

## A Study of Change of the Body View in Cyberculture

Keywords:

early cyberculture, contemporary cyberculture, view of the body, Deleuze's perspective

Naomi NEMURA, Nihon UNIVERSITY

---

### Abstract

According to the French philosopher Gilles Deleuze, “art” actualizes the “virtual (possible)” which is latent once the world is organized by a fixed method and that “philosophy” conceptualizes the “virtual (possible).” In other words, *art* and *philosophy* are regarded as suitable for grasping new experiences that are different from the ones under the existing socially constructed order.

From this perspective, first of all, this paper shows that although early cyberculture describes a utopia of the near future where escape from the body is realized by technologies (as seen in William Gibson’s *Neuromancer*), expressions of new experiences of bodies in our everyday life have become an important part of cyberculture nowadays. Contemporary cyberculture like some kinds of gameplay or cyborg performances contains the actualization of new experiences of bodies in our society with the spread of the electronic environment.

Secondly, this paper examines new experiences of bodies in our society after the spread of electronic technologies based on some game studies and art commentaries. Recently, some game studies and art commentaries have analyzed new experiences of bodies in contemporary cyberculture. According to those studies and commentaries, new experiences of bodies are not only mental and emotional but also physical as well. Selves that appear in the electronic media are not based on the release from the biological body but the *reconstruction* of the biological body. The new experiences are crucial in making a re-examination of the framework of the biological body and opening up infinite possibilities for interpretation of bodies. Those possibilities invite rethinking and reconstructing the existing order related to the biological body.

---

## 1. Introduction

According to the French philosopher Gilles Deleuze (Deleuze and Guattari, 1994), “art” actualizes the “virtual (possible)” which is latent once the world is organized by a fixed method and that “philosophy” conceptualizes the “virtual (possible).” In other words, *art* and *philosophy* are regarded as suitable for grasping new experiences that are different from the ones under the existing order; the socially constructed relations or structures which include various exclusions or repressions.

At least a part of cyberculture can be considered as *art* from the viewpoint of Deleuze since it actualizes new experiences of bodies in our society with the spread of electronic technologies. First of all, this paper explores which kind of cyberculture actualizes such new experiences of bodies by studying its early expressions such as William Gibson’s novels and its contemporary expressions like some kinds of gameplay or cyborg performances.

Secondly, this paper illustrates a new trend of the body view in cyberculture by analyzing new experiences of bodies in our society. This paper also suggests what such trend of the body view would bring to us.

## 2. Early Cyberculture and Contemporary Cyberculture

It is difficult to define the range of cyberculture because it is ambiguous and complex. However, we can assume that a change has occurred in cyberculture after the late 1990s. We can see such change in the arguments of Mark Dery and Pramod Nayar.

Dery divides the main domain of cyberculture

into visionary technology, fringe science, avant-garde art, and pop culture (Dery, 1992). These four areas are in the realm of subculture. Therefore, it seems that early cyberculture developed outside of the mainstream culture. On the other hand, Nayar states that “cyberculture is the electronic environment where various technologies and media forms converge and cross over: video games, the internet and email, personal homepages, online chats, personal communications technologies (PCTs, such as the cell phone), mobile entertainment and information technologies, bioinformatics, and biomedical technologies” (Nayar, 2010: 1). Nayar defines cyberculture as the mainstream in our society. Currently, cyberculture constitutes a major part of our everyday life. This section divides cyberculture into two periods (early cyberculture and contemporary cyberculture) to explore the development of the body view.

### 2-1. William Gibson: The Desire for a Near-Future World

Dery focuses his attention on the cyberpunk movement, especially *Neuromancer*, a novel written by William Gibson in 1984 (Dery, 1992). The novel describes a *near-future world* in which information technologies and biotechnologies have become highly developed. This world includes cyberspace as its core image.

