

PROPOSAL OF TECHNICAL COMMITTEE ON ENTERTAINMENT COMPUTING

Tak Kamae, ECTF Chair

1. Background and Motivation

The advancement of information and communication technologies (ICT) has been enabling broad use of ICT and facilitating use of ICT in the private sector. ICT related industries are directing their business targets to the home.

ICT applications in the home may be classified into the following two categories:

- a) Applications extended from the office
 - Text input, output, and editing
 - E-mail reading and writing
 - Web surfing
- b) Home centric applications
 - Entertainment use of ICT
 - Household and energy management
 - Educational use of ICT for children

Among these applications, entertainment will differentiate ICT applications in the private sector from the office. Comprehensive research and development on ICT applications to entertainment will be very important to promote ICT use in the home.

However research and development on entertainment has never been active in academic communities. On the other hand entertainment related industries such as video game industries have been growing rapidly in these 10 years. Entertainment robots are drawing attention of young people. The event called Robo Cup has been increasing the number of participants year by year.

To bring up this newly born area of ICT it is important to build a good relationship between academia and industries, and to set up a nucleus activity group. It was this motivation that the IFIP General Assembly approved of setting up the Entertainment Computing Task Force (ECTF) under the auspices of the IFIP Committee for Cooperation with Industries (CCI) in August, 2000.

2. ECTF Activities

First of all, the major efforts of ECTF activities were directed toward demonstrating that the subject could be mature enough to attract the broad interest of ICT community. For this purpose a technical event, the International Workshop on Entertainment Computing (IWEC), was planned and IWEC Steering Committee members were appointed as shown in Annex 1.

The first such opportunity came when IFIP TC-13 kindly offered the time slot for the panel on entertainment computing at the site of its INTERACT 2001 in Tokyo, Japan in July 2001. The IWEC Steering Committee decided to accept the kind offer to increase the presence of ECTF and IWEC. At the panel many participants showed interests in entertainment computing.

The IWEC Steering Committee decided the structure of the technical program committee, its chair as shown in Annex 1, and IWEC 2002 call for paper as shown in Annex 2.

IWEC 2002 was successfully held at Makuhari, Japan on May 14-17, 2002 and its interim report on IWEC 2002 is attached as Annex 1. The reason for

“interim” report is that editing works of IWEC 2002 Proceedings are still in progress. IWEC 2002 attracted over 100 participants and over 60 papers. There were many high quality papers and several interesting technical demonstrations in IWEC 2002. These will be good evidences that entertainment computing is already an important technical area of ICT.

At the site of IWEC 2002 we had an extended ECTF meeting, whose meeting minutes were attached as Annex 3. At the meeting it was agreed unanimously that the formation of a new TC on Entertainment Computing should be proposed formally at the IFIP General Assembly/Technical Assembly in Montreal, and also it was pointed out that careful selection of the scope of this proposed TC would be important to avoid the overlap with those of existing TCs and that adjustments would be necessary with existing TCs before the formal proposal would be made in Montreal.

3. Proposal of a Technical Committee on Entertainment Computing

A new technical committee on entertainment computing is proposed in the following ways:

3.1 Title

Entertainment Computing

3.2 Aims

To encourage computer applications for entertainment and to enhance computer utilization in the home, the technical committee will pursue the following aims:

- to enhance algorithmic research on board and card games
- to promote a new type of entertainment using information technologies
- to encourage hardware technology research and development to facilitate implementing entertainment systems, and
- to encourage haptic and non-traditional human interface technologies for entertainment.

3.3 Scopes

- (1) Algorithm and strategy for board and card games
 - algorithms of board and card games
 - strategy control for board and card games
 - level setup for game and card games
- (2) Novel entertainment using ICT
 - network-based entertainment
 - mobile entertainment
 - location-based entertainment
 - mixed reality entertainment
- (3) Audio
 - music informatics for entertainment
 - 3D audio for entertainment
 - sound effects for entertainment
- (4) Entertainment human interface technologies
 - haptic and non-traditional human interface technologies
 - mixed reality human interface technologies for entertainment
- (5) Entertainment robots
 - ICT-based toys
 - pet robots
 - emotion model and rendering technologies for robots
- (6) Entertainment systems

