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Call for Paper

Annual Report of Technical Committee on Information Networks

Kenji Hori and Kiyohito Yoshihara, KDDI R&D Laboratories Inc.

Introduction

The technical committee on Information Networks, IN for short, [1] is a technical committee of the Communications Society of the IEICE. The IN addresses a broad spectrum of issues associated with information networks and provides a forum for researchers and engineers to discuss research and development topics. The chairman is Dr. Hiroshi Saito of NTT Corporation. The vice chairman is Professor Hiroyuki Morikawa of the Univ. of Tokyo. The secretaries are Dr. Kiyohito Yoshihara of KDDI R&D Labs. Inc. and Mr. Motonori Nakamura of NTT Corporation. The assistant secretary is Mr. Kenji Hori of KDDI R&D Labs. Inc. This document presents the IN's annual report from May 2006 to April 2007.

IN Activities

The IN holds ten two-day technical meetings and a workshop every year, and a biennial international conference called APSITT [2]. Many researchers participate in the meetings and report their latest technical research and development results. The number of technical reports is the second largest of all the technical committees of the Communications Society of the IEICE. Some meetings are co-organized with other technical committees. The venue and main topics of each meeting are shown in Table 1.

Besides the usual oral sessions, interactive (poster or demonstration) sessions also take place. Seven technical reports were presented in three poster sessions and two reports were presented in a demonstration session during this year. This activity was favorably accepted because more discussion could be made. The discussion in the poster session, which took place at Fukui Univ. in July, is shown in Fig. 2.

Each technical report is submitted in a paper and published as a Technical Report of the IEICE. Authors



Fig. 2 Interactive (Poster) Session



Fig. 3 Winners of IN Research Award

(from left to right) N. Kamiyama, J. Maruyama, G. Hasegawa, H. Saito (chairman), H. Morikawa (vice chairman), S. Motegi, K. Yoshihara

of selected papers have received Information Networks Research Awards, the ceremony of which is held in March every year. This year, the following 3 excellent papers were selected from 225 papers.

- Shinji Motegi, Kiyohito Yoshihara, Hiroki Horiuchi and Masayuki Murata, "Proposal on Transmission Power Control for Wireless Sensor Networks."
- Junichi Maruyama, Go Hasegawa and Masayuki Murata, "Evaluation of the effectiveness of tampered TCP."
- Noriaki Kamiyama, "Network Topology Design with Multiple Criteria."

Figure 3 shows the winners of this year's award, together with the chairmen at the ceremony.

References

- [1] <http://www.ieice.org/cs/in/jpn/>
 [2] N. Kamiyama et al., "Report on 6th Asia-Pacific Symposium on Information and Telecommunication Technologies," Global Newsletter, Vol. 15, pp. 11 - 12, 2006.

Table 1: Technical meeting schedule

Date	Venue	Main topics	Num. of reports	Num. of participants each day
May 18 - 19	Kikai-Shinko-Kaikan Bldg. (Tokyo)	Wireless network, Ad hoc network and Sensor network	16	74, 54
Jun. 22 - 23	Future Univ.-Hakodate (Hakodate)	Ubiquitous network and Mobile network	18	29, 23
Jul. 13 - 14	Fukui Univ. (Fukui)	NGN, VoIP, Contents delivery and IPv6	15	24, 28
Sep. 14 - 15	Tohoku Univ. (Sendai)	VPN, NAT, Network security, DDoS and P2P	28	95, 51
Oct. 12 - 13	NTT Musashino R&D Center (Mitaka)	IP backbone network, MPLS, GMPLS and Photonic network	12	58, 34
Nov. 16- 17	Kumamoto Univ. (Kumamoto)	FMC, Mobile network and Information appliance network	24	56, 39
Dec. 14 - 15	Osaka Univ. (Suita)	Network control, QoS, Routing and Multicast	24	42, 35
Jan. 18 - 19	B-con plaza (Beppu)	Office applications, networking and management	20	38, 22
Feb. 1 - 2	Aichi Prefectural Univ. (Nagakute)	Internet traffic, TCP/IP, Performance analysis/evaluation and Network model	18	34, 27
Mar. 7 - 9	Okinawa Convention Center (Ginowan)	NS/IN technical meeting and workshop	90	194, 244

Annual Letter of the Technical Committee on Communication Systems and 19th CS Workshop

Koichiro Wakasugi*, Kyoto Inst. of Technology; Tomohiro Ishihara**, Fujitsu Labs.; Hiroshi Ishii***, NTT; Tetsuo Tsujioka***, Osaka City Univ.

*Chair, **Vice-Chair, ***Secretary

Web page: <http://www.ieice.org/cs/cs/>



Chair: Koichiro Wakasugi

1. Introduction

This article reports the activities of the Technical Committee on Communication Systems (CS). Table 1 shows the schedule in the past and coming year. Our principal work is planning and holding technical conferences and workshops.

