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The Current Status of HCI in Japan and China

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ABSTRACT This position paper is in two parts. It addresses some areas involved in human-computer interaction in Japan and China. Part I provides an overview of human-computer interaction activities in some major professional societies and reviews their current status in Japan. It uses a concrete example from a special-interest group in Japan. It also reviews the current state of human-computer interaction publication and education in Japanese universities. Part II gives information on education and research activities related to human-computer interaction in China.

KEYWORDS HCI (Human-Compute Interaction), SIGHCI (Special-Interest Groups on HCI), SIGHI (Special-Interest Groups on Human Interface).

INTRODUCTION

This position paper is in two parts. It addresses some aspects of HCI in Japan and China.

Part I describes HCI research and studies in Japan. Earlier reports on the status of HCI or computer science in Japan have previously been published (Foley and etc., 1996; David and etc., 1993), and, although this position paper is not a systematic or complete survey, the following observations will augment and update these earlier reports. Part I provides an overview of HCI activities in some major professional societies, especially information on special-interest groups on HCI (SIGHCI). A concrete example of the activities of a SIGHCI is included. HCI publications and education are also referred to.

Part II addresses some aspects of HCI in China. Though there was a report (Chen Y. and Fang M., 1995) summarizing software engineering in China, it didn't mention any HCI topic. I will introduce the current status of HCI education and research in China. Information on Chinese researchers working overseas is also noted.

PART I: HCI IN JAPAN

1. SOCIETIES AND SPECIAL — INTEREST GROUPS

1.1 Japanese Societies related to HCI

Academic research in HCI is quite prolific in Japan. Here are some of the main societies related to HCI. The information includes the date of establishment and the current membership (May 1997).

- Information Processing Society of Japan (IPSJ, established: 1960, current membership: 30000)
- Institute of Electronics, Information and Communication Engineers (IEICE, 1987, 40385)
- The Society of Instrument and Control Engineers (SICE, 1961, 10000)
- Japan Society for Software Science and Technology (JSSST, 1984, 1200)
- Japanese Society for Artificial Intelligence (JSAI, 1986, 4000)
- Japanese Cognitive Science Society (JCSS, 1983, 1300)

These societies hold annual meetings in Japan for their members.

1.2 SIG on HCI (SIGHCI)

Some societies have special-interest groups (SIG) on HCI. These SIGHCI hold technical meetings where the members present papers on their new research results without previous academic reviews. These SIGHCI mail written proceedings to all SIG members. Both SIG and general meetings are attended by interested parties from many associated areas.

In general, these groups are supported by big companies. For example, perhaps six large companies, including National/Panasonic, and Toshiba, are gold sponsor members of a SIG on HCI under the Society of Instrument and Control Engineers.

Many SIG have established Web sites on the Internet, although most of these are in Japanese. Information about technical meetings, research labs, references and Web links can be found there.

The following are some SIGHCI. The information includes the year of establishment, frequency of meetings and membership. These are the main SIG currently functioning in Japan.

- SIG on Human Interface (SIGHI) in the Society of Instrument and Control Engineers (SICE).

Established:1985

Meetings: five times a year

Number of members: 554

- SIG on Human Interface in the Information Processing Society of Japan (IPSJ).

Established: 1981

Meetings: six times a year

Number of members: 492

- Human Communication Group (HCG) in the Institute of Electronics, Information and Communication Engineers (IEICE).

Established: 1995

Meetings: once every two months.

Membership: 876

- SIG of Man-Machine Systems in Atomic Energy Society of Japan

Established: 1990

Meetings: six times a year.

Membership: about 120

- SIG of Human Interface Design in the Japanese Society for Artificial Intelligence (JSAI)

Established: ?

Meetings: five times a year.

Membership: 300

2. A CONCRETE EXAMPLE – SIGHI ACTIVITIES

2.1 SIGHI of The Society of Instrument and Control Engineers (SICE)

This group meets for mutual exchange between researchers, engineers and HCI users. Presentations, information exchange and new proposals are especially valued in the SIGHI.

