ICAT2004

The 14th International Conference on Artificial Reality and Telexistence

PROGRAM BOOK

November 30 ~ December 2, 2004
COEX, Seoul, Korea

Organized by
Korea Multimedia Society (KMMS)
Korea Advanced Institute of Science and Technology (KAIST)
Korea Institute of Science and Technology (KIST)
Electronics and Telecommunications Research Institute (ETRI)

Sponsored by
Virtual Reality Society of Japan (VRSJ)
Institute of Electrical and Electronics Engineers, Inc. (IEEE) Seoul Section
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U.S. AFOSR/AOARD
Institute for Graphic Interfaces (IGI)
In cooperation with Association for Computing Machinery (ACM) SIGCHI

Contents

Message from the General Chairs

Welcome to Seoul and the ICAT2004, 14th International Conference on Artificial Reality and Telexistence!

Artificial reality was the forerunner to virtual reality (VR) and is the technology that provides human beings with the experience of interacting in an artificially generated environment. Telexistence, on the other hand, is a concept named for the technology that enables human beings to have a real-time sensation of being at a place where they do not actually exist and interact with a remote environment, virtually ubiquitous.

We expect new IT paradigms such as ubiquitous computing, wearable computing, entertainment computing and humanoid robotics would create more dramatic advancement in the VR and Telexistence in the 21st century.

Expecting such advancement and exploring novel ways to transfer and express creative ideas to the society and the people, ICAT 2004 aims at not only the fusion of VR and Telexistence with new IT paradigms mentioned above but also the fusion of VR, Art and Entertainment.
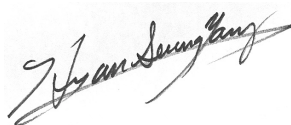
To fulfill the theme of ICAT 2004, the conference will run technical sessions with a lineup of 6 Distinguished Invited Talks, 2 Special Sessions, 4 Workshops, 5 Tutorials, 12 Oral Sessions (50 papers), 2 Poster Sessions (51 papers) and VR/Media Art and Technology Exhibition. The presenters and participants of ICAT 2004 will join from 14 countries and make the conference a truly international.

We are quite sure that you would enjoy the conference and be inspired by all those presentations. We also hope you to enjoy Seoul, the Capital of Korea, not only mega-modern, overshadowed by high rises but also appealingly ancient, full of centuries-old temples, palaces, pagodas and gardens.
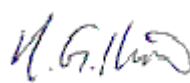
Finally we would like to express our sincere gratitude to all committee members, supporting organizations and secretariats for their tremendous efforts and contributions to the very successful conference.

We are sincerely looking forward to meeting you all at ICAT 2004!

November 30, 2004

| Hyun Seung Yang | Hyoung Gon Kim | Susumu Tachi |
| KAIST | KIST | The University of Tokyo |

Message from the Program Chairs

Welcome to Seoul and ICAT 2004, the 14th International Conference on Artificial Reality and Telexistence.

This year, we have a line-up of presentations that represent some of the most fascinating original works being done in the field of augmented/mixed reality, ubiquitous computing, wearable computing, entertainment computing, robotics, HCI as well as virtual reality and further the fusion of these areas. We believe that you will find all presentations of ICAT 2004 to be interesting, exciting, thought-provoking and useful.

ICAT 2004 features 6 Invited Talks, 2 Special Sessions, 4 Workshops, 5 Tutorials, 12 Regular Paper Sessions, 2 Poster Sessions, and VR/Media Art and Technology Exhibition.

Through a rigorous review process, the program committee selected 101 papers submitted from 14 countries including Canada, China, Denmark, France, Germany, Hong Kong, Japan, Korea, Netherlands, Singapore, Switzerland, Taiwan, UK, and USA. 63 papers will be presented in special sessions and oral sessions respectively and 51 papers in poster sessions.

The whole program of ICAT 2004 cannot be organized successfully without the passionate effort of many individuals. We would like to thank all the committee members and session chairs for their enormous contribution towards the success of this conference. We wish to thank the authors of all submitted papers and the presenters of all accepted papers.
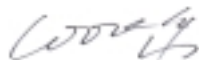
In particular, we would like to thank all the program committee members and referees for the time they spent in gathering, reviewing and discussing the submitted papers. The high quality of the papers in this conference is a direct result of their great efforts. Lastly, special thanks goes to the conference secretariat, J&C staffs, those who kept an eye on the schedules, locations, publications, formats, and many other conference-related issues.

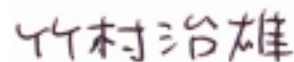Finally and again, we welcome all of you, and hope you enjoy ICAT 2004 and Seoul!

November 30, 2004

Hyun Bin Kim   Woontack Woo   Haruo Takemura
ETRI   GIST   Osaka University

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Programs at a Glance

2004. 11. 30 (Tue.)

	310-A	310-B	310-C	311-A	311-B	311-C	304	104
09:00 ~ 11:45	T1 Mark Billinghurst	T2 Makoto Sato	T3 Jay Lee	W1	W2	W3	W4	E X H I B I T I O N
11:45 ~ 13:00	Lunch							
13:00 ~ 13:50	Invited Talk 1 : Joseph Konstan (304)							
13:50 ~ 14:10	Coffee Break							
14:10 ~ 16:40	T4 Hideo Saito	T5 Thad Starner	Exhibition sketch	W1	W2	W3	Special Session 1	
17:00 ~ 17:50	Invited Talk 2 : Jose Encarnacao (304)							
18:00 ~ 19:30	**Welcome Party (105)**							

2004. 12. 1 (Wed.)