The term ‘cyberspace’ was coined by Gibson to characterize “disembodied space” (Brians, 2011: 121) that provided “bodiless exultation” (Gibson, 1984: 6). This characterization had a decisive influence on the image of *cyberspace*, especially before the widespread use of computers and the internet. In Gibson’s *Neuromancer*, the protagonist, Henry Dorsett Case had been a hottest computer “cowboy” who had invested in cyberspace’s

“disembodied consciousness” and the sharpest data-thief in the Matrix (Gibson, 1984: 5). However, he stole data from his employers. As a punishment for the theft, Case lost the capability of a “cowboy.” For Case, it was “FALL” (Gibson, 1984: 6) because it prevented him from accessing the “bodiless exultation” of cyberspace. For this console “cowboy,” his body was “meat” and Case became a prisoner of “his own flesh” (Gibson, 1984: 6). In cyberspace of Gibson’s *Neuromancer*, intelligence is separated from the body, and the immaterial intelligence can manipulate data.

## 2-2. The Desire to Escape the Body: Early Thoughts of Cyberspace

In Gibson’s *Neuromancer*, cyberspace of a *near-future* world is realized by utilizing a special electrode to connect a computer with a brain. The novel can be interpreted as an attempt to describe a *wishful near-future* in which technologies realize the desire for escaping from the body. However, this attempt is not the actualization of different understanding of the body from the one under the existing order. In other words, it is not *art* as defined by Deleuze. The reason is that we can see the body-mind dualism, or the concept of ultimate transcendence of the body in Gibson’s cyberspace, which is traced to “Christianity, Platonic Idealism, or the mechanic Cartesian universe” (Brians, 2011: 123). In early cyberculture, the vision of cyberspace is deeply rooted in Western thought.

Gibson recognizes such body-mind dualism in his works. According to him, the dualism is influenced by the British writer, D. H. Lawrence (Tatsumi, 1997). Lawrence states that the mind-body split in Western thought has created countless problems in Western culture (Tatsumi, 1997).

Don Ihde refers to such thought of early cyberculture as a “technofantasy” (Ihde, 2002). The fantasy is characterized by “the desire to escape the body” and “the belief that cyber technologies (however these are conceived) will make this escape” possible (Brians, 2011: 122). This idea of transcendence of the body and its material limits is frequently found in the image of cyberspace of early cyberculture.

Ingrid Richardson and Carly Harper call such transcendent thinking a “fleshless ontology of cyberspace” (Richardson and Harper, 2001: online). According to Richardson and Harper, Gibson’s cyberspace is a “representation of the possibilities of disembodiment facilitated by virtual systems” (Richardson and Harper, 2001: online). “Within this hierarchical framework the body exists as a lower-order mechanism,” and it is distinguished from the “ontologically superior and potentially autonomous mind” (Richardson and Harper, 2001: online). “The teleology of cyberspace” is exactly the “final non-necessity of the body,” or “achieving a mode of existence that can do without the body” (Richardson and Harper, 2001: online). In other words, they point out the underlying implication that the corporeal form is unnecessary.

Whether it is called a “technofantasy” or “fleshless ontology,” the imagery of cyberspace in early cyberculture is founded on the belief that technologies can enable transcendence of the body. However, such dualistic thinking which is deep-rooted in Western thought is far from the actualization of new experiences which are covered by the existing order.

When the Japanese translation of the novel “Idol” by Gibson was published in 1996, Hiroki Azuma argued that there was a certain “oldness” in the future images and the view of information

technology of Gibson's works (Azuma, 2000). We can suppose that such "oldness" was not only due to the fact that Gibson's concept of a *near-future* information society had already become a part of our everyday life because of the widespread use of computers and the internet, but also due to the fact that Gibson's imaginative power was based on the dualistic thought which had permeated the tradition of Western culture deeply. In other words, we can assume that because the imagery of a *near-future* information society became a part of our everyday life and gave no great excitement, some of the readers in the late 1990's like Azuma found the mind-body dualism of Western cultural tradition, and felt the "oldness" in the Gibson's works.

### 2-3. Contemporary Cyberculture

Gibson's works are still popular and influential for contemporary cyberculture. It cannot be validly concluded that we can no longer see the desire for escaping from the body or the praise of the escape from the body in cyberculture. However, the argument of Azuma suggests that we can also find a new trend in cyberculture after the late 1990's.

