

## Communication beyond Reality

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### Introduction

Computer mediated network communication is becoming more and more indispensable in everyday life of people. It is no longer the tool for business specialists, nor the organization tools for global industries. The nation or world wide digital networks are going to be most important part of living environment..

Computer mediated communication started from exchange of text expressions. Text expressions are most fitting to abstract data, such as product code and number of product, address and names, and text messages. Great efforts have been devoted to the digital processing to expand the scope of expression, by enhancing the reality. Recent multimedia technology already provides full color high resolution display in three dimensional space accompanied by stereo sonic sound. Software for handling the image and sound data, such as compression and decompressions, multidimensional manipulation, rendering are also provided. Augmented reality technology is going to provide reality beyond reality.

There are some differences in required degree of reality in reproduced objects. In presenting written messages, printed fonts are more preferred to the hand written letters. In reading letters, artificial structures seem more fitting to human cognitive systems. In contrast to this, auditory systems do not accept artificial synthetic sound. There have been many efforts to synthesize artificial speech based on rules. Rule generated synthetic speech sounds monotonous and less attractive to listeners. Thus speech generation,

by means of series of standardized element as in the printing has not been successful. In case of synthesized hand sign, there are strong desire to synthesize them by means of connecting standardized patterns. Not only the hand motions but also the facial expressions of talker are essentially important in understanding the hand sign. Thus efforts are also devoted to generate the CG image of talker with animated eye, eye bow and mouth motion. At the present stage of technology, rule generated facial expressions are not enhancing the reality. These examples indicate different measure of reality are required modality by modality.

Something very interesting is that in W. Disney animations, various methods of augmentation in motion are implemented. They look artificial still they are acceptable, while rule generated computer animation are far from acceptable. Thus the study directions are two folds. One is to imitate the real motion, and to make CG images look or feel natural as possible. The other direction is to synthesize artificial motions which are not quite equivalent but comprehensive to audience. This is similar to creating a metaphor. Great composers create sound components that suggest struggle in human mind , animal motion , thunder and even the painting. HCI designers in future are required to be trained to creating new culture and the tools for it.

## **Nature beyond Nature**

Kyoto is the historical capital in Japan. They preserve many historical heritages, such as buildings, passages and gardens. In the traditional Japanese gardens, people feel beautiful nature, composed of trees, bush, moss, rock and stone, and water. People feel them natural but they are all artificial. Kyoto being a city of more than 1,000 years, nature of the city has been repetitively destroyed by civilization. Beautiful gardens which look natural are not a part of nature, but they are artificially made by hands so that they might look natural beyond nature. This is the most important point. We have to study nature and to learn from nature, but simple imitation of nature is worthless. People have to create rules to cooperate with the nature. Now a days those traditional gardens are in need of introducing information technology and robots for the manpower saving. People have to find the ways to maintain the natural feeling of traditional culture. Automatic machines and information technology are going to be filling up the essential living environment. What are essentially required of the technology are that they are going to be the essential part of living environment, in stead of simple tools to benefit special users. Environment should be shared by users and nonusers, and loved by both.

## Tea Ceremony

Japanese accepted new technology and automation most positively in the world. At the same time they are interested in preserving the traditional culture and human based technology. Especially in Kyoto they devote more effort in maintaining the tradition than in pursuing the new. Above all, tea service and flower arrangement are disciplines important in Japanese life.

Tea ceremony was established by Rikyu Sen in 16th Century, and the spirits of the serving tea are summarized as below. Soshu SEN(Grand Master of Mushanokouji Senke School) described the spirit of tea school by the following.

The seven Precepts of RIKYU:

1. Flower arranged as natural in the field.
2. Charcoal placed to let the water boil.
3. Feel cool in summer.
4. So do cozy in winter.
5. Everything prepared in advance.
6. Prepare for rain, for just in case.
7. Harmony in encounter of guests.

When Rikyu Sen established the ways of tea ceremony, it was war time in Japan. Merchants and Samurai (military class), which were newly growing by that time, used the tea services as the art of communication among and between these completely different social powers. Their activities are based on completely different value, i.e. money and military power. However, mutual cooperation was important to each other. Fine art and technology have been cultivated along with the tea ceremony. Tea ceremony has been appreciated in Japan as the ways of fostering communication mind and making moment of truth.

Value in society is changing now, and serious struggles are on going. New principles of communication and cooperation are under investigation. Communication environment is changing by recent introduction of information technology and multimedia. It is worthwhile to consider the essence of communication in new media age by revisiting the principles tea ceremony.

## HCI in 21st Century

This is the last HCI symposium in the 20th century. It is worthwhile to consider proposals for HCI in 21<sup>st</sup> century.

Information technology will be filling up the factory, office, shop, street & square, and even the home. Those systems should work as a part of nature, and look natural beyond nature.

So far, machines are designed as tools for tasks. And tools are to be manipulated by users. They are required to be efficient, exact, safe and reliable.

Information systems in 21st century are no longer simple tools for limited users. They should be designed as essential parts of shared environment among users and non-users, as well as among users in use and not in use.