	101	102	104
08:15 ~ 08:30	Opening Ceremony		E X H I B I T I O N
08:30 ~ 09:20	Keynote Speech : Susumu Tachi		
09:20 ~ 09:35	Coffee Break		
09:35 ~ 10:55	S1	S2	
11:05 ~ 12:25	S3	S4	
12:25 ~ 13:40	Lunch		
13:40 ~ 14:30	Invited Talk 3 : Dan Sandin		
14:30 ~ 14:50	Coffee Break		
14:50 ~ 16:10	S5	S6	Poster Session I (1-25) (Lobby)
16:20 ~ 17:40	S7	S8	
18:00 ~ 18:50	Invited Talk 4 (Banquet) : Yoichiro Kawaguchi		
18:50 ~ 21:00	**Banquet (103)**		

2004. 12. 2 (Thu.)

	101	102	104
08:30 ~ 09:20	Invited Talk 5 : Rosalind Picard		E X H I B I T I O N
09:20 ~ 09:40	Coffee Break		
09:40 ~ 11:00	Special Session 2	S9	Poster Session II (26-51) (Lobby)
11:10 ~ 12:10		S10	
12:10 ~ 13:30	Lunch		
13:30 ~ 15:30	S11	S12	
15:45 ~ 16:15	**Closing Ceremony**		

Scientific Programs

November 30, 2004

Tutorials (Room 310-A,B,C)
Chairpersons: Jong Il Park (Hanyang University, Korea),
Kwang Hoon Sohn (Yonsei University, Korea)

T1	An Introduction to Augmented Reality
9:00	*Mark Billinghurst, HITLab NZ/University of Washington, USA*
T2	Haptics for Immersive and Dynamic Virtual Worlds
9:00	*Makoto Sato, Shoichii Hasegawa, Seungzoo Jeong, Tokyo Institute of Technology, Japan*
T3	Intermedia: Palpable Exploration of Digital Convergence
9:00	*Jay Lee, Samsung Electronics Co., Ltd., Korea*
T4	Image/Video Based 3D Modeling, Rendering, and Registration for Virtual Reality
14:10	*Hideo Saito, Keio University, Japan*
T5	Wearable and Mobile Human Computer Interaction
14:10	*Thad Starner, Georgia Tech, USA*

Workshop 1: Intelligent Virtual Environment and Mixed Reality (Room 311-A)
Chairpersons: Hyun S. Yang (KAIST, Korea)
Zheng Xing Sun (Nanjing University, China)
Dong Jo Park (KAIST, Korea)

W1-1	Adaptive Sketchy Shape Recognition Based on Incremental Learning
9:00	*Zhengxing Sun, Shuang Liang, Lisha Zhang, Nanjing University, China*
W1-2	3D Scene Reconstruction System from Multiple Synchronized Video Images
9:25	*H. S. Yang, Taewoo Han, Juho Lee, KAIST, Korea*
W1-3	Using Intelligent Synthetic Characters for Behavior Training in Primary Schools
9:50	*Zhigeng Pan, Ruth Aylett, Jiejie Zhu, Caohui Zhu, Guilin Xu, Zhejiang University, China*
W1-4	Panoramic Mesh Model Generation for Indoor Environment Modeling
10:15	*Wonwoo Lee, Woontack Woo, GIST, Korea*
W1-5	Practical Method for Auto-Calibration of Zooming Cameras from the Views
10:40	Containing a Rectangle of Unknown size
	JaeChul Kim, BonKi Koo, ChangWoo Chu, ByeongTae Choi, ETRI, Korea
W1-6	Smart Architectural Surface: Modularized Platform for Polymorphic Functional
11:05	Changes and Multimodal Interactions
	Seongju Chang, Jae-Do Chung, Hyongjin Kim, Youngjae Kim, Manjai Lee, ICU, Korea
W1-7	A Framework of Mocap Data Editing with Labanotation
14:10	*Xiaojie Shen, Weidong Geng, Tao Yu, Zhejiang University, China*
W1-8	Avatar's Expression Control through Face Tracking
14:35	*AeKyung Yang, YongWoon Park, GyeYoung Kim, HyungIl Choi, Soongsil University, Korea*
W1-9	The Research of Psychology Modeling Applied to Virtual Human
15:00	*Wang zhiliang, Gu xuejing, Cheng ning, Beijing University of Science & Technology, Korea*
W1-10	Real-Time 3D Video Avatar for Immersive Telecommunication

15:25	*Sang-Yup Lee, Sang C Ahn, Heedong Ko, Myo-Taeg Lim, Hyoung Gon Kim, KIST, Korea*
W1-11	Mutual Features Controlling of Dynamic Visemes for Emotional Talking Head System
15:50	*Jianhua Tao, Le Xin, Institute of Automation, Chinese Academy of Sciences, China*

Workshop 2: VR and Entertainment Technology (Room 311-B)
Chairpersons: Heedong Ko (KIST, Korea)
Wookho Son (ETRI, Korea)
Jeffrey Kim (Hahn Shin Corp., Korea)

W2-1	Virtual and Augmented Reality for Edutainment
9:00	*Bernd Lutz, Fraunhofer IGD, Germany*
W2-2	Production Process Modeling and Simulation in Subassembly Lines at a Shipyard
10:40	*Sangdong Han, Sehwan Kim, Jaehoon Kim, Samsung Heavy Industries, Kwang Kook Lee, Jong Hun Woo, Jonggye Shin, Seoul National University, Korea*
W2-3	Tutorial on NAVERLib1.2
11:20	*Jinwook Kim, KIST, Korea*
W2-4	Guidance Services for a Haptic Museum in Distributed Virtual Environments
14:00	*Toshio Asano, NTT Corporation, Yutaka Ishibashi, Nagoya Institute of Technology, Japan*
W2-5	Consistency and Fairness among Players in Networked Racing Games: Influence of
14:40	Network Delays
	Takahiro Yasui, Yutaka Ishibashi, Nagoya Institute of Technology, Japan
W2-6	Future of the Game Technologies: Based on Technical Improvements of Game
15:10	Services and Platforms
	Tae-Joon Park, ETRI, Korea