As we have discussed, Nayar defines cyberculture as "the electronic environment where various technologies and media forms converge and cross over" and cites video games, the internet and email, personal homepages, online chats, personal communications technologies (PCTs, such as the cell phone), mobile entertainment and information technologies, bioinformatics, and biomedical technologies as examples. According to "*Daijirin*," a Japanese dictionary, "cyberspace" is described as "virtual space which comes into existence in electronic media such as computer networks. In particular,

the media environment is created by bringing human's body consciousness and the electronic media together" (*Daijirin*, Daisanhan, 2006). The use of this word has become widespread in Japanese society and it is an example of how computer technology has become a part of our everyday life. Such definition and explanation of the word correspond to the situation in which computer networks have entered into our real life.

With the spread of the electronic environment in our society, contemporary cyberculture contains the attempts to express new experiences of bodies. For example, according to an interview with Sterc by Joanna Zylińska and Gary Hall, his cyborg performances reveal that the body "has now been invaded by technology" and it is "what we've always been and what we have already become" (Zylińska, 2002: 115). Based on this comment, we can conclude that cyberculture has developed to show how we grasp bodies through living in a society with electronic technologies.

The studies of such cyberculture are referred to as *new media studies*, which are distinguished from the earlier version of media studies that analyzes culture with other types of media prior to creations of our electronic society. In such new media studies, we understand our relation to the media with terms such as "interactive users," "experience," "immersion," "simulation," or "ubiquitous media" (Dovey and Kennedy, 2006: 1-21).

### 2-4. Preceding Cyberculture Studies

Previous cyberculture studies in the 1980s and the early 1990s, for example works of David Tomas or Dery, analyze early cyberculture focusing on the desire for "disembodied consciousness" in cyberspace (Tomas, 1989; Dery 1992). However,

cyberculture studies after the late 1990s analyze a new trend in cyberculture drawing attention to new experiences of bodies. For example, John Dovey and Helen Kennedy examine body experiences of game players (Dovey and Kennedy, 2006). Some art commentaries explore understandings of body experiences in digital performances (Zylinska, 2002).

It is important to consider such new trend in contemporary cyberculture because it actualizes new experiences of bodies in our society with the spread of electronic technologies. Our next step is to conceptualize the experiences of bodies based on new insights of cyberculture studies.

### 3. The New Trend of Cyberculture

Cyberculture has a new trend in expressing body experiences after the late 1990s and *new media studies* have developed in correspondence with the trend of cyberculture. This section explores how new media studies describe new body experiences to conceptualize the experiences.

#### 3-1. Allucquère Rosanne Stone's Argument

In her book, Allucquère Rosanne Stone analyzes the integration and dissociation of selves and bodies in cyberspace, and treats the history of communication technologies from the viewpoint of "the tensions between selves and bodies and the play of their interactions, separations, and fusions" (Stone, 1995: 88).

In the historical analysis, Stone argues about the integration and dissociation of selves and bodies from the viewpoint of technologies "mediating between bodies and selves that may or may not be within physical proximity; i.e., *interfaces*" (Stone, 1995: 89). Stone asserts that before electronic communication emerged, "an

agent maintained proximity through texts bearing the agent's seal, and the agency the texts implied could be enforced through human delegates" (Stone, 1995: 96). However, in the time of electronic speech, that is, when the telephone appeared, proximity started to be "maintained through technology," and the agency became "invisible" (Stone, 1995: 96). When users of the telephone took for granted that they talked with others on telephone, they had the sense of assurance in the presence of "a specific bounded unitary agency" (Stone, 1995: 97) based on a voice, and the meaning of proximity has gradually been reconstituted.