2. Scope

The technical committee on CS covers the major technologies for communication networks. Our technical interests include optical access networks, broadband services, Ethernet technologies, transport networks, communication theory and etc. We have held many productive discussions in these research areas. We are going to plan discussions regarding new technology fields, such as sensor networks and next-generation networks (NGNs).

3. Conference Schedule

We hold domestic conferences six or seven times every year. In 2006, we held seven conferences. In 2007, we'll also have seven scheduled conferences, as shown in Table 1.

Participating in the Conferences:

All members of the IEICE (and related institutes, i.e. IEE, ITE, IEIJ and IPSJ) can participate in the conferences with no registration or extra fee.

The technical committee on CS maintains a relationship with other technical committees, such as Communication Quality (CQ), Optical Communication Systems (OCS), Photonic Networks (PN), Information Networks (IN), Network Systems (NS), Audio Visual and Multimedia Information Processing (AVM), Image Engineering (IE), Broadcasting Technology (BCT), Circuit and Systems (CAS) and Signal Processing (SIP). The AVM and the BCT belong to the IPSJ and the ITE, respectively.

Submission rules:

To make a presentation, we need your application before the deadline for presentation of each conference. You must register at least two months before each conference date. Submissions will be made via the web page at <http://www.ieice.org/cs/cs/>. A short abstract should be included in an application.

After making your application, PDF files of the paper manuscript of 4 to 6 pages in A4 size, reprint order

sheet and speaker's introduction sheet should be uploaded. The manuscript deadline will be about 3 weeks before the conference date.

At most of the conferences, social gatherings are planned to share information among the participants. Moreover, poster sessions have been held since 2005. We welcome your submissions to and participation in our technical conferences.

Table 1 Technical conference schedule, 2007-2008

Date	Place	Theme	Joint
Apr. 23-24, 2007	Kagoshima	Quality of NGN, network design, network control, bandwidth control on PON, admission control, traffic modeling, etc.	CQ
June 14-15	Chitose Inst. of Science and Technology	Photonic network, network control, optical switching, wavelength conversion, optical quantum communications, GMPLS, etc.	OCS, PN
Sep. 20-21	Tohoku Univ.	Active networks, IP-VPN, network security, ultra high-speed networks, p2p communications, network software, etc.	IN, NS
Oct.	TBD (Hokkaido)	Broadband access network, home networks, etc.	CSWS
Dec.	Nagoya Univ.	Image coding, communications and stream technologies, etc.	IE, BCT, AVM
Jan. 2008	TBD	NGN, power line commun., etc.	
Mar. 2008	TBD (West Japan)	Network processors, signal processing for communications, wireless LAN/PAN, etc.	CAS, SIP

4. January Conference

The conference in January 2007 was held on Yonaguni Island, the westernmost island of Japan. It's very small (28 sq. km) and located 111 km from Taiwan, 117 km from Ishigaki Island, 509 km from Naha and 2,112 km from Tokyo. There are about 800 houses and 1,700 inhabitants in Yonaguni town.

The first offer to host the conference came from Professor Yoshinori Namihira (University of Ryukyus), who had been willing to invite an IEICE technical conference to his hometown, Yonaguni, for several years. His mother, Ms. Shizu Namihira (Fig. 1) was a well known public hygiene nurse and has engaged in hospital service on the isolated islands since the wartime. So, we planned two special talks and some invited presentations related to telemedicine and next-generation networks, as shown in Fig. 1.

The special talks entitled “The Frontiers of Telemedicine and eHealth” and “Telemedicine to Support Emergency Medicine in Remote Districts and Isolated Islands” were presented by Dr. Sumio Murase (Shinshu University), Dr. Ichiro Kukita (University of Ryukyus) and Dr. Yasunori Hanamura (Yonaguni Clinic). They introduced the activities and problems of telemedicine and reported the situation of medical activities on the isolated islands around Okinawa prefecture. Dr. Hanamura discussed the present situation in his clinic with the participants, explaining that the medical equipments in the Yonaguni clinic have become older and some of them should be upgraded.

The invited talk, entitled “ITU-T Standardization Trend and its Future Issues” was presented by Mr. Yoichi Maeda (NTT). He introduced the latest information about the last election of the ITU-T board chairs and the significance of international standardization and its strategy.

We also had a technical visit to Yonaguni clinic, the only clinic in the town, and made a video conference at the clinic with Dr. Akitoshi Yoshida of Asahikawa Medical College in Hokkaido.

In addition, we agreed to an interview by a reporter and this technical conference was reported by the *Okinawa Times*, one of the regional newspaper, on Jan. 12.

Lastly, we should like to say special thanks to Dr. Tetsuya Yokotani (Mitsubishi Elec.) who had devoted himself to organizing this technical conference in Yonaguni.