Workshop 3: Tangible Space Initiative (Room 311-C)
Chairperson: Sungdo Ha (KIST, Korea)

W3-1	Introduction to TSI Project in KIST
9:00	*Sungdo Ha, Chong Keun Ahn, KIST, Korea*
W3-2	Interactive Immersive Display
9:20	*Sang Chul Ahn, Ig-Jae Kim, Hyoung-Gon Kim, Sungdo Ha, KIST, Korea*
W3-3	Wearable Haptic-based Multi-modal Interaction for Tangible Interface
9:50	*Sungchul Kang, Seung-kook Yun, Chang-Soon Hwang, Laehyun Kim, Yoha Hwang, Munsang Kim, Sehyung Park, Sungdo Ha, KIST, Korea*
W3-4	Dynamic Shared State Management for Distributed Interactive Virtual Environment
10:40	*Youndong Park, Jinwook Kim, Heedong Ko, KIST, Yoonchul Choy, Yonsei University, Korea*
W3-5	Intelligent Software Agent
11:10	*Myon-Woong Park, Ji-Hyung Park, Sungdo Ha, Tae-Soo Kim, KIST, Korea*
W3-6	KIST: Tangible Space Initiative
11:40	*Bum-Jae You, Sang-Rok Oh, Jong-Suk Choi, Yongwhan Oh, Young Jin Choi, KIST, Korea*
W3-7	Reactive Virtual Human with Multimodal Interaction
14:00	*Makoto Sato, Tokyo Institute of Technology, Japan*
W3-8	Natural Space as Interface - Interaction Research at UCSB's Four Eyes Laboratory
14:30	*Tobias Hollerer, University of California, USA*
W3-9	Usability in the Tangible Space

15:00	*Gerard J. Kim, POSTECH, Korea*
15:50	Panel Discussion on TSI Project

Workshop 4: Ubiquitous Computing (Room 304)
Chairperson: Jee In Kim (Konkuk University, Korea)

W4-1	Location-based Context Awareness in Ubiquitous Environment
9:00	*Jun-Sang Park, Young-Tack Park, Soongsil University, Hyun-Jeong Lee, Jae-Doo Huh, ETRI, Korea*
W4-2	Dynamic Contents Provision for aPost-it
9:25	*Yoosoo Oh, Minkyung Lee, Seokmin Jung, Woontack Woo, GIST, Sanggook Lee, SAIT, Korea*
W4-3	A Study of Service Ontology for Service Search in Ubiquitous Environment
9:50	*Je-Min Kim, Young-Tack Park, Soongsil University, Korea*
W4-4	Technical Challenges of Persistent Association Technology for Ubiquitous Multimedia
10:15	*Jong-Tae Kim, Choong-Hoon Lee, Hae-Yeoun Lee, Heung-Kyu Lee, KAIST, Weon-Geun Oh, ETRI, Korea*
W4-5	ubiTrack: Infrared-based User Tracking System for Indoor Environments
10:50	*Seokmin Jung, Woontack Woo, GIST, Korea*
W4-6	Construction of a World Modeler for Smart Floor
11:15	*Jung-Hwa Choi, Young-Tack Park, Soongsil University, Hee-Dong Ko, KIST, Korea*
W4-7	Implementing an Information Service System for Physical Object Distribution in
11:40	Ubiquitous Network *Yuna Jung, Ajou University, Eenjun Hwang, Korea University, Korea*

Special Session 1 (Room 304)
Chairpersons: M. Hirose (University of Tokyo, Japan)
N. Hagita (ATR, Japan)

SS1-1	A Real World Role-playing Game as an Application of the Guide System in a Museum
14:10	*Atsushi Hiyama, Jun Yamashita, Yuichi Nishimura, Koichi Hirota, Michitaka Hirose, University of Tokyo, Teiichi Nishioka,Toppan Printing Co., Ltd., Hideaki Kuzuoka, University of Tsukuba, Japan*
SS1-2	Indirect Experience Recording and Display Technologies for Sensory Media
14:30	*Yasuyuki Yanagida, Haruo Noma, Shunsuke Yoshida, Kenichi Hosaka, Norihiro Hagita, ATR, Nobuji Tetsutan, Tokyo Denki University, Japan*
SS1-3	Intelligent Wearable Interaction System for Interactive Electronic Media
14:50	*Hyun S. Yang, Jin Choi, Yong-Ho Seo, Taewoo Han, Juho Lee, KAIST, Korea*
SS1-4	Capture and Retrieval of Life-log
15:10	*K. Aizawa, S. Kawasaki, T. Ishikawa, T.Yamasaki, University of Tokyo, Japan*
SS1-5	Interaction Corpus for Experience Sharing Using Ubiquitous Experience Media
15:30	*Kenji Mase, ATR/Nagoya University, Yasuyuki Sumi, ATR/Kyoto University, Megumu Tsuchikawa, Kiyoshi Kogure, Norihiro Hagita, ATR, Japan*
SS1-6	Virtual Time Machine
15:50	*Michitaka Hirose, Ryoko Ueoka, University of Tokyo, Katsuhiko Sakaue, AIST, Japan*
SS1-7	Content that Connects People by Shared Experience
16:10	*Atsuro Ueki, Yuichiro Haraguchi, Yoshimasa Niwa, Yukinari Iwata, Satoshi Umase, Sahori Ishibashi, Yukina Ushida, Yasuhiro Ichikawa, Takafumi Iwai, Koichiro Watanabe, Masa Inakage, Keio University, Japan*

Invited Talk 1 (Room 304)

Chairperson: Jee In Kim (Konkuk University, Korea)

IT-1 The Human Factor in Mobile and Wearable Technologies: Making the Transition from Science
13:00 to Social Good
Joseph A. Konstan, University of Minnesota, USA

Invited Talk 2 (Room 304)

Chairperson: Hyoung-Gon Kim (KIST, Korea)

