

# **Wearing Media.**

## **Technology, Popular Culture and Art in Japanese Daily Life**

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Familiar phenomena in our daily life often reflect cultural issues that are inherited through history. Behind contemporary urban lifestyle, or even products of the latest technologies, one could discover traces of centuries-old ideas and habits that people are not necessarily aware of.

That is also the case with Japanese popular culture. In this short article that covers a part of my talk at the symposium, a few interactive pieces of media art and practices that are related to wearable technologies will be introduced and juxtaposed to wearable media in popular culture today and in the past. Hopefully they will provide us with some hints to better understand contemporary Japanese media culture.

### **Wearable / portable media art**

In recent years, works by Japanese artists have been widely shown in the field of media art. Not only works by artists such as Toshio Iwai, Kazuhiko Hachiya or Maywa Denki, but also a wide variety of works by a younger generation are shown internationally.<sup>1</sup> These works are often entertaining and funny rather than pursuing artistic content or being serious, exploring new possibilities that the latest technologies have brought to us. Appreciating new technologies and using them for entertainment purposes is an important part of Japanese culture that has a long history.<sup>2</sup>

Playful use of technology is particularly seen in works and projects experimenting with virtual reality. Virtual reality is a very challenging field in media technology research and development. The ultimate goal of virtual reality is to create a virtual environment in which all kinds of stimuli are synthesized in an interactive manner in real time. While audiovisual input/output systems are highly developed with a wide variety of applications, it is more difficult to realize applications for the other senses. Various feedback systems have been developed to realize the tactile sensation needed for applications such as medical devices or driving simulators. Wearable or portable systems have been researched to enable bodily contact with a virtual world.

A work by Kanako Matsuo and her fellow graduate students at the University of ElectroCommunication entitled “Mushi-How” (“Ants in the Pants”) is an interesting example of such a practice.<sup>3</sup> Using arrays of tiny actuators inside a “shirt sleeve” and a horizontal screen that displays ants gathering and disappearing under the sleeve as the participant rests his/her arm on the screen, the system creates the physical sensation of insects crawling on one’s arm. The main part of the system is packed inside a small green plastic cage that the user wears on his/her shoulder, a typical gear for kids when they catch butterflies or glass hoppers. (These baskets are available from any 100-yen shop – the Japanese equivalent of a 99-cent store.) Supported by realistic computer generated ants and accurate real time interaction, it produces an amazingly convincing and “horrifying” experience.

“Mushi-How” was the winner of the 16<sup>th</sup> International Collegiate Virtual Reality Contest (IVRC).<sup>4</sup> Wearable technologies allow us to experience bodily interaction with a virtual environment. Remarkable downsizing of devices made it possible to develop entertaining virtual reality projects like this piece.<sup>5</sup>

Being selected and shown at the prestigious SIGGRAPH 2008, the piece attracted much attention. While it was a well-developed demonstration of virtual reality technologies, the students realized it as a piece with “content” that has a story, details, and an interface that is original and “natural” at the same time. The case represents the already established trend of IVRC; even engineering students know they need to make it more than a “tech demo” by including concepts, metaphors and stories.

It is also interesting that a young woman conceived the piece and won the prize while the majority of virtual reality researchers in Japan are still men. Besides clever use of the latest technologies including high-end real-time graphics, the originality of the work is in its “kimo-kawaii” taste – a recent important trend in Japanese popular culture that has been led by girls. Probably tired of being simply “kawaii” (i.e. cute, lovely), “kimo-kawaii”, which is a combination of “kawaii” and “kimochi-warui” (i.e. sick, weird, grotesque, eely), has become a new aesthetics among them.<sup>6</sup>



Wearable virtual reality pushes the boundary of our senses when used with a stronger concept.

## Wearable Media Art as an Extension of Our Body

Kazuhiko Hachiya’s “Inter DisCommunication Machine” (1993–) lets the two participants “exchange” their sense of sight and sound by means of proprietary HMDs (head-mounted display) designed by the artist. Each HMD has a wireless video and sound input/output system – however, the audiovisual input is sent from the other HMD. While the artist carefully arranges the setting, the experience is up to the participants. The system sounds simple, but it took time for the artist to realize it fully, as he had to wait until the real time wireless video



transmission became available at an affordable cost in a wearable scale. Still, the experience is quite amazing; to try to locate oneself through someone else's vision. The only solution is to find the other person – which means to find oneself. The artist questions the notion of self and identity with a playful approach and open interaction.