- design of entertainment systems
- entertainment design toolkits
- authoring systems
- (7) Theoretical aspects of entertainment
 - sociology, psychology and physiology for entertainment
 - legal aspects of entertainment
- (8) Video game and animation technologies
 - video game hardware and software technologies
 - video game design toolkits
 - motion capture and motion design
 - interactive story telling
 - digital actors and emotion model
- (9) Interactive TV and movies
 - multiple view synthesis
 - free viewpoint TV
 - authoring technologies
- (10) Edutainment
 - entertainment technologies for children's education
 - open environment entertainment robots for education

3.4 WGs under TC

WG1: Entertainment Theory

WG2: Entertainment Technologies

3.5 Candidate chair

Prof. Ryohei Nakatsu, Kwansei Gakuin University, Japan, who was the program chair of IWECC. A short biography of Prof. Nakatsu is attached in Annex 5.

4. Considerations on overlaps

The following considerations were made to avoid the overlap with existing TCs.

4.1 TC-3 (Education)

The proposed scope #10 (edutainment) may overlap with those of WG3.5 (Informatics in Elementary Education), because the aims of WG 3.5 include

- a) to promote the development of ICT materials and equipment of recognized quality, and
- b) to enable ICT to make a beneficial contribution to children's learning and living.

The new TC will restrict itself to applications of entertainment computing technologies to develop children's education materials.

4.2 TC-5 (Computer Applications in Technology)

The proposed scopes #2 (novel entertainment using ICT), #4 (entertainment human interface technologies) and #8 (video game and animation technologies) may overlap with those of WG 5.10 (computer graphics and virtual worlds), because the scopes of WG 5.10 include

- a) graphics modeling and rendering
- b) virtual reality
- c) animating virtual worlds, and
- d) artificial life in virtual worlds.

To avoid the overlap the new TC will restrict itself strictly to applications of

those technologies to entertainment. Generic technologies relevant to computer graphics, virtual reality and artificial life should be discussed in WG 5.10; however the applications of those technologies focused on video games, virtual reality games and digital actors/actresses should be handled by the new TC. Anyway joint efforts with WG 5.10 in these areas should be promoted seriously.

4.3 TC-9 (Relationship between Computers and Society)

The proposed aims and the proposed scope of the new TC might be implicitly included in those of WG 9.3 (Home-Oriented Informatics and Telematics) though they do not overlap with each other explicitly. It may be true that most entertainment computing technologies are utilized in the home, but the main interests of the new TC are directed to entertainment, not necessarily to the home.

The proposed scopes #2 and #4 may partially overlap with those of WG 9.5 (Applications and Social Implications of Virtual Worlds). According to the scope of WG 9.5 they will welcome case studies on and experiences with virtual reality systems, e.g. in entertainment. WG 9.5 is generally interested in applications of virtual reality technologies, and entertainment is only an area of such applications. On the other hand the new TC is interested in entertainment itself and virtual reality technologies are only one of its base technologies. WG 9.5 and the new TC are viewing overlapped technologies from a different angle. Joint efforts with WG 9.5 will be necessary.

4.4 TC-12 (Artificial Intelligence)

The new TC may overlap partially with TC-12, because artificial intelligence (AI) is actually one of the base technologies for entertainment computing. The interests of the new TC in artificial intelligence will be restricted to applications of AI technologies to entertainment. TC-12 and the new TC will stand complementary with each other. The progress of AI will make entertainment more amusing and enjoyable, and the new TC will promote applicability of AI.

4.5 TC-13 (Human-Computer Interaction)

The proposed scope #4 may overlap with that of TC-13. In the TC-13 scope they say that both general studies and specific studies on practical issues are important for progress. In this context the new TC will focus on specific studies of human-computer interaction only for entertainment. The new TC will provide practical knowledge of human-computer interaction for entertainment to TC-13, while general progress of human-computer interaction knowledge and technologies provided by TC-13 will improve entertainment computing human interface. Joint efforts will be important to both committees.

5. Concluding Remarks

To form a new technical committee especially when it is an application oriented one, a certain level of overlaps with existing technology oriented TCs cannot be avoided; however such overlaps may give good opportunities of discussing similar technologies from different viewpoints, because such overlapped areas are intersections of technical areas viewed from different angles. Discussions on similar technologies from different viewpoints will stimulate the progress of such technologies.