Academic research is very active in the SIGHI. The Human Interface Symposium (HIS) has been held every year since 1985. In addition the HIS co-sponsors an international conference with the HCI International Conference every two years. The SIGHI regularly holds technical meetings to encourage deeper discussion on special issues. A revised membership system was adopted in 1986 which allows members to register directly in SIGHI and not necessarily via the parent organization - SICE.

2.2 Informal Meetings of the SIGHI

There are two “informal meeting” groups under the SIGHI in SICE. The first, called "Informal Meeting on Usability & Evaluation Study", was established in 1994. The second, called "Informal Meetings on Pen Input Study" (IMPIS), was established in 1993. I would like to introduce the latter in more detail.

Research results are usually presented at formal technical meetings or academic presentations. However, ideas which deal with the real intention and essence of a particular theory may also be presented in an informal exchange. Therefore, these informal meetings, such as IMPIS were planned and executed under the auspices of SIGHI. Since IMPIS was established in 1993 over twenty meetings have been held in two universities (Tokyo Denki University and Tokyo University of Agriculture & Technology) and industrial labs.

Most researchers attending IMPIS are from industrial labs and industrial corporations rather than from universities. Japanese corporations concentrate on development activities rather than basic research.

The IMPIS met ten times in 1994. The meetings were held in a different company labs (SII, NTT Human Interface Lab, WACOM, Cannon, OKI, RICHO, SEIKO-EPUSON, HITACHI) and only one university (Tokyo Denki University). The total number of participants in 1994, the most successful year, was 247 persons over ten meetings. One of the reasons for the interest was that pen-input systems received special popular attention around 1994. Forty five people attended a presentation on the pen input interface presented by professor Lingjiang Liu from the Chinese Character Recognition Lab which is one of the labs in the Chinese Academy of Science (CAS). In China and Japan, a lot of people believe that if the problem of Chinese character recognition is solved a huge market will be opened up. The impact of each country's culture on all aspects of HCI should be considered if full market potential is to be achieved.

3. PUBLICATIONS AND EDUCATION

One indication of the interest in HCI is the publication in the Journal of Information Processing Society of Japan (IPSJ) of a number of related articles. In the past five years, there have

been three Special Editions related to HCI focusing on three different topics: User Interface Management Systems, Spoken Language Processing and Virtual Society. The total number of papers was seventeen. Moreover, there were four tutorial articles related to HCI dealing with the problems: Visual Interface, Designing of the Human Interface, HCI Survey and Computer Agent.

However, there is no official authoritative publication for HCI yet. There is, however, a transaction paper named "*Progress in Human Interface*" which is published twice a year by SIGHI of SICE.

It seems that subjects or curricula for HCI as a discipline are not yet established in Japanese universities. There are, however, a few individual subjects in the graduate schools of some universities. For example, there is a subject, "Human Interface", in the master's program in Tokyo Denki University.

I have given a talk "HCI and Pen-based Computers" at Tokyo Denki College on two occasions where I found that the students were interested in HCI even though they were not involved in HCI education.

HCI education has been valued in recent years. I noted that the demand for HCI academics is increasing in a number of universities.

PART II: HCI IN CHINA

1. EDUCATION AND IDUSTRIAL LABS

Since 1993, when I started my master's course, I have been paying attention to HCI issues not only in Japan, but also in China. When I studied in my Ph.D. years (April, 1993 - March, 1996), I accompanied my supervisor, professor Shinji Moriya, to China on several occasions. We visited six universities located in major cities (see, *List 1* below) including two major universities – Tsinghua University and Beijing University. In additional, We also visited some industrial labs and companies including the Chinese Academy of Sciences (*List 2* below).