Hachiya has a long career in creating interactive installations questioning the nature of communication. At the same time, he has developed a piece of software named “PostPet”, which was released by Sony Communication Network Corporation (SCN) in 1997 and still continues to be popular.<sup>7</sup> Conceived by the artist himself and co-developed by his company PetWorks and SCN, the product became a successful model for virtual pet on the net. Hachiya also created “ThanksTail”, a commercially available product that he conceived and co-developed with a subsidiary company of Takara, a major toy manufacturer.<sup>8</sup>

Hiroo Iwata's “Floating Eye” (2000) is another example of an art work based on open interaction. A participant wears a spherical display around his/her head, which replaces the person's own sight with a panoramic vision seen from above. A blimp floats high over the participant's head, with a string connected to a backpack that contains the system. Live video footage from the blimp is sent to the spherical screen through a computer inside the backpack. Thus the participant achieves a “floating eye” that replaces his/her normal vision and walks around in the real world using the vision from above. In a way, the body is virtually stretched into the space while the feet remain on the ground. If you try it, it is a very strange feeling. What Marshall McLuhan stated as “media as an extension of man” is literally realized with an ironical twist. Being a recognized researcher and engineer in the field of virtual reality, Iwata explores human perception through his artworks, using the latest technologies he develops himself. Iwata's “Powered Shoes” (2006) and “String Walker” (2007) are wearable devices that he developed as part of his research in virtual reality, to enable infinite walking in a virtual environment.<sup>9</sup> While the most standard treadmill could realize walking or running in one direction, these devices allow a user to walk in any direction. Although these devices were developed for “serious” research purposes, the result is a pair of shoes that would not carry the user anywhere. No matter how much she/he walks all the steps are cancelled by the motorized mechanism. There is a sense of irony and playfulness in these inventions, and a playful use of technology that inspires people beyond its technical features.





## Device Art

Iwata leads the Device Art Project, which was initiated in 2005 to promote a new concept in media art.<sup>10</sup> Device Art is a concept and a project that has been carried out by a group of artists and researchers including the present author. Its aim is to understand the nature of Japan-ness in media art today and to propose a non-Western approach to (media) art. It focuses on the relationship between art, design, engineering, tools, entertainment and commercial products seen from a Japanese cultural background. Instead of producing art for art's sake, Device Art tries to push the boundaries of art into society, visualizing what media technologies mean to us in a playful yet serious manner.

The project was launched based on the following understanding. In recent years, works by Japanese media artists have been widely shown. Along with works by internationally known artists such as Toshio Iwai, Kazuhiko Hachiya, or Maywa Denki, a wide variety of works by a younger generation are quite visible, especially in the field of interactive art.

Certain elements are shared among them. Playfulness is an element that is considered particularly Japanese in contrast to European artworks. Japanese artists often choose to make their works entertaining rather than being negative toward technology, even if their works display criticism against media society or try to reveal certain natures of media. The degree of openness in the interaction, the care for design, and the importance given to physical materials often go together. The right choice of material and form is often considered crucial. Original interface design makes the technology applied transparent to visitors/participants. Even though – or, rather because – there is no secret, the artistic intervention of media technologies brings fascination to visitors/participants. Iwai's recent work *Distorted House* in collaboration with NHK Research Lab, Hachiya's *PsychoCommunicator* with Taro Maeda, and Sachiko Kodama's *MorphoTower* demonstrate such features.

With these features put together, some of their works go beyond the traditional boundary of “art”, as they become commercialized as designed objects, games, etc. In fact, commercializing their products is often a conscious choice of Japanese artists. Anyway, cultural tradition in Japan was built on the absence of rigid borders between fine art and applied art. With digital technologies that allow limitless identical copies and helped by such a cultural tradition, Japanese artists find it appropriate to distribute their artwork outside museums and galleries.

Playfulness, entertaining inventions, commercially available products – these features often seen in media art today reflect a long Japanese cultural tradition.<sup>11</sup> Nintendo, for example, was founded 120 years ago as a publisher of playing cards including *Hyakunin Isshu*, a poem card game enjoyed among ordinary people for centuries. Selected medieval poems are printed with beautiful illustrations.<sup>12</sup> Hokusai, well known for his series of woodblock prints of Mount Fuji, illustrated for such cards as well. In the Japanese tradition, art has been a part of everyday life, and new technology was often used for entertainment. Tea-carrying automata used at teahouses in the 19<sup>th</sup> century are an example of such use. Similar to their counterpart in the West, automata were based on a clockwork mechanism that originated in Europe. While mechanical precision technologies and engineers were absorbed in more practical fields as the Industrial Revolution took place in the West, Japanese automata remained an amusement until the Meiji Restoration.<sup>13</sup> Since the Edo Shogunate had closed the nation's border to the outside world except for limited trade with China and Holland in the first half of the 17<sup>th</sup> century, there was no need to use the latest technologies for industrial or “serious” purposes such as warfare. Actually, the long-lasting peace was maintained by strictly controlling the use of the latest technologies of the time. It is understandable that the Japanese “love for technology” has its roots in such a historical background. With no serious war experiences for nearly three centuries, people could consume technology for fun. Playfulness became an important element of Edo urban culture.