5. The 19th Communication Systems Workshop

We held the 19th Communication Systems Workshop (CSWS) at the Prince Hotel Kazenamiki, in Shiretoko, Hokkaido, from October 18 to 20, 2006, with many participants, as shown in Fig. 2. Dr. Katsunori Yamaoka organized this workshop. The session room was arranged in Terakoya style, a style of school of the edo-period in Japan, as shown in Fig. 3.



Dr. Sumio Murase (Shinshu Univ.)



Dr. Ichiro Kukita (Univ. of Ryukyus)



Dr. Yasunori Hanamura (Yonaguni Clinic)



Mr. Yoichi Maeda (NTT-AT)



Ms. Shizu Namihira (as a special guest)

Fig. 1 Special & invited speakers

The workshop provided current technical and market surveys and suggestions for next-generation technologies from a variety of perspectives. This year's theme was "Next-Generation Network and Digital Media." The workshop consisted of one keynote speech and four sessions: the fellow, service and technology sessions. Eight invited presentations from various subjects and research areas were given. The invited speakers of the fellow and keynote sessions are shown in Figs. 4 and 5. The lectures of the 19th CSWS are listed as follows.

Fellow Session:

"Digital Cinema" by Dr. Tomonori Aoyama (Keio University)

Services Session:

"IPTV and NGN" by Dr. Tatsuo Matsuoka (NTT)
 "Network-based TV System of the Next Generation" by Dr. Masaki Hayashi (NHK)

Special Lectures:

"Open Access to Science-Technology Data" by Dr. Shuichi Iwata (Tokyo University)

Keynote Speech:

"Trends and Issues on DRM" by Dr. Hiroshi Yasuda (Tokyo University)

Technologies Session:

"Current Status of Home Networks to Realize Next Generation Media" by Dr. Yasuo Tan (JAIST)

"IP Multicast Technology and its Latest Trends" by Dr. Atsushi Koike (KDDI Labs)

"Scalable Video Coding for Flexible Multimedia Services" by Dr. Leszek Cieplinski (Mitsubishi Elec.)

6. Other Events

The technical committee on CS organized some special events, such as symposium, tutorial and panel discussions at the IEICE Society and general conferences. For example, at the 2006 IEICE Society conference, a panel discussion entitled "Problems on IP Broadcasting toward Commercial Services," a tutorial lecture session entitled "Technological Trends in Home Networks and Information Electrical Appliances" and a symposium session entitled "Networking Technologies for Taking Effective Countermeasures against Natural Disasters" were given. Moreover, at the 2007 IEICE general conference, a tutorial lecture session entitled "Trends in Technology and Standardization for High-



Dr. Tomonori Aoyama (Keio Univ.)

Fig.4 Speaker to the fellow session



Fig. 2 Participants in the 19th CSWS



Dr. Shuichi Iwata (Tokyo Univ.)



Fig.3 Session room in Terakoya style



Dr. Hiroshi Yasuda (Tokyo Univ.)

Fig. 5 Special & keynote speakers

speed Power-line Communications” was also planned by our technical committee.

7. Web Site

We have provided a web site for announcements, paper submissions and applications, and registration for technical conferences. Please visit our web site at <http://www.ieice.org/cs/cs/>.

General information about the CSWS can be found at <http://www.ieice.org/cs/cs/jpn/csws/index-e.html>.

8. Conclusions

We have introduced some of the activities of the technical committee on CS. We welcome your requests and comments and promise to continue planning interesting, useful and enjoyable events. We are looking forward to seeing all of you at this year’s technical conferences and the 20th CSWS!

Annual Report of Technical Committee on Mobile Multimedia Communications (MoMuC)

Ryoichi Shinkuma

Secretary of the MoMuC Committee / Kyoto University



1. Introduction

The technical committee on Mobile Multimedia Communications (MoMuC) covers research fields associated with mobile multimedia communications, from mobile network technologies to multimedia services for mobile users.

The MoMuC committee was founded May 1997 as a local board of the international workshop on Mobile Multimedia Communications. From 1997 to 2000, the committee organized the international workshop on MoMuC four times as well as held seven domestic technical workshops. Since 2001, the committee has held workshops in cooperation with other related technical committees of IEICE communication society. Moreover, the committee is seeking stronger ties with the related technical committees of other institutes: Information Processing Society of Japan (IPSJ) and the Institute of Image Information and Television Engineering (ITE).