The formation of the new TC on entertainment computing will demonstrate the positive attitude of IFIP toward newly developed area of ICT, and promote

to expand the applications of ICT to non-traditional areas.

6. Annexes

Annex 1: Interim Report on International Workshop on Entertainment Computing (IWEC 2002)

Annex 2: IWEC 2002 Call for Paper

Annex 3: Minutes of the extended ECTF meeting

Annex 4: Discussion Items for extended ECTF meeting

Annex 5: Short Biography of Ryohei Nakatsu

Annex 1

Interim Report on International Workshop on Entertainment Computing (IWEC 2002)

1. Background

IFIP General Assembly approved of setting up Entertainment Computing Task Force (ECTF) to study the feasibility of a new TC on Entertainment Computing in August, 2000 in Beijing, China., and IFIP Council appointed Tak Kamae to be the chair of ECTF in March, 2001 in Capri, Italy.

ECTF decided to organize International Workshop on Entertainment Computing (IWEC 2002) in the spring of 2002 in Japan under the sponsorship of IFIP.

2. Outline of IWEC 2002

International Workshop on Entertainment Computing was held on May 14 through May 17, 2002 in Makuhari, Japan in the following ways.

2.1 IWEC 2002 Date and Place

Date: Tuesday, May 14 to Friday, May 17, 2002

Place: Sharp Conference Hall in Sharp Makuhari Building

2.2 Program Outline

Day 1 (Tuesday):

Afternoon	human-computer Othello match
Evening	reception

Day 2 (Wednesday):

Morning and afternoon	3 technical sessions in parallel
	1 invited speech
	technical demos in the lobby
Evening	joint meeting of ECTF and IWEC Steering Committee

Day 3 (Thursday):

Morning and afternoon	3 technical sessions in parallel
	1 invited speech
	technical demos in the lobby
Evening	workshop dinner
	a dinner speech

Day 4 (Friday):

Morning	3 technical sessions in parallel
	1 invited speech
	technical demos in the lobby

2.3 Papers, Demos and Participants

IWEC 2002 Call for Papers is attached separately.

Papers accepted:

Foreign	27
Domestic	35

Demos

Foreign	5
Domestic	5

Participants

Foreign	37
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Domestic 82

Invited Speakers

Donald Marinelli (Carnegie-Mellon U.)

Marc Cavazza (U. of Tesside)

Masaya Matsuura (NanaOn-Sha)

Masahiro Fujita (SONY) --- dinner speech

2.4 IWEC 2002 Steering Committee and Program Committee

IWEC Steering Committee:

General Chair	Tak Kamae	(LIST,Japan)
Program Chair	Ryohei Nakatsu	(Kwansei Gakuin U.)
Demo Chair	Hiro Iida	(Shizuoka U.)
Finance	Takaya Ishida	(Mitsubishi Electric)
Members	Jaap van den Herik	(Maastricht U.)
	Hitoshi Matsubara	(Hakodate Future U.)
	Junichi Hoshino	(Tsukuba U.)
	Masahiko Tsukamoto	(Osaka U.)
Secretariat	Osamu Ayukawa	(IPSJ)

IWEC Program Committee

Chair	Ryohei Nakatsu	(Kwansei Gakuin U.)
Computer and Games sub-committee	Jaap van den Herik	(Maastricht U.)
Home/Archade Games and Interactive Movies sub-committee	Junichi Hoshino	(Tsukuba U.)
Entertainment Robots and Physical Systems sub-committee	Hitoshi Matsubara	(Hakodate Future U.)
Music Informatics sub-committee	Masahiko Tsukamoto	(Osaka U.)
Sociology and Psychology for Entertainment sub-committee	Ryohei Nakatsu	(Kwansei Gakuin U.)

3. ECTF and IWEC Steering Committee (extended ECTF) meeting

The meeting minutes are separately attached. It was agreed unanimously that the formation of a new TC on Entertainment Computing should be proposed formally at IFIP Technical Assembly/General Assembly in Montreal. It was pointed out that careful wording of the aims, and careful selection of the scope of this new TC would be important to avoid the overlap with existing TCs and that adjustments would be necessary with existing TCs before the formal proposal would be made in Montreal. The meeting unanimously supported to hold an IWEC-like conference, whichever conference or symposium it will be called, regularly once every year.