## Wearing Media

The cell phone, or “ketai” in Japanese, has already become an important part of Japanese culture.<sup>14</sup> Selecting one's own ketai is a big issue especially for young people. Features such as the number of pixels of its camera, TV watching capability, sound quality, etc., are surely important, but the appearance is as important as the function because, especially for young users, a ketai is part of their identity. “All my life is here!” many of my students write in their essays when asked to write about the most important media for them. It is not an exaggeration because their life records – address book, call log, messages from friends, photos taken with friends and family members, scheduler and to-do lists – are all stored in their ketai. It is often mentioned that by having a lengthy address list

on one's ketai one does not have to feel alone. The ketai functions not only as a wearable database but also as the major channel that connects a person to the rest of the world.

If "my ketai is myself", representing the user's profile toward the rest of the world while storing personal memories, it has to feel personal even when it comes to its appearance. For those who wish to customize their most important device, adhesive seals and jewels are useful.<sup>15</sup> Attaching a "sutorappu" (strap) was where the trend started, and it is still the most handy and common way for people to "customize" their ketai.

## Ketai Strap and Netsuke

In contemporary Japanese, the word "strap" now refers to a small object with a looped string, instead of its original meaning as a strap to prevent a cell phone from falling. These objects serve as an identifier for one's cell phone, while they also function to turn a store-bought phone into "my ketai", a personal item.<sup>16</sup> Straps usually represent one's taste or hobby and serve as a conversation piece among friends. It is a common practice to have more than several straps attached to one's ketai. Sometimes a "strap" is bigger than the ketai itself, with a plush toy for example. On the other hand, a ketai used for business purposes is usually kept bare. It is not known when and where exactly the culture of the ketai strap started. It spread immediately because it was a "natural" adaptation of existing traditions such as attaching "omamori" (charm) or "netsuke" to purses or pill cases. Today it is widely understood that the ketai strap is a modern version of netsuke, and the word netsuke is sometimes commercially used for ketai "straps".

Netsuke was "discovered" as a miniature sculpture by foreigners who visited Japan in the Meiji era. It was used in the Edo era among samurai and well-to-do citizens, originally to serve a practical function. There are no pockets in a Japanese kimono. Smaller personal belongings such as a purse or a pillbox were carried on or under one's obi (sash) belt. To prevent it from falling a small but solid toggle-like piece is attached to it with a piece of cord. The toggle-like piece, netsuke, stays outside the obi and serves as a stopper and a guide to take the purse (or other things) out. Eventually netsuke developed into something more than a utilitarian object, representing the owner's taste or lifestyle. It could also be a gadget or a conversation piece, as clearly seen with karakuri netsuke that has a movable part or a hidden surprise.

Therefore, it is not only the visual similarity and practical function (i.e. preventing an object from dropping) that the netsuke in the Edo era and the ketai strap today share. Both of these wearable gadgets have social meanings, representing the owner's identity and serving for communication.