Fig. 1: Panel discussion using PoC and video telephony of 3G cellular phones (supported by NTT DoCoMo)

2. Special Workshop "Mobile Multimedia–The Past and The Next 10-Years"

This year (2007) is the 10th anniversary of the MoMuC committee. In order to review the activities of the past ten years and to seek the technical trends of mobile multimedia in the next ten years, we held a special workshop "Mobile Multimedia –The Past and The Next 10-Years–" in Hiroshima last January. In that workshop, we represented the current technical level of mobile multimedia in Japan through a panel discussion using "Push-to-talk over Cellular (PoC)" and video telephony of the 3rd-generation (3G) cellular phones (Fig. 1). Moreover, we analyzed the technical trends of the past ten years by resurveying past technical reports. Table 1 shows the hit-count ranking of the technical keywords in the technical reports. As shown in the table, recently, keywords directly expressing "Mobile Multimedia" have been decreasing. However, as shown in Fig. 2, variances of technical keywords related to mobile multimedia have been increasing year by year. These trends show the permeation of mobile multimedia across other fields such as Broadcast, Adhoc, and Ubiquitous Technologies. Therefore, we realized the need for more expansion of the research area during the next ten years. According to the analysis and discussion in this special workshop, the scope of the MoMuC workshops has been re-evaluated as follows:

- Network Technology for Mobile Multimedia
 - Mobile Network Architecture (Network Convergence, All IP

Table 1: Technical keywords in technical reports

Rank	1	2	3	4	4	
2001	Mobile	WLAN	OFDM	QoS	Location information	
Rank	1	2	2	4	5	5
2002	Adhoc/Multihop	Mobile	QoS	Routing	Handover	Mobile IP
Rank	1	2	2	4	4	
2003	Adhoc/Multihop	Multimedia	QoS	WLAN	Routing	
Rank	1	2	3	4	4	
2004	Adhoc/Multihop	Mobility	WLAN	QoS	Routing	
Rank	1	2	3	3	3	3
2005	Digital broadcast	Mobile terminal	Mobility	Handover	Multicast	Ubiquitous
Rank	1	2	3	4	5	5
2006	Adhoc/Multihop	Routing	WLAN	Digital broadcast	Streaming	Ubiquitous

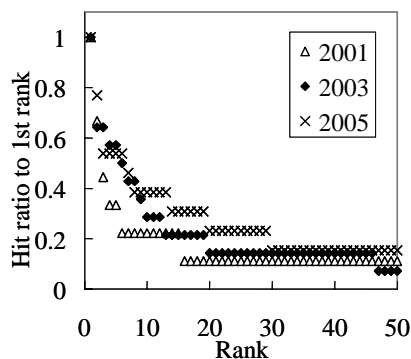


Fig. 2: Variance of technical keywords in technical reports

- Network, Next Generation Network)
- Mobility Support (Service Mobility, Session Mobility, Handover)
- Mobile Multicast / Mobile Streaming / Mobile Content-Delivery Network
- Mobile Delay/Disruption/Disconnect Tolerant Network (DTN)
- Flow Control in Mobile Network (Wireless TCP, Adaptive Rate Control)
- Mobile Multimedia Quality-of-Service (QoS)
- Mobile Peer-to-Peer Networking (Mobile Content Sharing, Mobile Adhoc Network, Personal Area Network)
- Vehicle Networking (Intelligent Transport System, Moving Network)
- Ubiquitous Network (Sensor Networking with Mobile Device)
- Terminal Technology for Mobile Multimedia
 - Terminal Architecture (Operating System, Peripheral Control for Mobile Device)
 - Media Presentation (Image Display and Sound Functionality on Mobile Device)
 - Home Networking using Mobile Terminal
 - Wearable Device
 - Mobile Thin-Client
- Application Technology for Mobile Multimedia
 - Media Processing and Its Evaluation (Audio and Visual Coding)
 - Mobile Affective Computing (Brain Communication, Reality Sharing using Mobile Multimedia)
 - Mobile Content Technology (Content Adaptation, Applications of Semantic Information)
 - Mobile Broadcast (Cooperation between Terrestrial Broadcast and Mobile Communication)
 - Cross-layer Solution for Mobile Networking
- Service Technology using Mobile Multimedia
 - Secure and Safe Services using Mobile Multimedia (Security Technology, Privacy Technology)
 - Context-aware Service using Mobile Multimedia (Applications of Semantic Information and Location Information)
 - Analysis of Mobile-Users' Behaviors / Subjective Evaluation of Mobile QoS
 - Cooperation between Mobile Service and Users (Mobile Web 2.0)

3. Award Winners in 2006

The MoMuC committee launched the MoMuC award program in 2006. The first winners of the award are listed below. We would like to applaud their efforts and encourage further developments of their studies. The awarding ceremony was held in the workshop in Okinawa, May 2007.