Regarding the "specific unitary agency," Stone discusses that it is "a political, epistemological, and biological unit that is not only measurable and quantifiable but also understood in an essential way as being *in place*" (Stone, 1995: 90). In addition, she states that an "individual societal actor becomes fixed in respect to geographical coordinates that determine physical locus" (Stone, 1995: 90). The geographically fixed body has been privileged as a place of political certification or a political action because the individual societal actor is connected to the agency, that is, the self which is socially constituted as a "politically authorized" persona in the sense of Stone (Stone, 1995: 96).

Furthermore, according to Stone, whereas proximity of the agency was achieved through appearing of the justified body by technologies at the time of an electronic speech on a voice, electronic technologies based on iconic representations appeared and the agency became to be on the "iconic representation of a voice" (Stone, 1995: 97). Stone discusses this reconfiguration of the meaning of proximity of the agency as follows: "This process of changing the relationship between agency and the authorizing body into a discursive one

eventually produced the subjectivity that could fairly unproblematically inhabit the virtual spaces of the nets” (Stone, 1995: 97).

Stone states further that if “we consider the physical map of the body and our experience of inhabiting it as socially mediated, then it should not be difficult to imagine the next step in a progression toward the social—that is, to imagine the *location* of the self that inhabits the body as also socially mediated” (Stone, 1995: 92). This means that we can think of the self “in terms of position within a social field or of capacity to experience, but of the *physical* location of the subject, *independent* of the body within which theories of the body are accustomed to ground it” (Stone, 1995: 92). In other words, we come to think of subject construction within “a system of symbolic exchange, that is, information technology” (Stone, 1995: 92).

### 3-2. Bodies of Selves in Cyberspace

As mentioned above, according to Stone, by focusing on the “tensions between selves and bodies and the play of their interactions, separations, and fusions,” we can understand the self that moves by a different order of vectors in a network of information exchange, or the self that moves in a space in which the privileged body is excluded.

Apparently, in Stone’s interpretation, selves in cyberspace do not have physical bodies. However, Stone describes a virtual community as follows:

The participants learn to delegate their agencies to body representatives that exist in imaginal spaces contiguously with representatives of other individuals. They become accustomed to what might be called lucid dreaming in an awake state— to a

constellation of activities much like reading, but an active and interactive reading, a participatory social practice in which the actions of the reader have consequences in the world of the dream or of the book. The older metaphor of reading undergoes a transformation in a textual space that is consensual, interactive, and haptic, and that is constituted through inscription practices—the production of microprocessor code. The boundaries between the social and the “natural” and between biology and technology take on the generous permeability that characterizes communal space in the most recent virtual systems.

(Stone, 1995: 121)

In the aforementioned paragraph, Stone suggests that selves in cyberspace, that are given body representatives, have consensual, interactive, and haptic experiences. These experiences are the ones in which the boundaries between the social and the “natural” as well as the biological and the technological permeate. That is, Stone does not conceive selves in cyberspace to be free from physical bodies. On the other hand, she believes that selves in cyberspace are based not on the biological bodies, but on the *reconstructed* bodies by interacting with technologies.

However, according to Stone, “much of the work of cyberspace researchers, reinforced and perhaps created by the soaring imaginary of William Gibson’s novels, assumes that the human body is ‘meat’—obsolete, as soon as consciousness itself can be uploaded into the network” (Stone, 1991: 452). Certainly Tomas states in his paper on cyberpunk that “‘jacking in’ to cyberspace” is the “instantaneous rite of passage that separates body from consciousness,” and that the

“disembodied human consciousness is then able to simultaneously traverse the vast cyberpsychic spaces of this global information matrix” (Tomas, 1989: 137). Furthermore, Donna Haraway, in her dialogue with Takayuki Tatsumi, argues that in the circulation of Gibson’s works, we can see the “praise of the escape from limits and abstraction without the concrete” (Tatsumi, 2001: 255). At least we can observe that a kind of cyberpunk praises cyberspace as a world of consciousness that has seceded from the body.

What kind of body experience do selves in cyberspace have? Is it seceded from the physical body, or is it based on the reconstructed body? As mentioned earlier, Stone considers that selves in cyberspace are not seceded from physical bodies and many researchers agree with her idea (Haraway, 1991; Friedman, 1999; Ryan, 2001; Dovey and Kennedy, 2006).

