hand held device. It transfers the inputted data to the application which then processes and merges the data together with those that have been retrieved from the internet, and then outputs the result on the device's display. The camera's function is to capture real time moving images of the objects that the user is viewing, the GPS is to pinpoint the devices current geographical location and the accelerometer is a sensor to measure motion providing real time adjustment of data position and perspective on the screen in respect to the captured images in the background.

Although separated by the screen, the physical relationship between the viewer and the environment is real, in that the user is physically present within the environment. The user could immediately switch visual attention between the real and the virtual, or both simultaneously.

Looking at current trends due to global warming awareness in society, augmented reality applications will play a larger part especially in disseminating information. The clutter of commercial information could be hidden within aesthetically designed graphics. Depth of information could be presented according to the distance of the viewer to the viewed objects. More information could be disseminated through the use of fewer resources, and information could be viewed according to the viewer disposal.

AUGMENTED REALITY AND THE THIRD ORDER OF SIMULACRA

As a form of virtual reality, augmented reality is susceptible to Baudrillard's third order of simulacra. It is a media for disseminating information. The question is with its capability to display simulated data realistically will it tend to distract society away from reality as stated by Baudrillard?

There are several points to note before investigating this matter: first, it should be remembered that Baudrillard's third order of simulacra was conceived at the time when technology (internet, interactive media) that shaped today's virtual reality is in its early stage of research and development. It has not made its way within the market of consumer society. Second, Baudrillard's theory as analysed in the previous passages shows a detachment of society from the real, an impossible state in augmented reality media because it requires the presence of the physical world to function.

The behaviour of society towards information in the media is significantly altered with internet being a household necessity. Information is more available but at the same time is subject to suspicion. The user has the power to decide, however the information provider (the ruling system, i.e. government and major groups) has the power to influence those decisions. As is the case of augmented reality application in hand-held devices. The information displayed is available from the internet. In this matter, Baudrillard is right. Augmented reality application could alter a user's perception of reality. A user's judgement of physical objects and environments is dependant on the information displayed.

An example of this could be demonstrated by a device (currently under development by The MIT Media Lab.) called SixthSense. One of the video documentaries to demonstrate the product's features (http://www.youtube.com/watch?v=ZfV4R4x2SK0) shows how this product could identify an individual through face recognition software and displays information about this individual from the internet directly into the individual, using his or her body as a screen. Other people judgement of this individual is no longer based upon gestures, social manners, conversations or facial expression, but already biased towards the information displayed.

Although it is just a demonstration and the actual practice of such action could raise issues on privacy, it is nevertheless possible. Augmented reality has made it possible for information from the virtual world to literally become a part of the physical world. From economic point of view this could lead to the value of

an object or being in the physical world is augmented or diminished by the information it conveys. While in the social point of view the physical world will be deprived from subjective judgement, critical thought and creative expression. Every physical object in the environment will be subjected to tags and judgement; there will be no more anonymity of the physical object as well as being, a total violation of privacy.

The internet unlike television, provides users with interactivity, the means to alter information. The user could play part as an active transmitter instead of a passive receiver. The ruling class will no longer hold an exclusive control over the media; instead the user will determine the content and its lifetime. The availability of augmented reality devices within the society will broaden the public control of the physical world. Their perception and understanding of the physical world will no longer be constraint based on those fabricated by the ruling or majority class. Subjective and critical opinions could be made and tagged on certain places or physical objects for others to perceive and share (eg. geo-tagging with Google maps). Instead of relying on certain individual or authorities, understanding could be build based upon critical approach from different points of view.

One could argue that the possibility presented in the previous passage could lead to a society of chaos; a society with no firm understanding of their surroundings. Information could be subject to abuse and vandalism, throwing society into a limbo of confusion over which information to trust or to purge. However, augmented reality has the capability to put users within physical contact with the real. Users will be able to gaze away from the simulated information displayed on the screen to directly perceive the real, thus maintaining its subjective judgement. Thus it is no longer a matter of choosing, but rather a process of building information based upon what is perceived physically and virtually. The presence of the real made it possible also an extended creative relationship between the user and the physical environment beyond the boundaries of the virtual realm (the limitation of the screen, resolution and data).

Finally the user preference is a decisive factor. Those that find comfort from the ruling system will be dependant upon the information provided by the major groups as such that this media will replace his or her visual perception senses and cognitive process in facing the real world, distorting reality to that of the simulated. While those that remains to be critical will use it as a tool to express creativity and to enrich meaning to the physical world.

CONCLUSION

The augmented reality application availability in consumer market and its ability to attract the consumer society gives it the power to affects society behaviour. Like any other media, it is vulnerable to be used as tool of the reproduction of simulation. It has, as Baudrillard has shown, the power of deterrence, leading to a society controlled by the third order of simulacra. The rise of digital technology has indeed revolutionized once again the modern capitalist society by replacing sign and symbol values with information value. However, it also has the ability to pull user within the real physical world, and it provides user to interact actively. It has what it needs to create a positive impact of progress in society.

One important aspect lies on the application and interaction designer. More thought and effort should be made on creating application that makes use of the senses rather than eliminates their presence. Instead of laying out what need to be done by the user, application should help the users to engage in a creative process. The increase in technological advancement of media should be considered by designers as a freedom to design application that attract users to actively engage and interact with their surroundings, to be critical of their surroundings, and in the process disseminating creative thoughts, actions and reflections; instead of designing one that marginalizes users as machines.

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