They should be friendly not only to users but also for nonusers, lovable even when not in use. Environment should not be manipulated by limited users. Environment shall be designed universal, so that every body can share and be rewarded from it with minimum effort, might get larger benefit by careful study and contributions, and the maximum merit and pleasure by continuous training and devotion to the environment.

Automatic systems should be designed thoughtfully and carefully prepared so that everybody might be encouraged to use, but never enforce one to use. Leave enough freedom for people to create new relations and functionality.

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## In memory of Professor Hiroshi Tamura

Takao Kurokawa

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Professor Hiroshi Tamura, who was honorary member of the Human Interface Society (Japan), passed away on the 28th of August 2010, at the age of 75. He was a visionary pioneer in the field of Human Interface in Japan and internationally. He was member of the Advisory Board of the Universal Access in the Information Society Journal.

Professor Tamura was born in Niigata Prefecture on the 14th of April 1935. In 1958, he graduated in Electrical Engineering from Kyoto University. From the same university, he obtained his Master Degree in Engineering in 1960 and his PhD in Engineering in 1963.

His academic and research career started in 1964 at the Faculty of Engineering of Kyoto University, but very soon he moved to the Faculty of Engineering Science of Osaka University, where he was appointed Assistant Professor in 1966. In 1988, he was appointed Professor at the Faculty of Engineering and Design of the Kyoto Institute of

Technology, from where he retired as Honorary Professor in 1999. From 2001 to 2005, he was also Research Professor at the Faculty of Human Environment of the Hiroshima International University.

Professor Tamura's research interests were very wide. His PhD research was in the area of nonlinear oscillations. After moving to Osaka University, he extended his interests to oscillating and rhythmic phenomena in neurons and nerve systems, as well as nonlinear control by humans and animals. At the same time, he undertook research on man-machine systems and adaptive/learning control. These activities led to fundamental progress in the field, as he established the innovative result that humans' nonlinear action behavior can be exploited for the control of complex systems, thus outperforming previous approaches based on humans as linear controllers.

Subsequently, he conducted research in a wide variety of areas in the domain of bioengineering, including the nervous systems, animals' learning, and exploratory eye movement.

In the early 1980s, foreseeing the importance of Human Machine Interfaces in the years to come, he conceived the vision of establishing the field of Human Interface in Japan and internationally, and started a series of related activities.

In 1983 and 1984, he organized two symposiums sponsored by the Kansai Chapter of the Society of Instrument and Control Engineers (SICE), entitled "Future Man-Machine Interface" and "Man-Machine Interface in Instrumentation and Control", respectively. Additionally, in 1984, he established the SICE "Technical Committee of Human Interface". The first Human Interface Symposium took place in 1985, and this symposium has been held annually since then.

Although the term "Human Interface" was already in use in the United States of America at the time, Professor

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**Fig. 1** Prof. Tamura (*first left*) during a pleasant meeting with Prof. Salvendy (*first right*) and others at HCI International 2007 in Beijing

Tamura's view of the Human Interface was fundamentally wider and deeper, as he viewed the Human Interface as deeply interrelated with human physiology, psychology, life, and culture. In this respect, the concept of Human Interface, shared by many of his colleagues and widely adopted in Japan as a result of Professor Tamura pioneering activities, has a more flexible and broader meaning compared with Human–Computer Interaction (HCI) and Computer–Human Interaction (CHI).

At an international level, Professor Tamura promoted the Human Interface in many international scientific venues. In particular, since 1993, the Human Interface Symposium is held jointly with the Human Computer Interaction International Conference (HCII) founded by Professor Gavriel Salvendy (Fig. 1). Professor Tamura also established international exchanges and cooperation with the ACM Conference on Human Factors in Computing Systems.

The SICE Technical Committee of Human Interface was succeeded in 1999 by the Human Interface Society (HIS). Professor Tamura was nominated the first honorary member of the Society, in recognition of his visionary role and his efforts spanning over two decades toward the creation of the Society and the establishment of the Human Interface field.

In 1998, he also launched the Research Group on Mobile Ergonomics of the Japan Ergonomics Society,

focusing on the interfaces of car-navigation systems and mobile phones. Since then, the “Symposium on Mobile Interaction and Navigation” has been held annually. In 1999, he established the “Tamura Institute for Human Interface”, where he continued his research activities. Moreover, he endeavored to establish a Society of Mobile Interactions to take over the achievements by the Research Group on Mobile Ergonomics. Unfortunately, however, the Symposium “Mobile ‘10” held in Nagoya in March 2010 was his last participation in a conference.

Professor Tamura was also an inspiring academic, and many of his former students are now researchers and engineers widely recognized at a national and international level.

He was a man of few words. His mottos were “Finding problems is more important than solving them” and “Academic communities must enhance their members to conduct research and offer them the opportunity to present and discuss their ideas.” He practiced the first motto in his own work, as testified from his seminal papers and keynote speeches at numerous national and international conferences. The second motto was fully realized in his pioneering activities toward establishing research groups and symposiums, as well as channels of international collaboration.

He also had a strong interest in the field of philosophy of science and in the labor movement.