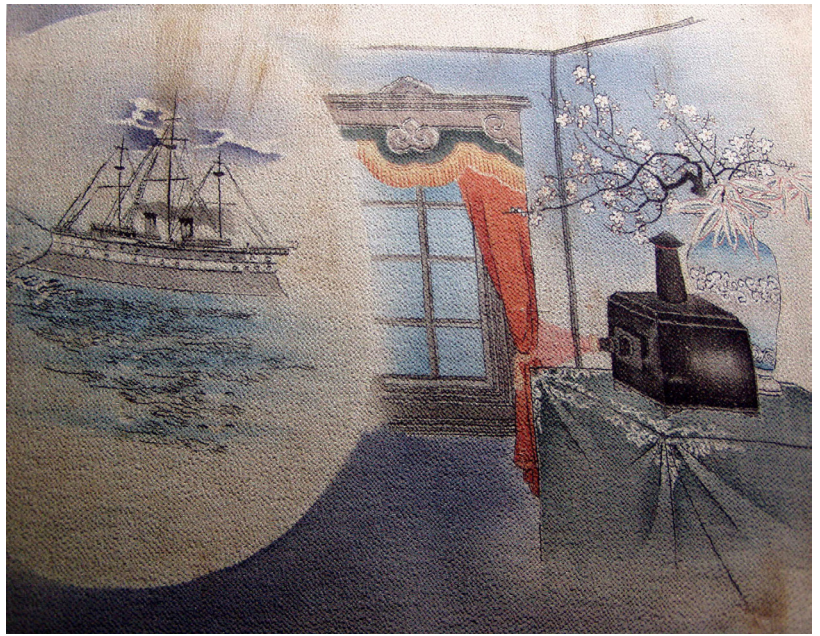
However, there is a difference in their relationship to the owner. Ketai straps are rather inexpensive products meant to be consumed. It has to be changed from time to time before it gets worn, to be replaced by something new and interesting. A netsuke would last longer. Often made of ivory or precious hardwood and carved with elaborate craftsmanship, a netsuke could not have been cheap. Most people must have thought twice before buying a netsuke.

A reason why the netsuke achieved such importance can be understood when viewed against the impact of the strict rules for garments that people had to respect. The social rules involved in wearing a kimono, which are still considered authentic today, were established during the Edo era. The material, color and pattern have to be chosen according to the gender, status and age of the wearer, as well as the season and situation. Besides social restrictions there were corporate rules and legal control.<sup>17</sup> Being frustrated by the increasing power of merchants and their cultural activities the government repeatedly took legal measures to ban "luxury" items and entertainment. Control over the kimono was a major part of this suppression. As a result, it was difficult for men to enjoy their own style. A gadget such as the netsuke was a medium through which one could enjoy and show one's taste.

For the same reason, the hidden parts of a kimono served as space for self-expression. While the outer kimono became monotonous following the social and official restrictions, the juban (underwear) and lining became colorful, as in the case of the commonly used red underwear for women. The contrast between the minimalistic outlook and the gorgeous inside is part of the "iki" (stylish) aesthetics that developed during the era. It is known that rich and culturally sophisticated people of the merchant class developed such a culture to cope with the government's strict law.

By the late 19<sup>th</sup> century, colorfully printed textiles became available for ordinary people. Still following the social rules, the new medium was fully developed for underwear, lining, and children's kimono. The variety of these kimono textiles surpasses almost anyone's imagination. Motives vary from traditional storytelling to scenes from modern life, the latest technologies, news, books, films, advertisement, horse racing, to name a few. During the Second World War, people wore propaganda. The tradition continues to this day in children's kimonos, which display the latest topics, that is, characters from anime and manga.





Silk chirimen textiles from the Meiji era depicting the latest technologies such as the bicycle, western clothes and the magic lantern, used for adults' juban



Left: wool muslin for men's juban, depicting an oil painting of nudes. Right: silk for men's juban or lining, possibly inspired by a puppet show in Asakusa, which was originally brought from Europe and remained a popular spectacle from the Meiji to the Taisho era





Wool muslin for a children's outer kimono, from 1910s to 1930s

Although it is not possible to introduce many of them here, the author's collection of kimono textiles from the Meiji era to the Second World War shows how people used kimonos as media, wearing what they felt was interesting or fashionable closer to their skin, as underwear or lining.

There is an understanding that the Japanese love small objects such as netsuke, miniature gardens and bonsai. They function as a toggle for imagining the real, much bigger or wider objects or scenes. Appreciation of "figures", which is considered part of otaku culture, can be understood as a continuation of the tradition. The love for gadgets including ketai straps, which is so widespread, is also a continuation of the love for figures. The Japanese love for technology, which was already observed by foreigners in the late Edo and early Meiji era, continues to this day. Besides actual products such as cameras, Walkman and ketai, imagined technologies such as robots (which are now reality) formed an important part of Japanese media culture through manga, anime, toys and figures among others. The love for technology and the love for small things are connected in the form of gadgets, toys, automata in the shape of children, and ketai today. Wearing the "latest technologies" of the time, such as trains, gramophones, magic lanterns or radios, was another way of "carrying" and personalizing technology. Thus

technology became fashion, to be kept close to one's skin. Today, media artists let us wear technology in a different manner, both visualizing and questioning what the latest technology could mean to us.

## Endnotes

<sup>1</sup> Further information on Hachiya and Maywa Denki (Nobumichi Tosa) is available at the following links. Hachiya uploads documentations of his projects on YouTube as well.