- Best-presentation award in 2006:
Masahiro Nishi, Yasuki Sakamoto, Shigeru Takahashi, Teruaki Yoshida (Hiroshima City Univ.), "Application of Time Delay Diversity to Human Detection System using TV Broadcasting Wave", MoMuC2006-63.
- Presentation award in 2006:
Satoko Itaya, Jun Hasegawa, Peter Davis, Naoto Kadowaki, Sadao Obana (ATR), "Proposal of Efficient Transmission Method for Wireless Mesh Network," MoMuC2006-21.
- Young-researcher award in 2006:

Ashiq Khan, Toshihiro Suzuki, Motonari Kobayashi, Masanori Morita (NTT DoCoMo), "A Multipath Approach for Fast Re-routing in OLSR," MoMuC2006-13.

Tomoo Kangawa, Ryoichi Shinkuma, Tatsuro Takahashi (Kyoto Univ.), "A Modeling Method of User Utility and Cost in Mobile Communication Services," MoMuC2006-33.

Takayuki Yamada, Ryoichi Shinkuma, Tatsuro Takahashi (Kyoto Univ.), "Channel Quality Improvement Method based on Relative Mobility Speed in High-speed Mobile Environment," MoMuC2006-70.

4. Workshop Schedule

The MoMuC committee will hold workshops every two months in 2007. We would like to encourage your participation and technical presentation to discuss the latest mobile multimedia technologies and to report your research results. Discussions and presentations in English are quite welcome.

Table 2. Workshop schedule in 2007 * Subject to change.

Date	Place	Topic	Dead-line	Co-host
May 17-18	Oki-nawa	Mobile Terminal, Application, and Computing		MBL (IPSJ)
July 19-20	Niigata	Mobile P2P, Content Sharing, and Personal Multimedia*	May 16	AVM (IPSJ)
Sept. 20-21	Ehime	Mobile Content, Cooperation with Mobile Broadcast, Multimedia Delivery*	Mid-July	BCT, CE, (ITE)
Nov. 15-16	Fuku-oka	Home Network, NGN, FMC, Multimedia Commerce, Multimedia Security, Mobile Network	Mid-Sept.	IN
Jan. 24-25	Tokyo	Application Quality, Ubiquitous Network, Adhoc Network, Sensor Network*	Mid-Nov.	CQ, USN
Mar. 5-7	Kana-gawa	Joint Work Shop on Mobile Communication	Early Dec.	RCS, AN, WBS, SR

5. Special Issue on Mobile Multimedia Communications

The MoMuC committee is planning to propose special issue on "Mobile Multimedia Communications" to IEICE Transaction on Communications. Please check IEICE global newsletters to find the call-for-paper notification. You are cordially invited to submit a high-quality paper of your research.

6. Contact

Homepage: <http://www.ieice.org/~momuc/eng/>
 Secretaries: Daisuke Morikawa, KDDI
 Ryoichi Shinkuma, Kyoto University
 E-mail: momuc-sec-contact@mail.ieice.org

Technical Committee on Software Radio 2nd-year

Kei Sakaguchi, Jun-ichi Takada, Hitoshi Yoshino, Takashi Shono, Yoshio Hirose
Technical Committee on Software Radio

1. Introduction

Technical Committee on Software Radio (TCSR) has promoted research on software radio, cognitive radio, and their related technologies since 1999. It was a 2nd year of TCSR since it was raised to the 1st class of technical committee of IEICE in 2005. The steering committee members of TCSR are shown below:

Chair: Hiroshi Harada (NICT)
Vice Chair: Kazuhiro Uehara (NTT),
 Yukitoshi Sanada (Keio Univ.)
Secretary: Junichi Takada (Tokyo Inst. of Tech.)
 Hiroshi Yoshida (Toshiba Corp.)
Assistant: Kei Sakaguchi (Tokyo Inst. of Tech.)
 Takeo Fujii (Univ. of Electro-Commun.)

TCSR organized four technical conferences and in fiscal year of 2006. This newsletter summarizes the latest activities of TCSR.

2. The 1st conference in April 2006

Date: April 25-26, 2006
Topics: Standardization
Venue: Nagoya University
of papers: 11 (invited: 7, regular: 4)
of participants: 35

The 1st SR technical conference was held in Nagoya from April 25 to 26 in 2006. This conference was partly co-organized with SDR Forum[1]. Four delegates participated from USA and Korea to present the most recent works under the Forum framework. We also start the series of invited talks on the project “R&D for Expansion of Radio Frequency Resources” funded by MIC (Ministry of Internal Affairs and Communications).

Joint Session with SDR Forum

Joint session was organized with SDR Forum after the long interval of three years. This time, the session purely focused on the cutting edge technologies discussed in the Forum.