4. Finance

Details will be reported in about 1 month from now, because editing works of IWEC 2002 Proceedings are still in progress.

The total income was \6,6267,000; total participation fee was 27x40,000(members)+26x45,000(non-members)+23x20,000(students)+11x45,000(on-site members)+10x50,000(on-site non-members)+14x25,000(on-site students)+12,000(workshop note only), and grants were 2,000,000 from Japan Society for the Promotion of Science and 200,000 from Chiba Convention Bureau. The total expenses as of June

28, 2002 were \4,152,809; expenses for pre-workshop operation were 182,768, expenses for invited speakers were 1,430,000, for printing workshop notes and program 579,600, for demo programs 56,490, for reception, coffee and dinner 923,728, and for miscs 980,223.

5. Conclusion

IWEC was very successful, because the number of participants exceeded 100, out of which 37 came from abroad, and because there were many excellent papers presented. Discussions were very enthusiastic and also stimulating in almost all technical sessions. 3 invited speeches and a dinner speech were impressive and persuasive. Participants were very much impressed with them. Now the work to edit IWEC Proceedings is in progress.

6. Acknowledgement

Special thanks are directed to Sharp Corporation for offering free use of Sharp Conference Hall and its front lobby for 4 days and NEC Corporation for offering free use of its Othello program called Logistello. The great success of IWEC 2002 depended much on these 2 companies.

General Chair

Tak Kamae (LIST)

Technical Program Chair

Ryohei Nakatsu (ATR)

Technical Program Subcommittee Chair

Computers & Games

Jaap van den Herik (University of Maastricht)

herik@cs.unimaas.nl

Home/Arcade Games and Interactive Movies

Kazuhiko Nishi (ASCII Corp.)

Junichi Hoshino (Univ. of Tsukuba/JST)

jhoshino@esys.tsukuba.ac.jp

Entertainment Robots & Physical Systems

Hitoshi Matsubara (Future Univ. of Hakodate)

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Music Informatics

Masahiko Tsukamoto (Osaka Univ.)

tuka@ise.eng.osaka-u.ac.jp

Sociology and Psychology of Entertainment

Ryohei Nakatsu (ATR)

nakatsu@atr.co.jp

Demo and Contest Co-chairs

Hitoshi Matsubara (Future Univ. of Hakodate)

matsubar@fun.ac.jp

Hiro Iida (Shizuoka University)

iida@cs.inf.shizuoka.ac.jp

Steering Committee

Donald Marinelli (CMU, Ent.Tech.Center)

Demetri Terzopoulos (NYU)

Marc Cavazza (University of Teesside)

Bruce Blumberg (MIT Media laboratory)

Matthias Rauterberg (Tech. Univ. of Eindhoven)

Finance Chair

Takaya Ishida (Mitsubishi Electric)

Local Arrangement

tbd (Sharp Corp.)

Secretariat

Osamu Ayukawa (IPSJ)

Specific questions regarding the technical program should be directed to the program chair:

Ryohei Nakatsu

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IWEC2002

CALL FOR PAPERS

First International Workshop on Entertainment Computing(IWEC)

May 14 ~ 17, 2002 SHARP Conference Hall, Makuhari, JAPAN

Sponsored by IFIP, Organized by IPSJ

<http://www.graphic.esys.tsukuba.ac.jp/iwec2002/>

Entertainment has been taking very important parts in our life by refreshing us and activating our creativity. Recently by the advancement of computers and networks new types of entertainment have been emerging such as video games, entertainment robots, and network games. As these new games have a strong power to change our lives, it is good time for people who work in this area to discuss various aspects of entertainment and to promote entertainment related researches. IWEC will bring together researchers, developers, and practitioners working in the area of entertainment computing. It will cover wide range of entertainment computing such as theoretical issues, hardware/software issues, systems, human interfaces, and applications.