### 3-3. Experiences of Game Players

Recently, Dovey and Kennedy have analyzed experiences of game players, using Haraway’s image of the “cyborg” (Dovey and Kennedy, 2006). According to their analysis, experiences of gameplay are not only mental and emotional but also physical. Their analysis, similar to the one by Stone, argues that selves that appear in the electronic media are not released from physical bodies, but are still based on the reconstructed body by interacting with technologies.

In addition, they state that the phenomenological method helps us understand that “we are embodied subjects whilst engaged in our experiences of ‘virtual reality’” and that “we are also re-embodied and gain a sense of presence and agency in these virtual spaces through the interface and the avatar” (Dovey and Kennedy, 2006: 106). Their analysis of gameplay suggests

that experiences of gameplay are not disembodied but physical. Such experiences, which are understood to be *immersive*, differ from those that Gibson portrays in *Neuromancer*. Recently, game studies have shown that the virtual world of cyberspace cannot be characterized by the body-mind dualism.

### 3-4. Attempts of Art

According to Ella Brians, the important pressure for reconstructing the image of cyberspace came from the world of art (Brians, 2011: 125-126). For example, Monica Fleischmann, an artist and theorist engaged in phenomenological studies, discusses how the body interacts with technologies or environments and uses digital interfaces as a “playful interaction of bodies, art and technology” in “opposition to the theory of the disappearing body” (UNESCO Digital Art Portal, 2013: online). Furthermore, the concept of “mixed-reality” is applied instead of virtual reality to understand the relation to cyber technologies more properly (UNESCO Digital Art Portal, 2013: online). According to Brians, this concept of “mixed-reality” expresses that “material bodies, their virtual representations, the human imagination, and computer hardware and software all interact to produce a reality that has both ‘material’ and ‘virtual’ elements” (Brians, 2011: 125).

Sterc, who performs using electronic technologies and comments on his performances in various ways, is known for his thesis “the obsolete body” (Zylinska, 2002). Although it is often believed that this thesis presents disembodied consciousness, he criticizes such an interpretation. According to Sterc, the body is “obsolete in form and function. But we cannot operate disembodied. We cannot discard the

body” (Zylinska, 2002: 121). He also states, “This body is not in a kind of Cartesian theatre of ‘I’ as opposed to ‘my physical body’ ” (Zylinska, 2002: 121), and that the question concerning the thesis is “not so much whether we discard bodies but rather how to rethink the design of the body” (Zylinska, 2002: 122). The performances of Sterc suggest that we begin to reconstruct the body view in our society based on the electronic environment. Thus, the body of his performances actualizes the “virtual (possible)” which is covered by the existing order (Deleuze and Guattari, 1994).

#### 4. Social Reconstruction of the Framework of the Body

As stated earlier, the analysis of game players by Dovey and Kennedy reveals new body experiences in our electronic environment. Dovey and Kennedy argue that “these ‘other cyborgian selves’ that we perform in our play have an important personal, social and cultural significance” (Dovey and Kennedy, 2006: 116). They state that the “performed selves made possible by the cybernetic process of gameplay offer us the opportunity to explore alternative subjectivities and to engage in different kinds of affective experience, where embodiment and possibilities are defined by different rules to those imposed in real lives” (Dovey and Kennedy, 2006: 117). According to them, in “multiplayer role playing we can imagine a world without our existing racial hierarchies and experience inclusion and affiliation on the basis of technicity alone—unsullied by ethnic, gender or class prejudices, or disabilities” (Dovey and Kennedy, 2006: 117).

Furthermore, they mention that the access to

gameplay includes a certain “freedom of movement,” that is, “a sense of agency and mastery not necessarily available in their everyday lives” (Dovey and Kennedy, 2006: 117) quoting Taylor’s study on the women players. Here, it is clearly demonstrated that the pluralization of the self through cyberspace can be an important opportunity for rethinking and reconstructing the existing order. The self in cyberspace can be free from the restrictions imposed by being connected to the biological body in real life. Such a self permeates into real life and makes re-examination and reconfiguration of the existing order possible.