List 1: Universities visited (location, month visited, year):

- Yunnan Polytechnic University (Yunnan, October, 1994）
- Beijing University（Beijing, June, 1994）
- Tsinghua University (Beijing, June, 1994）
- Beijing Technology University (Beijing, June, 1994）
- Jilin University of Technology (Changchun, October, 1995）
- Dongbei University (Shenyang, November, 1995）

List 2: Industrial labs and companies visited in Beijing (year visited):

- Institute of Automation, Chinese Academy of Sciences (1994, 1997)
- Hanwang 99 Co. Ltd. (1994, 1997)
- Peking University Founder R&D Center (1994, 1997)
- Beijing Founder Electronics Co. Ltd.(1997)
- National Research Center for Intelligent Computing Systems (1997)
- Dawning Information Industry Co. Ltd.(1997)
- Institute of Software, Chinese Academy of Sciences (1997)
- Chinese Daheng Group (1997)
- Lianxiang Group (1997)

We found that HCI education and research is not yet systematically established in Chinese universities, however, most people have become interested in our presentations related to HCI and pen-input systems. I have recently heard that some universities and labs in China have established HCI labs – e.g. Tsinghua University, one of the most respected universities. When I went back to China last summer, the book "Being Digital", written by MIT Media Laboratory professor Nicholas Negroponte and published by MIT, was very popular. It had been translated into Chinese. This book describes the new media of HCI.

As a result of my visit to Beijing in May, I feel that the HCI industry is developing along with the Chinese economy. Many industrial labs have established companies to sell the products developed from their research. They are attempting to make products which are adapted to user needs. The Institute of Automation of the CAS (IACAS) has been focusing on research in Chinese character recognition over ten years as a national plan. The Hanwang 99 Co. Ltd. has combined with the IACAS.

After eight years of development, Founder (see *List 2* above) has become an international company with diversified industries. The world - famous Peking University Founder Electronic Publishing System for Chinese Characters has been improved and developed during its long period of application in order to meet demands from various users. Consequently it has maintained a market share of 80% in the domestic and overseas Chinese language industry and the newspaper industry. There is a HCI lab in the Institute of Software of the Chinese Academy of Sciences. The area of research they are interested in is CAD and Chinese Speech Recognition. I noted that Speech Recognition research is aimed at inputting rapidly when using other systems. Dawning Information Industry Co. Ltd., jointly sponsored by the National Research Center for Intelligent Computing Systems and other such companies, was founded in 1995. Multimedia Servers, the NI-OCR Chinese Character Recognition System, the NCI Press Desk-top Publishing System and the Notes Based OA System are products of the Dawning family. This company also has close ties with many companies throughout the world such as Motorola, IBM and many others. As a consequence, the Motorala-NCIC Joint R&D Laboratory was founded in 1996. JDL's main research directions regarding HCI include:

- Natural man-machine interface technologies
- Speaker-independent continuous speech recognition, and fast learning technologies
- High-performance multi-media systems
- Wireless communication systems

In contrast to western trends, the Japanese and Chinese pay special attention to the pen-based interface. Here, many people want to used pen-based computers instead of keyboard-based computers. For this and other reasons I believe that HCI issues are strongly influenced by national cultures.

2. CHINESE RESEARCHERS OVERSEAS

There are not many Chinese HCI researchers in Japan. I am a member of the Chinese Academy of Science and Engineering in Japan (CASEJ) which was established in March, 1996. There are approximately 130 members who mostly engage in teaching and research activities in various universities in Japan. I have noted that only a few people are working on HCI or research related to HCI.

I did, however, meet a few Chinese researchers at various international conferences, such as, the

CHI and HCI international conferences. It seems that there are a few Chinese HCI researchers around the world.

CONCLUSION (PART I and II)

This position paper has made the following observations:

- In Japan, academic research is very active. There is a significant number of SIGHCI which are characterized by the Japanese style. These groups hold informal meetings.
- HCI education has not yet been established as a discipline in Japanese universities and there is no representative authoritative publication yet, though various articles have been published.
- HCI education and research are not established firmly in China, although the situation is changing. HCI research and activities introduced in this position paper are performed by only a few of the most advanced labs.
- The research status and trends of HCI in a country are deeply related to that country's culture. In China and Japan, most ordinary people tend to use pen-based computers rather than keyboard-based computers.

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