Workshop Topics

- 1. Computers & Games:** computer game algorithms; modeling of players; web technologies for networked games; human interface technologies for game applications
- 2. Home/Arcade Games and Interactive Movies:** interactive storytelling; simulating characters, people, and environment; motion capture; real-time graphics and clusters; gestures and multi-modal interaction; 3D sensing; large display and haptics; image-based modeling
- 3. Entertainment Robots & Physical Systems:** entertainment robot systems; toy robots, pet robots; entertainment robots for man-machine interfacing; physical games and mental games
- 4. Music Informatics:** MIDI and its extensions; acoustic computation; computer music for home entertainment; new music instruments; sound and voice for entertainment
- 5. Sociology and Psychology of Entertainment:** modeling and representation of emotion; mind model for entertainment; psychological aspect of immersion; future of entertainment; social significance of entertainment

Submissions

Papers: Submission of papers addressing any of the conference topics is solicited. Intending authors should submit an extended abstract of 2 – 4 pages by the deadline date for submission: **December 15, 2001**. Full papers are also welcome. Authors are requested to submit papers in PDF format via e-mail to one of the technical subcommittee chairs depending on the topic of the paper and send a copy to the following address to make the paper submission secure: iwec-paper@ipsj.or.jp

Demos & Contests: Proposals of demonstrations and contests are solicited. Entries should consist of live demonstrations of computer games, interactive entertainment systems, and robots. Also proposals of contest of new games and robots are welcomed. Submit a proposal for review by the deadline date for submission: January 15, 2002.

Exhibitions: Exhibits are invited from interested commercial organizations. Exhibits of computer games, arcade games, interactive systems, robots and toys are welcomed. Details of the exhibitions will be announced later.

Important Date

Extended Abstract submission due:	December 15, 2001
Demo and contest proposal due:	January 15, 2002
Notification of Acceptance:	January 31, 2002
Camera-ready papers due:	March 15, 2002

Annex 3

MINUTES OF THE EXTENDED ECTF MEETING

TIME: 19:00-20:45, Wednesday, May 15, 2002

PLACE: 21st Floor of Sharp Makuhari Building

ATTENDANCE (in no particular order) :

Tak Kamae (Chair, LIST, Japan)
Marc Cavaza (University of Teesside)
Matthias Rauterberg (Eindhoven University of Technology)
Ryohei Nakatsu (Kwansei Gakuin University)
Scott Fisher (Keio University)
Hiroyuki Iida (University of Shizuoka)
Jaap van den Herik (University of Maastricht)
Gonzalo Frasca (Cartoon Network)
Junuchi Hoshino (University of Tsukuba)
Masahiko Tsukamoto (Osaka University)
Hirokazu Kato (Hiroshima City University)
Adrian Davit Cheok (National University of Singapore)
Bruce H. Thomas (University of South Australia)
Michael Buro (NEC Research Institute)
Takaya Ishida (Mitsubishi Electric Corporation)
David Ventura (Carnegie Mellon University)
Donald Marinelli (Carnegie Mellon University)
Sidney Fels (University of British Columbia)
Michael Cohen (University of Aizu)
Osamu Ayukawa (IWEC Secretary, IPSJ)
Takayuki Yanagawa (IPSJ)

AGENDA AND RESOLUTIONS:

Tak Kamae, Chair of Entertainment Computing Task Force, welcomed the attendees and opened the meeting. Using "Discussion Items for extended ECTF meeting (attached as Annex 4), he sorted out discussion items and the meeting agreed to the agenda as follows:

1. Definition of Technical Areas
2. Proposal to IFIP
3. Future Plan of IWEC
4. Others (if any)

1. Technical Areas

Chair requested the meeting to propose technical areas to be added to the five areas of the current Workshop. The following technical areas were listed up :

Board and card gaming
Video gaming
Network-based entertainment
Mobile entertainment
Location based entertainment
Mixed reality entertainment
Music informatics for entertainment
3D audio for entertainment
Haptic and non-traditional human interface technologies for entertainment
Entertainment human interface
Entertainment robot technologies
Theoretical aspects of entertainment
Design of entertainment systems
Legal aspects of entertainment systems

Affective computing

The following comments were also made:

- 1) In order to avoid overlaps with existing activities elsewhere the target areas should not be too much expanded.
- 2) It is desirable to create novel areas.
- 3) The conference in Finland in June is focused on human, cultural and art aspects of computing and, thus, may have topics of our interest.
- 4) Topics relating to software applications should be enhanced.
- 5) IWEC may be substantially duplicated with Eurographics
- 6) The distinguished feature of IWEC is that the scope is horizontally segmented instead of vertically as is commonly adopted by other events.