IT-2 Making AmI Happen
17:00 *Jose Encarnacao, Fraunhofer IGD, Germany*

December 1, 2004

Keynote Speech (Room 101)

Chairperson: Hyun S. Yang (KAIST, Korea)

KS Recent Advances in Telexistence
8:30 *Susumu Tachi, University of Tokyo, Japan*

Session 1: Virtual Reality / Augmented Reality (Room 101)

Chairpersons: Yasuyuki Yanagida (ATR, Japan)
Jong Il Park (Hanyang University, Korea)

S1-1 Augmented Real World (ARW) Framework and Augmented Reality Modeling Language (ARML)
9:35 *Kei Nishimura, Yoichi Muraoka, Waseda University, Japan*

S1-2 Implementation of a Remote 3D Visualization System
9:55 *Joe X. Zhou, David Bonyuet, Delta Search Labs, Inc, USA*

S1-3 Recursive Camera Resectioning with Unscented Particle Filter in Image Sequences:
10:15 Application to Video-based Augmented Reality
Jongsung Kim, Kisang Hong, POSTECH, Korea

S1-4 I²-NEXT: Digital Heritage Expo
10:35 *Dongpyo Hong, Woontack Woo, GIST, Korea*

Session 2: Haptics (Room 102)

Chairpersons: Yasusi Ikei (TMIT, Japan)
Jeha Ryu (GIST, Korea)

S2-1 Vibrotactile Apparent Movement by DC Motors and Voice-coil Tactors
9:35 *Masataka Niwa, Osaka Institute of Technology, Yasuyuki Yanagida, Haruo Noma,*
Kenichi Hosaka, ATR, Yuichiro Kume, Tokyo Polytechnic University, Japan

S2-2 Hardware Based 2.5D Haptic Rendering Algorithm using Localized Occupancy Map
9:55 Instance
Jong-Phil Kim, Jeha Ryu, GIST, Korea

S2-3 Effects of Group Synchronization Control over Haptic Media in Collaborative Work
10:15 *Hiroyuki Kaneoka, Yutaka Ishibashi, Nagoya Institute of Technology, Japan*

S2-4 Actuation Mechanism for High-resolution Tactile Display
10:35 *NAKASHIGE Mutsuhiro, HIROTA Koichi, HIROSE Michitaka, The University of Tokyo,*
Japan

Session 3: Interaction and Tracking (Room 101)
Chairpersons: Larry Hodges (UNC, USA)
               Hiroaki Yano (University of Tsukuba, Japan)

S3-1   Haptic Interaction with a Glove Interface in a Physics Based Virtual Environment
11:05   *Michael F. Zaeh, Hans Egermeier, Bernd Petzold, Harald Schmid, Technische Universtiät München, Germany*

S3-2   Vision-based System for Head Pose Tracking in Indoor Immersive Environments
11:25   *Srinivasa G. Rao, Stephen J. Schmugge, Larry F. Hodges, University of North Carolina at Charlotte, USA*

S3-3   Combined Head - Eye Tracking for Immersive Virtual Reality
11:45   *Hu Huang, Robert S. Allison, Michael Jenkin, York University, Canada*

S3-4   Gesture Recognition Using Shape and Depth Information of Body for Human-Robot-Interaction
12:05   *Jae-Yong Oh, Chil-Woo Lee, Chonnam National University, Korea*

Session 4: Teleoperation/Telexistence/Presence (Room 102)
Chairpersons: Hee Dong Ko (KIST, Korea)
               Mark Green (City University of Hong Kong, Hong Kong)

S4-1   Effects of Virtual Human Presence on Task Performance
11:05   *Catherine Zanbaka, Amy Ulinski, Paula Goolkasian, Larry F. Hodges, University of North Carolina at Charlotte, USA*

S4-2   An Interactive Teleconference System for Small Groups
11:25   *Sang Yun Oh, Sang Chul Ahn, Hyoung-Gon Kim, KIST, HanSeok Ko, Korea University, Korea*

S4-3   Immersive Telepresence System Using High-resolution Omnidirectional Video with
11:45   Locomotion Interface
         Sei IKEDA, Tomokazu SATO, Masayuki KANBARA, Naokazu YOKOYA, Nara Institute of Science and Technology, Japan

S4-4   Effects of Haptic Feedback on Telepresence and Navigational Performance
12:05   *Sangyoon Lee, Gerard J. Kim, Chan-Mo Park, POSTECH, Korea, Gaurav S. Sukhatme, University of Southern California, USA*

Invited Talk 3 (Room 101)
Chairperson: Susumu Tachi (University of Tokyo, Japan)

IT-3   VR without Attachments
13:40   *Dan Sandin, University of Illinois at Chicago, USA*

Session 5: Distributed and Collaborative Systems (Room 101)
Chairpersons: Kiyoshi Kiyokawa (Osaka University, Japan)
               Dong Man Lee (ICU, Korea)

S5-1   Building Networked Immersive VR Applications Using the MVL Toolkit
14:50   *Tetsuro Ogi, University of Tsukuba, Japan*

S5-2   A Touch-based Collaboration over the Network
15:10   *Laehyun Kim, Chong Keun Ahn, Se Hyung Park, KIST, Korea*

S5-3   CIVE: Context-based Interactive System for Distributed Virtual Environments
15:30   *Seiie Jang, Youngho Lee, Woontack Woo, GIST, Korea*

S5-4   The Design of Internet-Based RobotPHONE
15:50   *Dairoku Sekiguchi, Naoki Kawakami, Susumu Tachi, The University of Tokyo, Masahiko Inami, The University of Electro-Communications, Japan*

Session 6: Modeling and Rendering (Room 102)

Chairpersons: Makoto Sato (Tokyo Inst. Of Tech., Japan)
                Zhigeng Pan (Zhejiang University, China)