<http://www.petworks.co.jp/~hachiya/works/index.html>

<http://www.maywadenki.com/index.html>

<sup>2</sup> Long-lasting peace during the Edo era was a major reason for such tradition.

<sup>3</sup> <http://kaji-lab.jp/mushi-how/en/>

<sup>4</sup> International collegiate Virtual Reality Contest started in 1993 to encourage creative activities among students in the fields related to virtual reality and robotics. Sponsored by Virtual Reality Society of Japan, Gifu Prefecture and Kagamihara City, the competition and exhibitions are organized by volunteers from academia, museums and virtual reality related industries. Since 2004 it has a joint exhibition with Laval Virtual in France. <http://www.ivrc.org/>

<sup>5</sup> It is not only about size. Increasing the efficiency of devices – reduced heat production and reduced energy consumption – is crucial in wearable technology. Needless to say that higher computational power and bit rate are crucial in achieving real time response.

<sup>6</sup> Virtual pet growing game “Seaman”, which was released for Sega Dreamcast in 1999 and became popular among young women, already showed such a feature ahead of time. The game was developed by Yutaka Saito, the founder of Vivarium Inc. Seaman (English version) was shown at Kiasma, Helsinki, in 2000, at its Alien Intelligence exhibition curated by Erkki Huhtamo. <http://sega.jp/dc/990401/>

<sup>7</sup> <http://postpet.jp/>

<sup>8</sup> More information on PostPet and ThanksTail is available on Hachiya's website and in my earlier text: Machiko Kusahara “Device Art: A New Approach in Understanding Japanese Contemporary Media Art” (*MediaArtHistories*, Ed. Oliver Grau, MIT Press 2006) and Machiko Kusahara “Device Art – Media Art Meets Mass Prouction” (*Digital by Design*, Ed. Troika, Thames and Hudson 2008).

<sup>9</sup> <http://intron.kz.tsukuba.ac.jp/stringwalker/stringwalker.html>

<sup>10</sup> For more on Device Art, please read my earlier texts included in *MediaArtHistories* and *Digital by Design*.

<sup>11</sup> For more on the relationship between playfulness and commercialization, see Machiko Kusahara “Device Art – Media Art Meets Mass Prouction”, *Digital by Design*, Ed. Troika, Thames and Hudson 2008.

<sup>12</sup> Mass production of color print for commercial purposes became available in Japan already by the mid 18<sup>th</sup> century, earlier than the equivalent in Europe. It is believed that the ukiyo-e artist Harunobu invented the technique with the help of his scientist friend who had access to the latest scientific information from Holland.

<sup>13</sup> Jacque de Vaucanson (1709-1782), the French inventor and showman of automata including the “duck”, made a major contribution to the Industrial Revolution by inventing the first fully automated loom. Hisashige Tanaka (1799-1881) who was the best known automata inventor and showman in the Edo era in Kyoto, was commissioned by the new Meiji government and started producing electric equipment in the mid-1870s. The workshop he founded later developed into Toshiba Corporation after a merge. The comparison of these two automata makers shows that the pre-Industrial Revolution appreciation of technology as entertainment continued a century longer in Japan.

<sup>14</sup> Cell phones are officially called “keitai denwa”, written with four Chinese characters, which was shortened as “keitai” during its early stage of popularization. As it became widely used among the young generation, the term quickly changed into “ketai” written in katakana, one of the Japanese alphabets used for words imported from abroad. When discussing Japanese cell phone culture, the term “ketai” is used.

<sup>15</sup> A ketai decorated with spangles are called “deko ketai” (meaning decorated ketai). This trend became visible probably around 2006, and by 2008 it has spread among younger girls and even to young women. Deko-ketai kits are available on the Internet, including “Swarovski jewelry kit for ketai”. The fashion is also related to nail art.

<sup>16</sup> The word “mai” (my) has been frequently used in ketai advertisement since the time it became available for young people. Having a cell phone means they do not have to rely on a “house phone” that belongs to their parents, but acquire an independent communication channel with their friends. In Japanese society, where many young people live together with their parents after entering university or starting work, usually living in rather small flats or houses, such independence in communication means a great deal for them.

<sup>17</sup> In some of the big businesses, the kimonos the employees could wear were strictly defined. Government laws banning the use of luxury items were issued several times from the late 17<sup>th</sup> century to the mid 19<sup>th</sup> century, typically forbidding people of the merchant class to wear silk or colorful kimonos. “Edo komon” textile patterns were developed in response to a law that forbade the use of visible color patterns.

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