First talk was entitled “Cognitive Radio Technology” and was presented by Mr. David Maldonado and Mr. Thomas W. Rondeau (Virginia Tech, USA). They presented the cognitive radio works done in Center for Wireless Communications, Virginia Tech, including the software engine and the testbed demo. After the break, Prof. Jae Moun Kim (Inha Univ., Korea) gave the talk

entitled “Present and Future Prospects of Cognitive Radio Technology.” He presented the IT policy and status of Korea, and their cognitive radio standardization activities through IEEE 802.22 WRAN. Prof. Seungwon Choi (Hanyang Univ., Korea) presented “Implementation of SDR Smart Antenna Base Station for WiBro and HSDPA.” He described about the smart antenna API (Application Program Interface) activity in the Forum, and the real implementation issues of WiBro / mobile WiMAX and HSDPA for TD-SCDMA smart antenna base stations.

At the end of the session, Mr. Maldonado gave the remarks from SDR Forum. He announced two events. 2006 Software Defined Radio Technical Conference & Product Exposition (SDR’06) will be held on November 13-17, 2006 in Orlando, FL, USA. Smart Radio Challenge, a student competition of the development of the SDR, is starting from May 2006[2].

Invited Session

Two invited talks were organized to cover very hot topics in the software radio. First talk entitled “Introduction of Superconducting Technology to Software-Defined Radio Receivers” was presented by Prof. Akira Fujimaki (Nagoya Univ.). He presented the most recent progress of ultra high speed superconducting components, such as ADC, tunable analog filters, and digital processors utilizing SFQ (Single Flux Quantum). Next, Ms. Junko Koizumi (MIC) presented “Strategies for future spectrum management and wireless broadband promotion in Japan.” She focused on the “Frequency Open Policy” of MIC for efficient radio spectrum reforming and flexible environment for radio spectrum use. As well, she described the results of “Study Group for Wireless Broadband Promotion” and ongoing policies responding to the report.

Regular Session

Four papers have been presented. Mr. Yuki Shimizu (Keio Univ.) presented “Analysis on Interference Rejection of DS/SS Systems using a Complex FIR Filter,” in which the use of the notch filter is to reject the narrow band interference to DS/SS system. Mr. Masao Ootani (PMC) presented “UHF band RFID Reader conforming to the Radio Law using a programmable circuit,” treating the implementation of the passive RFID reader using FPGA. Mr. Kotaro Watanabe (Yokohama National Univ.) presented “A Study on Detect and Avoid Technology for Coexistence

of Ultra Wideband Systems and 4th Generation Mobile Systems,” which studied the energy detection of 4G signals for DAA. Mr. Rahman Najmus Sadat (TUAT) presented “A New Blind Adaptive Array Antenna Applied on OFDM Systems,” in which blind CMA algorithm is used for both the symbol timing detection and the adaptive beamforming on OFDM system.

Special Invited Session

TCSR started the series of the special talks on the project “R&D on elemental technologies for the advanced spectrum sharing in the mobile communication systems,” which is under the framework of “R&D for Expansion of Radio Frequency Resources” sponsored by MIC [3].

First talk entitled “Research and development on elemental technologies for cognitive radio equipment” was presented by Dr. Hiroshi Harada (NICT), chairman of TCSR. He described four subtopics, as well as his own subtopic, e.g. a transparent multiband antenna, wideband direct conversion receiver, waveform sensing manager, and waveform assignment manager.

Next talk was “Study on Cognitive Radio Communications for Radio Resource Enhancement,” presented by Dr. Mitsuo Nohara (KDDI). This subtopic is a joint work of KDDI, Hitachi, Mitsubishi Electric, and ATR. It covers the radio resource management, the autonomous inter-base station networking, and the routing, all in the cognitive radio communications.

3. The 2nd Conference (SDR Technical Expo.) in July 2006

Date: July 27-28, 2006

Topics: Technical Exhibition

Venue: Yokosuka Research Park

of exhibition: 23 (academic: 14, commercial: 9)

of papers: 12 (invited: 8, regular: 4)

of participants: 120

The 2nd SR technical conference was held from July 28th to 29th at YRP (Yokosuka Research Park). Topics of this conference are technical exhibition and panel discussion, as well as tutorial, invited, and regular sessions.

Tutorial Session

As an opening of the 2nd conference, three tutorial talks were organized about the key device to realize cognitive radio. As a first talk, Prof. Kiyomichi Araki (Titech) presented “Study on SDR Transceivers using Digital RF-CMOS Circuit Technologies.” Prof. Araki insisted that the Digital RF-CMOS architecture becomes enabling technology for reconfigurable RF circuit owing to the union of RF/analog and digital

signal processing with low power consumption due to CMOS technology. As a second talk, Dr. Kenji Suematsu (Mitsubishi Electric.) presented “Broad-Band RF Devices and Their Application to SDR Terminals.” He gave circuit architecture of combined wideband and tunable RF devices for realization of multi-band multi-mode SDR terminal. He also indicated the superiority of a direct conversion transceiver for SDR purpose. As a last talk, Dr. Shoichi Narahashi (NTT DoCoMo) presented “RF Circuits with RF-MEMS Devices.” He gave an example of multi-band RF circuit based on RF-MEMS device. One is a 4-band high efficiency power amplifier with adaptive matching circuit using RF-MEMS switch. The other is a tunable RF filter using comb transmission line coupler and MEMS switch. He also gave technology trend and perspective of RF-MEMS device.