S6-1	Rendering Methods for Models With Complicated Micro Structures
14:50	*Shun Iwasawa, Naohiro Shichijo, Yoichiro Kawaguchi, The University of Tokyo, Japan*
S6-2	Real-time Marching-cube-based LOD Surface Modeling of 3D Objects
15:10	*Hasup Lee, Hyun S. Yang, KAIST, Korea*
S6-3	An Adaptive Texture Control for a High Fidelity Terrain Visualization
15:30	*Sang-Hee Kim, Agency for Defense Development, Kwangyun Wohn, KAIST, Korea*
S6-4	A Resolution Control Method of an Object's Shape Applying Tolerance Caused by
15:50	Micro Motion
	Daisuke Wakatsuki, Ikuo Ishii, Niigata University, Akira Takahashi, Nagaoka National College of Technology, Japan

Session 7: Vision and Visualization for VR Systems (Room 101)

Chairpersons: Hideo Saito (Keio University, Japan)
                Chil Woo Lee (Cheonnam University, Korea)

S7-1	Geometrical and Temporal Calibration of Multiple Cameras by Using LED Markers for
16:20	Image Synthesis
	Hirotake Yamazoe, Akira Utsumi, Kenichi Hosaka, ATR, Masahiko Yachida, Osaka University, Japan
S7-2	Flexible Calibration of Multiple Projectors for Low-Cost Curved Screen Displays
16:40	*Jeroen van Baar, Ramesh Raskar, MERL – Mitsubishi Electric Research Laboratories, USA*
S7-3	Video-Based Fast 3D Individual Facial Modeling
17:00	*Mandun Zhang, Peng Lu, Xiangsheng Huang, Xiaoxu Zhou, Yangsheng Wang, Institute of Automation, Chinese Academy of Sciences, China*
S7-4	Development of Image Control Tool for Reproducing Perception Based Images
17:20	*Jin-Seo Kim, Maeng-Sub Cho, Byoung-Tae Choi, ETRI, Korea*

Session 8: Ubiquitous / Wearable Computing (Room 102)

Chairpersons: Masa Inakage (Keio University, Japan)
                Koichi Hirota (University of Tokyo, Japan)

S8-1	Wearable Scanning Laser Projector (WSLP) for Augmenting Shared Space
16:20	*Taro Maeda, Hideyuki Ando, NTT Communication Science Laboratories, Japan*
S8-2	Wearable Computing based on Multimodal Communication for Effective Teleoperation
16:40	with Humanoids
	Hyun S. Yang, Hun-Young Park, Yong-Ho Seo, Juho Lee, Taewoo Han, KAIST, Korea
S8-3	A Group-Aware Middleware for Ubiquitous Computing Environments
17:00	*Dongman Lee, Seunghyun Han, Insuk Park, SaeHoon Kang, Kyungmin Lee, Soon J. Hyun, Young-Hee Lee, Geehyuk Lee, ICU, Korea*
S8-4	Towards a Semantic Contexts Maintenance Model
17:20	*Young-Tack Park, Soongsil University, Hee-Dong Ko, KIST, We-Duke Cho, Ministry of Science and Technology, Korea*

Poster Session 1 (14:50 ~ 17:40, Lobby of Room 101))

P-001 Network Interaction Models for Remote Guiding
Yong-Moo Kwon, Tae-Sung Lee, KIST, Korea, Ferdinand Hommes, Eva Pless,
Fraunhofer-Institute for Media Communication, Germany

P-002 Development of A Walking Training System for Lower Limb Amputees
T. Wada, K. Ikuta, K. Tsukamoto, Kagawa University, S. Tanaka, Kagawa University
Hospital, Japan

P-003 A Study on Hierarchical Avatar Behavior Representation and Control Technique
Jae-kyung Kim, Yoon-Chul Choy Yonsei University, Korea Won-Sung Sohn, Carnegie
Mellon University, USA, Beom-Joon Cho, Chosun University, Soon-Bum Lim, Sookmyung
Women's University, Korea

P-004 Tracking Multi-person Robust to Illumination Changes and Occlusions
Kyoung-Mi Lee, Youn-Mi Lee, Duksung Women's University, Korea

P-005 Face Tracking using Particle Filer in the Complex Background
Sang Min Yoon, SAIT, Sang Hwan Lee, National Security Research Institute, Korea

P-006 Grasp Planning For Anthropomorphic Home-Service Robot
Jinsul Kim, Jihwan Park, Yong K. Hwang, Manjai Lee, ICU, Korea

P-007 Robots for Telexistence and Telepresence: from Science Fiction to Reality
Eimei Oyama, Institute of Advanced Industrial Science and Technology,
Taro Maeda, NTT Communication Science Laboratories, Japan, Arvin Agah, The University
of Kansas, USA, Susumu Tachi, The University of Tokyo, Japan

P-008 Case-Based Reasoning Approach to Task Planning of Home-Service Robots
Yuchul Jung, Yong K. Hwang, Manjai Lee, ICU, Korea

P-009 Tracking of a Laser Pointer Space Orientation by Using Single Camera
Sergey Matveyev, Fraunhofer Institute for Media Communication, Germany, Konstantin
Matveyev, The Moscow State University, Russia

P-010 Pen-shaped Device for Handwriting on Wearable Computers
Masataka Imura, Yusuke Sakan, Yoshihiro Yasumuro, Yoshitsugu Manabe, Kunihiro Chihara,
Nara Institute of Science and Technology, Japan

P-011 Intelligent Speech Interactive Agent on a Car Navigation Environment Using Embedded
ASR and TTS
Heungkyu Lee, Hanseok Ko, Korea University, Korea

P-012 Pose Estimation of Human Upper Body Using Multi-joint CG Model and Stereo Video Images
Kimio Hirao, Atsushi Nakazawa, Kiyoshi Kiyokawa, Haruo Takemura, Osaka University,
Japan

P-013 Location-based Context-Aware System
Young-Tack Park, Soongsil University, Korea