2. Proposal on a New TC at IFIP Technical Assembly and General Assembly

At first Chair sought opinion of the meeting if entertainment computing was mature enough to attract interest of large number of scientists and engineers. An opinion was mentioned that Europe where IFIP had a rather strong hold had not much activity in computer games and thus might be reluctant to go into this area. It was pointed out that there were very few academic people specialized in this area even in Japan and that the good relationship between industries and academicisms had not been set up yet.

Even in academic communities, researchers are still hesitating to say that their special area is entertainment computing. Instead they tend to say, for example, that their special area is artificial intelligence, and that they are interested in entertainment computing as an application of the artificial intelligence.

On the other hand it was pointed out that once entertainment computing research community was established, a number of researchers would join the community and say that their research area was entertainment computing and that US and Asia were active enough to found an organizational activity(TC) in IFIP This opinion obtained the general agreement of the meeting.

Secondly Chair asked the meeting whether or not this August was an appropriate timing to make a proposal to set up a new TC(TC14) within IFIP. The meeting was affirmative to do so since this was what the Beijing GA decided and also it would be come too late if it was delayed for one more year. Considering the possible overlap with other existing TCs and WGs such as WG9.3 and TC13, it was suggested to make a adjustment with them such as a discussion to reorganize the current TC/WG structure.

Next Chair requested a proposal of a name of the new TC. After a discussion it was decided to select the present name, Entertainment Computing.

Then WG structure of the new TC was discussed. Some options included to start activity with one WG and to set up five WGs corresponding to the five areas of the IWEC of this year. Finally it was decided to form the two WGs:

WG14.1 Entertainment Theory

WG14.2 Entertainment Technologies

The discussion moved on to select a candidate of TC Chair. Majority of the meeting agreed to nominate Ryohei Nakatsu, Program Chair of IWEC, as the TC Chair and he accepted this nomination. (Tak Kamae, General Chair of IWEC, declined the nomination because of his commitment to other position and probable lack of support by his company.)

3. Future IWEC

Secretary reported that there were over 100 registrants about one third of which were from outside Japan. This was recognized as a proof to show the international popularity of the subject and it was agreed to organize this series of workshop in the future according to the following rule:

Frequency: Annually

Time: To be decided by host organization

Place: Rotation in the order of Asia/pacific, North America and Europe

The plan for the next IWEC was discussed. There was an eager invitation from Singapore. It was

pointed out that the participation from North America was important. Finally the next decision was made for IWEC2003:

General Chair: Ryohei Nakatsu with the support of Hiroyuki Iida, Masahiko Tsukamoto,
Junichi Hoshino and Jaap van den Herik

Place: US (Pittsburg, PA) as the first candidate and Singapore as the second

The possibility for the US to host the next IWEC was decided to be asked to CMU during this IWEC period.

4. Others

4.1 Publication of Book

The effort to publish a book of this IWEC until today was reported. The meeting was asked whether or not to continue this effort on top of the existing Workshop Proceedings. It was confirmed to publish the book as far as a priority was given to maintain the quality of papers high.

Ryohei Nakatsu and Hiroyuki Iida were elected as editor and Jaan Van Den Herik as associate editor. The review of the publication schedule was entrusted to Nakatsu and Iida.

4.2 Workshop at WCC2002

It was confirmed to organize a panel session at WCC2002 in Montreal in August. Nakatsu was elected as organizer who was requested to decide panel members during this IWEC period.

Annex 4

Discussion Items for extended ECTF meeting

1. Current status

--- In August 2000 in Beijing IFIP (President: Plamen Nedkov) General Assembly (IFIP GA) approved of IPSJ (Information Processing Society of Japan) organizing Entertainment Computing Task Force (ECTF) under the auspices of IFIP CCI (Committee for Cooperation with Industries: chair J.A.N. Lee).

---In March,2001 in Capri, Italy IFIP Council approved Tak Kamae as the ECTF chair.

---Tak Kamae talked with Hitoshi Matsubara and Hiro Iida on the feasibility of IWECC, both of whom are major members of IPSJ Game Informatics Special Interest Group (chair: Hitoshi Matsubara). They promised with Tak Kamae to work together for IWECC. Tak Kamae asked Ryohei Nakatsu to be the IWECC program chair.