The argument of Ernesto Laclau and Chantal Mouffe explains this possibility. According to Laclau and Mouffe, the category of “subject” means “‘subject positions’ within a discursive structure” (Laclau and Mouffe, 2001: 115). The “various positions cannot be totally fixed in a closed system of differences” (Laclau and Mouffe, 2001: 115). “The non-fixation or openness of the system of discursive differences is what makes possible these effects of analogy and interpenetration” (Laclau and Mouffe, 2001: 117). Thus, “the presence of the *Other* prevents me from being total myself” and “it is because a peasant *cannot* be a peasant that an antagonism exists with the landowner expelling him from his land” (Laclau and Mouffe, 2001: 125). In our context, we cannot be totally a *woman*. In this case, it is the presence of a *man* that prevents one from being totally a *woman* and it allows her to rethink and reconstruct the existing gender order.

The selves that have a possibility of reconsidering and remaking the existing order of real life are exactly the *cyborgian selves* whose bodies are reconstructed by permeating their boundaries with machines and therefore are not

based on the biological understanding. This new body experience creates the possibility of re-examining the framework of the biological body as well as the restrictions imposed by the framework.

To put it another way, those selves in cyberspace have experiences in which the biological body can no longer represent *truth*, or *reality*. Such experiences lead us to the recognition that not only the concept of the self that is based on the biological body, but also the framework of the biological body is merely “only one form of our knowledge” (Scott, 1999: 10) through our interaction. Those experiences bring us the recognition that the framework of the biological body itself is only socially constructed. Furthermore, because such recognition opens up infinite possibilities for interpreting bodies, it urges us to rethink and reconstruct the existing order related to the biological body.

As stated in the introduction, this paper is based on the idea that *art* and *philosophy* actualize the possibilities in the world that are hidden under the existing order. With regard to this, it is necessary to emphasize that *art* and *philosophy* do not actualize the origin and the real existence behind the existing world. They actualize the ongoing process and the flow of the world itself (Deleuze and Guattari, 1994; Colebrook, 2002).

## 5. Conclusion

First, this paper has illustrated that although early cyberculture describes a utopia of the *near-future* where escape from the body is realized by technologies, more recently the attempts to actualize new experiences of bodies in our electronic environment have become an important part of cyberculture. Secondly, this

paper has argued that such new experiences make the re-examination of the framework of the biological body possible as well as the restrictions imposed on the biological body. In other words, such experiences provide infinite possibilities for interpreting bodies. Those possibilities for interpretation of bodies open the doors for rethinking and reconstructing the existing order related to the biological body.

In this paper, we have considered cyberculture from the viewpoint of Deleuze regarding *art* and *philosophy*. Hereafter, I wish to focus on *art* that reveals experiences of bodies which are covered by the existing order, and additionally to attempt to conceptualize the experiences by *philosophy*. Moreover, I would like to correlate such philosophical analysis with actor-network theory that evolved from the works of Michel Callon and Bruno Latour (Kawamura 2008).

## Bibliography

- Azuma, Hiroki (2000): “Saibâpunk no Nihon ga Usinawareta Jidai ni.” Reprinted (2002) in *Yubin-Teki-Fuan-Tachi*#. Tokyo: Asahisunbunsha, pp. 373-379. ISBN-13: 978-4022613783.
- Brians, Ella (2011): “The ‘Virtual’ Body and the Strange Persistence of the Flesh: Deleuze, Cyberspace and the Posthuman.” In Laura Guillaume and Joe Hughes (eds.), *Deleuze and the Body*. Edinburgh: Edinburgh University Press.
- Colebrook, Claire (2002): *Gilles Deleuze*. London and New York: Routledge.
- Daijirin, Daisanhan (2006): kotobank.jp. 18 Feb. 2013. <<http://kotobank.jp/>>.
- Deleuze, Gilles, and Félix Guattari (1994): *What Is Philosophy?* Translated by Hugh Tomlinson and Graham Burchell. New York: Columbia University Press.
- Dery, Mark (1992): “Cyberculture.” *South Atlantic*