P-014 A Knowledge based Modeling of Virtual Costume (Virtual Hanbok)
Boran-Lee, Crystal S. Oh, Yang-Hee Nam, Ewha Womans University, Korea

P-015 Scalable Insertion of Persistent Association Data for Ubiquitous Multimedia
Jong-Tae Kim, Nguyen Cong Bu, Heung-Kyu Lee, KAIST, Byeong-Ho Choi, KETI, Korea

P-016 Real-time Translator from OpenGL to OpenGL ES for Mobile Devices
Zhigeng Pan, Bing Tang, Shushen Sun, Zhejiang University, Jian Yang, Centrality
Communications Co., Ltd., China

P-017 A Wearable System That Captures Human Activities and Social Interactions
Seon-Woo Lee, Hallym University, Korea, Sadanori Ito, Kiyoshi Kogure, ATR,
Yasuyuki Sumi, Kyoto University, Kenji Mase, Nagoya University, Japan

P-018 A Gesture-Based Molecular Modeling System
Jee-In Kim, Sungjun Park, Jun Lee, Youngjin Choi, Seunho Jung, Konkuk University, Korea

P-019 vr-UCAM : Unified Context-aware Application Module for Virtual Reality

Seokhee Lee, Youngho Lee, Seiie Jang, Woontack Woo, GIST Korea

P-020 Camera Parameters Estimation for 3D-Based Synthesis and 3D Reconstruction
Sang-Hoon kim, Yung-Ho Seo, Jong-Soo Choi, Chung-Ang University, Korea

P-021 A Hybrid Prediction Schemes for Networked RPG
C. Yong Jung, KAIST, Bryan Jung, Pylon Media, Korea

P-022 ubiTrack: Infrared-based User Tracking System for Indoor Environments
Seokmin Jung, Woontack Woo, GIST, Korea

P-023 A Temporal Planning System for Ubiquitous Service Agents
Jung-Hwa Choi, Young-Tack Park, Soongsil University, Hee-Dong Ko, KIST, Korea

P-024 Collage of Patterns
SK Semwal, D Carroll, University of Colorado, USA

P-025 A Study on Character Animation with Human Reactions in Pain
JiHyung Lee, Inho Lee, ETRI, Korea

Invited Talk 4 (Room 103)
Chairperson: Chul Woong Sim (Seoul National University, Korea)
IT-4 "GEMOTION" for Performing Arts
18:00 *Yoichiro Kawaguchi, University of Tokyo, Japan*

December 2, 2004

Invited Talk 5 (Room 101)
Chairperson: Haruo Takemura (Osaka University, Japan)
IT-5 Toward Machines with Emotional Intelligence
8:30 *Rosalind Picard, M.I.T., USA*

Special Session 2 (Room 101)
Chairpersons: R. Nakatsu (Kwansei Gakuin University, Japan)
               M. Rauterberg (University of Eindhoven, the Netherlands)
SS2-1 Realization of Tai-chi Motion Using a Humanoid Robot - Physical Interactions with
9:40 Humanoid Robot
Takenori Wama, Masayuki Higuchi, Ryohei Nakatsu, Kwansei Gakuin University,
Hajime Sakamoto, Hajime Laboratory, Japan

SS2-2 Cultural Computing: ZENetic Computer
10:05 *Naoko Tosa, Entertainment Computing Laboratory, Seigow Matsuoka, Tezukayama Gakuin*
University, Japan

SS2-3 Mixed Reality Human Media for Social and Physical Interaction
10:30 *Adrian D. Cheok, Ke Xu, Wei Liu, Hui Siang Teo, Sze Lee Teo, Shang Ping Lee, National*
University of Singapore, Singapore, Osamu Katai, Hiroshi Kawakami, Akira Notsu,
Kyoto University, Japan

SS2-4 Positive Effects of VR Technology on Human Behavior
10:55 *Matthias Rauterberg, Technical University of Eindhoven, Netherlands*

SS2-5 Multimodality in a Domestic Environment
11:20 *Henry Thomas, Sylvie Jumpertz, France Telecom, France*

SS2-6 Body Electric and Reality Feedback Loops: Virtual Interactive Space & Entertainment
11:45 *Anthony Lewis-Brooks, Aalborg University Esbjerg, Denmark*

Session 9: Augmented Reality / Mixed Reality (Room 102)
Chairpersons: Mark Billinghurst (University of Washington, USA)
Gerard Kim (POSTECH, Korea)

S9-1   Virtual Display System Using Video Projector onto Real Object Surface
9:40   *Shinichiro Hirooka, Hideo Saito, Keio University, Japan*
S9-2   Virtual Reflections for Augmented Reality Environments
10:00   *Timo Ropinski, Steffen Wachenfeld, Klaus Hinrichs, Institut für Informatik, Germany*
S9-3   Spray Modeling: Augmented Reality Based 3D Modeling Interface for Intuitive and
10:20   Evolutionary Form Development
        Hee-kyoung Jung, Tek-jin Nam, Ho-sung Lee, Seung-yeop Han, KAIST, Korea
S9-4   A Visualization Method of Working Activities in a Mixed Reality Space for Supporting
10:40   Work Analysis
        Kazuhiro MIYASA, Akihiro MIYATA, Keio University, Yuichi BANNAI, Canon Inc.,
        Japan

Session 10: User Interface and Human Factor (Room 102)
Chairpersons: Tetsuo Ogi (University of Tsukuba, Japan)
Chang Geun Song (Hallym University, Korea)

S10-1   Active Locomotion Interface for Virtual Environments
11:10   *Laroussi Bouguila, Evequoz Florian, Michèle Courant, Béat Hirsbrunner, University of*
        Fribourg – DIUF, Switzerland, Paul Richard, University of Angers, France
S10-2   A Vision Approach to Game Interface using Object History Images
11:30   *Hyun Kang, ETRI, Keechul Jung, Soongsil University, Korea*
S10-3   Pitching up in IVY
11:50   *H. L. Jenkin, R. T. Dyde, M. R. Jenkin, L. R. Harris, York University, Canada*