Technical Exhibition

As a main event of the 2nd conference, the SDR technical exhibition, poster exhibition, and commercial product exhibition were held at the YRP hall and lobby as depicted in Fig.1. Totally 23 organizations exhibit their research results. The topics of the exhibition spread widely, such as multi-band antenna, multi-band or wide-band RF circuits, reconfigurable signal processing device, and SDR/cognitive prototype hardware. In addition to the academic technical exhibition, 9 companies exhibit the commercial products related to SDR such as evaluation boards for FPGA or DSP, software development tools, and RF-MEMS device at the same time. Furthermore four companies from USA exhibit the posters about the off-the-shelf SDR products for mobile base station and military use. It was a good opportunity for mutual interactions between sales side and engineers.



Fig.1 Technical and commercial exhibition in July.

Invited Session

On the second day morning, two invited talks were organized to provide recent research works on SDR in foreign countries. In the first talk, Prof. Seungwon Choi (Hanyang Univ, Korea) gave research works on SDR in Korea, especially in Hanyang univ., ETRI, Samsung, and LG. While in the second talk, Dr. Mark Commings

(SDR Forum, USA) introduced latest activities on cognitive radio as well as software radio in the SDR Forum.

Special Invited Session

As a series of special talks on the project of “R&D for Expansion of Radio Frequency Resources”, two invited talks were given. Firstly, Dr. Hiroshi Harada (NICT) chairman of TCSR gave summary of the project and two subtopics followed them. As a first subtopic, Dr. Makoto Taromaru (ATR) and Dr. Atsushi Ohta (NTT) jointly presented the work on spatial spectrum sharing technology, while in the second talk, Dr. Kazunori Yamanaka (Fujitsu) talked superconducting filter technology for high efficiency frequency utilization.

Regular Session

There were four regular papers presented in this conference. Mr. Tomoya Tandai (Toshiba) presented results on cognitive radio overlaid on IEEE802.11 W-LAN. Mr. Makoto Ozone (Mitsubishi) presented software defined radio prototype hardware employing reconfigurable processor with ALU array. Mr. Dang Hai Pham (Univ. Ryukyus) presented a method of eigen-decomposition based on cyclic Jacobi rotation. Finally, Mr. Kimtho Po (Titech) presented feasibility study on IEEE802.22.

4. The 3rd Conference (Collaboration with E2R) in November 2006

Date: November 29 – December 1, 2006

Topics: Cognitive Radio

Venue: Hokkaido University

of papers: 35 (invited: 14, regular: 21)

of participants: 70

The 3rd SR technical conference, co-hosted by the E2R (End-To-End Reconfigurability) Project[4] was held over three days at Hokkaido University. On the second day of the conference, the invited talk and a panel discussion on the standardization of cognitive radio were held. On the afternoon of the third day, three lecturers from Europe were invited to speak, and a joint workshop with the E2R Project was held. An evening session with a more informal atmosphere was also organized in the evening of the second day.

Panel Discussion

A panel discussion took place, entitled “Cognitive Radio: Standardization, Legislation and Latest Trends.” Firstly, each panelist gave a 20-minute lecture, then after a greeting reception, a panel discussion covering the lectures ran as the evening session for approximately two hours. Details of activities

concerning cognitive radio, from ITU-R to IEEE, MIC, and so on, were introduced by the four lectures as panelist. The topics were “The Status of Cognitive Radio Standardization Activities of the ITU-R,” from Dr. Hitoshi Yoshino (NTT DoCoMo), “Trends on Standardization Activities in IEEE 802.22,” from Associate Professor Shigenobu Sasaki (Niigata Univ.), “MIC’s Radio Spectrum Policy and Recent Trends,” from Ms. Junko Koizumi (MIC), and “The Necessity of Software Defined Cognitive Radio Corresponding to Various Radio Spectrum Policies,” from Dr. Hiroshi Harada (NICT).

In the panel discussion of the evening session, a lively debate took place going well beyond the subject of cognitive radio and into the ideal domestic standardization organization, issues which particularly need to be resolved for Japan to secure a leading position in the standardization of mobile communications, and so on. A point of particular discussion was the beginning of standardization of IEEE 802.22 with a policy of the FCC, which encouraged the active use of unused spectrum in terrestrial broadcasting. Also, many opinions were voiced regarding efforts of Japan as a country to further international standardization, such as what kind of policy should be implemented in the future by the leadership of the FCC and Japan’s MIC for strong furtherance of standardization, and the fact that regardless of FCC leadership many of the companies participating in the standardization of IEEE 802.22 are from China, Korea and other Asian countries, but not many from Japan.