- Quarterly* 91, pp. 501-523.
- Dovey, Jon, and Helen W. Kennedy (2006): *Game Cultures: Computer Games as New Media*. Maidenhead: Open University Press.
- Friedman, Ted (1999): "Civilization and Its Discontents, Simulation, Subjectivity, and Space." In Greg M. Smith (ed.), *On a Silver Platter: CD-ROMs and the Promises of a New Technology*. New York and London: New York University Press, pp. 132-150.
- Gibson, William (1984): *Neuromancer*, New York: Ace Books.
- Haraway, Donna J. (1991): *Simians, Cyborgs, and Women: The Reinvention of Nature*. New York: Routledge.
- Ihde, Don (2002): *Bodies in Technology*. Minneapolis and London: University of Minnesota Press.
- Kawamura, Kumiko (2008): "Fuhenshugi ga Motarasu Kiki." In Buruno Latour, *Kyokou no Kindai: Kagakujinruigaku ha Keikokusuru*. Translated by Kumiko Kawamura. Tokyo: Shinhyoron. pp. 255-320. ISBN-13: 978-4794807595.
- Laclau, Ernesto, and Chantal Mouffe (2001): *Hegemony and Socialist Strategy: Towards a Radical Democratic Politics*. 2nd ed. London and New York: Verso.
- Nayar, Pramod K. (2010): "Introduction." In Pramod K. Nayar (ed.), *The New Media and Cybercultures Anthology*. Chichester: Wiley-Blackwell, pp. 1-5.
- Richardson, Ingrid, and Carly Harper (2001): "Corporeal Virtuality: The Impossibility of a Fleshless Ontology." *Body, Space, and Technology* 2: 2. 12 Dec. 2012. <<http://people.brunel.ac.uk/bst/vol202/ingridrichardson.html>>.
- Ryan, Marie-Laure (2001): *Narrative as Virtual Reality: Immersion and Interactivity in Literature and Electronic Media*. Baltimore and London: The Johns Hopkins University Press.
- Scott, J. W. (1999): "Jendâ Saikou." Interpreted and commented by Miho Ogino. *Shisô*, 898, Iwanami Shoten. pp. 5-34. ISSN 0386-2755.
- Stone, Allucquère Rosanne (1991): "Will the Real Body Please Stand Up? Boundary Stories about Virtual Cultures." Reprinted (2007) in David Bell and Barbara M. Kennedy (eds.), *The Cybercultures Reader*. 2nd ed. London and New York: Routledge, pp. 433-455.
- Stone, Allucquère Rosanne (1995): *The War of Desire and Technology at the Close of the Mechanical Age*. Cambridge, Massachusetts, and London: The MIT Press.
- Takayuki Tatsumi (ed.) (1997): *Uiriamu Gibusun*. Tokyo: Sairyusha. ISBN-13: 978-4882024866.
- Takayuki Tatsumi (ed.) (2001): *Saibôgu Feminizumu (zouhoban)*. Tokyo: Suiseisha. ISBN-13: 978-4891764463.
- Tomas, David (1989): "The Technophilic Body: On Technicity in William Gibson's Cyborg Culture." Reprinted (2007) in David Bell and Barbara M. Kennedy (eds.), *The Cybercultures Reader*. 2nd ed. London and New York: Routledge, pp. 130-143.
- UNESCO Digital Art Portal (2013): "Monika Fleischmann & Wolfgang Strauss eMuse." 18 Feb. 2013. <[http://digitalarts.lmc.gatech.edu/unesco/vr/artists/vr\\_a\\_mfleischmann.html](http://digitalarts.lmc.gatech.edu/unesco/vr/artists/vr_a_mfleischmann.html)>.
- Zylinska, Joanna (ed.) (2002): *The Cyborg Experiments*. London and New York: Continuum.

#### Acknowledgment

This work was supported by JSPS KAKENHI Grant Number 25511014.