Poster Session 2 (9:40 ~ 12:10, Lobby of Room 101)

P-026   Virtual Pond Installation For Meditative Entertainment System
        Hwang-young Jung, Hee-jung Bae, Ju-youn Lee, Do-hyoung Jin, Woohoon Lee, Hyun S.
        Yang, KAIST, Korea
P-027   Human Anticipation Property of Free-falling Object Position in Virtual Environment
        Masaru Takeichi, Kokushikan University, Kinya Fujita, Hideyuki Tanaka, Tokyo University
        of Agriculture and Technology, Japan
P-028   MR.TV: A System for Augmenting Viewers' Experiences of Watching TV with Mixed Reality
        Heejeong Bae, Woohun Lee, KAIST, Korea
P-029   Directing Virtual Worlds: Authoring and Testing for/within Virtual Reality based Contents
        Gun A. Lee, Gerard Jounghyun Kim, POSTECH, Korea, Mark Billinghurst, Human
        Interface Technology Laboratory, New Zealand
P-030   Smart Architectural Surface: Modularized Platform for Polymorphic Functional Changes
        and Multimodal Interactions
        Seongju Chang, Jae-Do Chung, Hyongjin Kim, Youngjae Kim, Manjai Lee, ICU, Korea
P-031   High-Quality Video Services for the Access Grid
        Sangwoo Han, JongWon Kim, GIST, Korea
P-032   Towards the Automatic Construction of 3D User Interfaces
        Mark Green, City University of Hong Kong, Hong Kong
P-033   Visualization of a Motility Analysis for the Gated Myocardium Images
        Byeong il Lee, Seoul National University Hospital, Heung Kook Choi, Inje University,
        Korea

Session 11: Interactive Agent and Media (Room 101)

Chairpersons: Naoko Tosa (Entertainment Computing Lab, Japan)
             Adrian D. Cheok (National University of Singapore, Singapore)

S11-1   Mobile Feelings   Wireless Communication of Heartbeat and Breath for Mobile Art

13:30   *Christa Sommerer, Laurent Mignonneau, IAMAS, Japan*

S11-2   Explorative Conversation for Guiding Tasks in Annotated Environments

13:50   *Johannes Stressner, Sebastian Reinders, Fraunhofer IMK, Germany*

S11-3   Intelligent Motion Picture Making Software System

14:10   *Jinhong Shen, Aoki Terumasa, Yasuda Hiroshi, The University of Tokyo, Seiya Miyazaki, Matsushita Electric Industrial Co., Ltd, Japan*

S11-4   Building an Intelligent Behavior Avatar in the Virtual World

14:30   *Wei-Chuan Lin, Tak-Ming College, Jui-Fa Chen, Chih-Yu Jian, Chun-Huan Yang, Haw-Yun Hung, TamKang University, Taiwan*

S11-5   Virtual Gallery Talk in Museum Exhibition

14:50   *Hideaki Kuzuoka, University of Tsukuba, Michitaka Hirose, the University of Tokyo, Japan*

S11-6   A 2D-3D Integrated Environment for Cooperative Work

15:10   *Kosuke Nakashima, Takashi Machida, Kiyoshi Kiyokawa, Haruo Takemura, Osaka University, Japan*

Session 12: HRI and Haptics (Room 102)

Chairpersons: Haruo Noma (ATR, Japan)
             Jongsung Kim (ETRI, Korea)

S12-1   A Tactile Display using Ultrasound Linear Phased Array

13:30   *Takayuki Iwamoto, Hiroyuki Shinoda, The University of Tokyo, Japan*

S12-2   Tactile Sensation Measurement for the Design of a Vibratory Haptic Display

13:50   *Harumi Oyama, Yasushi Ikei, Tokyo Metropolitan Institute of Technology, Japan*

S12-3   Interacting with Reactive Virtual Human using Human-scale Force Feedback

14:10   *Seungzoo Jeong, Naoki Hashimoto, Shoichi Hasagawa, Nozomu Teranishi, Makoto Sato, Tokyo Institute of Technology, Japan*

S12-4   Robotic Hand with Object-Manipulation and Emotion-Expression Capabilities

14:30   *Kyoung-Dae Kim, Yong K. Hwang, Won Sik Song, Manjai Lee, ICU, Korea*

S12-5   Reactive Motion Generation with Haptic Display in Human-scale Virtual Environments

14:50   *Woong Choi, Naoki Hashimoto, Yasuharu Koike, Makoto Sato, Tokyo Institute of Technology, Japan*

General Information

Conference Venue

The conference will be held at
COEX (Korea Convention & Exhibition Center)
- Address : World Trade Center Samsung-dong, Gangnam-gu, Seoul 135-731, Korea
- Tel : 82-2- 6000-7892
- http://www.coex.co.kr/English

Conference Date

November 30 to December 2, 2004 (Tuesday – Thursday)

Conference Language

The conference official language will be English and all the papers shall be presented in English.
No facility of simultaneous interpretation will be available on site.

Name Badge

- Regular : Blue
- Invited Speakers / Tutorial Lecturers/ Chairpersons : Red
- Student : Orange
- Secretariat / Staff : Green

All are advised to wear their name badges during the conference.