---IPSJ approved the proposal of Tak Kamae to plan IWECC in May, 2002 under Current Steering Committee.

---IWECC Steering Committee decided the date, location and technical areas of IWECC. The Committee was very much concerned about the finance of the Workshop, and Sharp Corporation was kind enough to offer the free use of its conference hall.

---As an attraction the Committee planned on the human-computer Othello match, and NEC generously offered its computer software of Othello game for IWECC attraction program.

---IWECC Steering Committee sponsored a panel discussion on entertainment computing at the site of INTERACT 2001 held in June, 2001 in Tokyo, which is a regularly held symposium sponsored by IFIP TC 13 (Human-Computer Interaction).

---IFIP GA will be held in Montreal in early September, 2002 and ECTF is requested to make some kind of proposal on the future of ECTF. Tak Kamae believes the proposal should be positive (the formation of a new TC on entertainment computing) or negative (the negative termination of ECTF activities).

2. Discussions of Entertainment Computing

2.1 Technical areas

As examples the followings can be listed up:

- legacy games using computers and artificial intelligence as their background technologies
- video games and computer graphics as their background technologies
- video game hardware technologies
- entertainment robot technologies
- human interface technologies for entertainment
- novel entertainment using computer technologies
- music informatics for entertainment
- sociology, psychology and physiology for entertainment

2.2 Feasibility of entertainment computing

Does entertainment computing draw attention of enough number of academic researchers and industry engineers?

3. Feasibility of IFIP Technical Committee on Entertainment Computing

3.1 Proposal on the formation of a new TC in early September, 2002

- timing good vs premature
- possible activities active enough to attract researchers and engineers globally
vs activities only in limited locations and/or in limited technical areas
vs difficult to be active
- academism: Is entertainment computing research actively done in academic communities?
- industries: Are entertainment computing industries grown up enough to support and take advantage of TC activities.
- active areas: Are technical areas discussed in item 2.1 wide enough and/or deep enough?

3.2 TC on Entertainment Computing

- naming
Is the name "entertainment computing" appropriate? If no what should be the name?
- activity areas
Do activity areas discussed at item 2.1 overlap badly with existing TC activities? If yes what should be technical areas of the new TC?
- WGs
What kinds of WGs are necessary from the very beginning?
- Symposium/Workshop
What kind of Symposium or Workshop will we organize as the first step? Should it be the symposium/workshop sponsored by TC? Or should each WGs organize their own workshop?
- Candidates for TC and WG executives

4. Future of IWEC

4.1 TC vs IWEC

Should IWEC be continued irrelevant to a new TC? Or should IWEC be planned at least for the next year because, after the decision of a new TC, it will be difficult to organize IWEC in late spring or early summer next year? Or should we leave such decisions to new executives of the new TCs irrelevant to whether the new TC will be approved or not?

4.2 2nd IWEC

If we should continue IWEC irrelevant to the new TC, who will organize 2nd IWEC and when? If so who will take the coordination with the new TC if it is approved?

5. Other discussions

Annex 5

Short Biography of Ryohei Nakatsu

Ryohei Nakatsu received the B.S., M.S. and Ph.D. degrees in electronic engineering from Kyoto University in 1969, 1971 and 1982 respectively. After joining NTT in 1971, he mainly worked on speech recognition technology. In 1994, he joined ATR (Advanced Telecommunications Research Institute) as the president of ATR Media Integration & Communications Research Laboratories. From the spring of 2002 he is a professor at School of Science and Technology, Kwansei Gakuin University.

His research interests includes emotion extraction from speech and facial images, emotion recognition, nonverbal communications, and integration of multi modalities in communications.

In 1978, he received Young Engineer Award from the Institute of Electronics, Information and Communication Engineers Japan (IEICE-J). In 1996, the best paper award from the IEEE International Conference on Multimedia. In 1999, 2000 and 2001, Telecom System Award from Telecommunication System Foundation and the best paper award from Virtual Reality Society of Japan. In 2000, the best paper award from Artificial Intelligence Society of Japan.

He is a fellow of the IEEE and the Institute of Electronics, Information and Communication Engineers Japan (IEICE-J), a member of the Acoustical Society of Japan, Information Processing Society of Japan, and Japanese Society for Artificial Intelligence.