On-site Services

On-site services will remain available on

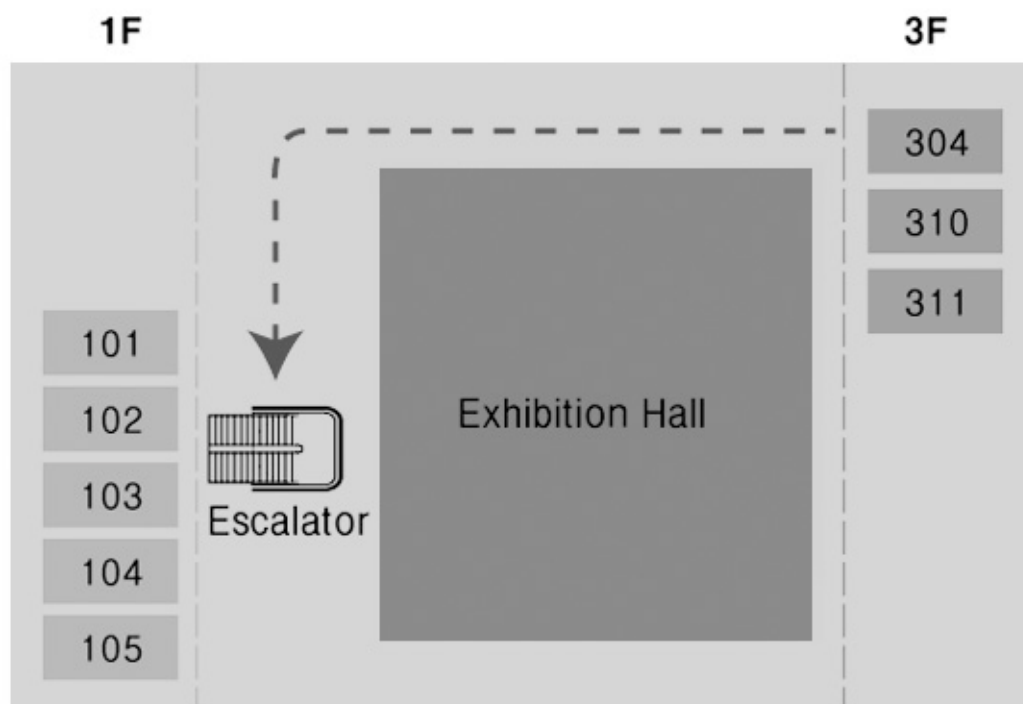| Date	Time
November 30, 2004	08:30 ~ 18:00
December 1, 2004	08:00 ~ 18:30
December 2, 2004	08:00 ~ 17:30

Registration Desk (Lobby of Room 310 on Nov. 30 & Lobby of Room 101 on Dec. 1 to 2, 2004)

- Pre-registration
- On-site Registration
- Conference Kit Distribution
- Name Badge and Coupon Distribution
- Local Information
- Conference Venue & Schedule Information
- Correction of the Name Badge
- Document Issuing
- Any Kind of Inquiry Related to the Conference

Preview Room (Lobby of Room 310 on Nov. 30 & Lobby of Room 101 on Dec. 1 to 2, 2004)

- Check of Presentation Materials
- Slight Modification of Presentation Materials
- Delivery Presentation Files to the Session Room and Return to the Presenters after the Session
- Three computers with internet will be available.

Floor Plan

1F 101 / 102 - Session Room on Dec. 1~2
103 - Banquet on Dec. 1
104 - Art & Technical Exhibition on Nov. 30 ~ Dec. 2
105 - Welcome Reception on Nov. 30

3F 310 / 311 / 304 : Tutorials & Workshops on Nov. 30

Instruction for Presentation

Guideline for Chairperson

- Before the session, please make sure all the speakers are present and remind them that they must be punctual to the assigned time.
- At the beginning of the session, welcome the participants, introduce the speakers in order and invite each speaker to the podium.
- After the presentation, questions and answers will be followed under chairperson's control.
- At the conclusion of the session, please make a brief summary and close the session on time.

Guideline for Presenters

Poster Presentation

- The poster board for each presentation at the lobby of 1F, in front of Room 101, will be 110 cm wide and 200 cm high.
- Each poster board is marked with a poster number on the upper left corner. The number is identical with the number of the contribution in the final conference program. Authors are responsible for mounting their own material prior to the poster session at least by one hour before the opening of the session.
- Double sided tape will be provided.
- Each poster paper should have a heading (letters at least 2 cm) high in bold face. Text, figures and tables can be read by attendees from a distance of 1-2m. The structure of the poster presentation should be in a logical sequence (introduction, development, conclusion). Simplicity, easy appraisal of the content, etc. are more important than artistic flair.
- Authors may bring extra copies for hand-out of the poster paper to interested participants.
- Please note that only those papers can be considered for the inclusion in the conference proceedings where one of the authors was present at the conference.
- Schedule for Poster Presentation.

Day/Time	Action
December 1 (Wed.) 08:30 ~ 10:00	Authors of Poster Session put up their Posters
December 1 (Wed.) 14:50 ~ 17:40	Poster Session (P-001 ~ P-025)
December 1 (Wed.) 18:00 ~ 19:00	Authors of Poster Session remove their posters
December 2 (Thu.) 08:30 ~ 09:30	Authors of Poster Session put up their Posters
December 2 (Thu.) 09:40 ~ 12:10	Poster Session (P-026 ~ P-051)
December 2 (Thu.) 08:30 ~ 10:00	Authors of Poster Session remove their posters

Oral Presentation

- Presentation times (including discussion) are allotted to each presenters as follows.
  - Invited Talks : 50 min.
  - Oral Presentation : 20 min.
- All speakers are asked to upload their presentation file in advance on the web and visit the preview room (Lobby) **at least 2 hours before** their session starts. In the preview room, the speakers should check and modify their presentation files.
- A laptop computer and a beam projector are available for your presentation.
- If possible, please bring a CD-Rom or USB including your presentation files. But in case you would like to use your own laptop computer, you should visit a preview room for advance check.
- Preview Room : A Preview Room will be available from 08:30 a.m. Tuesday, November 30, through Thursday, December 2, 2004, to preview your presentation. A laptop computer will be provided there and after checking the contents and the order of your presentation, you should forward it to the support staff who will bring your presentation to the A.V. staff in your session

room.

Memo

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