Invited Session

An invited lecture entitled “Technology Trends of MIMO Systems” was given by Associate Professor Takeo Ohgane (Hokkaido Univ.). The technology classification of MIMO systems and examples of application of practical systems such as 802.11n wireless LAN were introduced.

E2R Joint Workshop

In the afternoon on the last day, a joint session with Europe’s E2R Project was held. E2R is a collaborative research project of EU’s Information Society Technologies (IST) for the implementation of end-to-end reconfigurable radio systems. At this workshop, from E2R, four presentations were given by three lecturers visiting Japan, and from Japan, two presentations on research results of cognitive radio were given. In the first presentation, a project summary of E2R Phase 2 was given by Dr. Didier Bourse (Motorola). In this presentation, the structure and overall vision of E2R Phase 2, which began in 2006, were presented. In the second presentation, research on spectrum management and cognitive radio was introduced by Prof. Klaus Moessner of England’s

Surrey University. In this presentation, a cognitive pilot channel (CPC) for cognitive radio was introduced as an example of a frequency management method. In the third presentation, Mr. Jerome Martin of France's CEA-Leti gave a lecture on E2R prototype terminals. The final presentation from E2R was a lecture on terminal and frequency legislation given by Prof. Klaus Moessner. Following this from the Japanese side, the state of research of software defined cognitive radio was introduced by Dr. Harada, chairman of TCSR, and a summary of the project on "R&D for Expansion of Radio Frequency Resources" was presented by Dr. Mitsuo Nohara (KDDI).

Regular Session

At the conference, numerous research results were reported in 21 presentations held as regular papers. Presentations of research in cognitive radio were particularly numerous. Various presentations on research efforts of universities and companies, as well as on the progress of the government project and such were held. At the same time, many results of research on conventional software radio technologies, such as direct conversion, diversity methods, mixers, quadrature modulation devices and such, were also presented.

5. The 4th Conference (Workshop on Mobile Communications with MoMuC, MW, RCS, WBS) in March 2007

Date: March 7-9, 2007

Topics: Workshop on Mobile Communications

Venue: Yokosuka Research Park

of papers: 33 (invited: 8, regular: 25)

of participants: 300

The 4th SR technical conference was held at YRP (Yokosuka Research Park) from March 7th to 9th. This conference was a joint workshop on mobile communication with MoMuC, MW, RCS, and WBS. This workshop has been held on every March for these 11 years. From last year, the SR technical committee involved to the workshop. In the workshop, a special joint session with WBS technical committee, a joint panel discussion with other four technical committees, and regular sessions were held.

Joint Session with WBS

The SR technical committee organized a special joint session entitled "Interference Avoidance Techniques in WPAN Environment" with WBS technical committee. Four invited talks were presented by Mr. Yuji Nakamura (MIC), Dr. Akira Yamaguchi (ATR), Dr.

Kazunori Takeuchi (KDDI R&D Labs.) and Dr. Takashi Shono (Intel).

Mr. Nakamura talked about the national policy of mobile communication and research projects which MIC leads. Dr. Yamaguchi and Dr. Takeuchi presented their research projects regarding cognitive radio which Mr. Nakamura introduced in previous talk. Dr. Shono presented next generation UWB system with DAA (Detect-and-Avoid) technology.

Joint Panel Discussion

All five technical committees jointly held a special panel discussion entitled "Wireless Communication Technologies for U-Japan: Issues and View." Unfortunately representative from MW technical committee was absent. Professor Yasushi Yamao (Univ. Electro-Commun.) from RCS, prof. Masaaki Katayama (Nagoya Univ.) from WBS, prof. Wataru Kameyama (Waseda Univ.) from MoMuc, and Dr. Hiroshi Harada from SR joined as panelists. Professor Yamao also chaired this panel session. All four panelists made position talks relevant to discussion theme from the view point of their technical committee.

Regular Session

In total, 25 regular papers were presented during three days conference. NICT made 11 talks about their research project called Cognitive Wireless Cloud. Many research results related to cognitive radio are also presented.

6. Conclusion

Year 2006 was a 2nd year of Technical Committee on Software Radio (TCSR) since it raised to the 1st class of technical committee of IEICE. In this year, the TCSR organized four distinctive technical conferences: collaboration with SDR Forum in May, SDR technical exhibition in July, collaboration with E2R in November, and workshop on mobile communications in March, as well as a panel discussion in the IEICE general and society conferences. In 2007, the TCSR will continue their activities to promote research on software defined radio, cognitive radio, and their related technologies. Especially from 2007, the number of conferences will increase from 4 to 5 to accommodate numerous presentations. The latest programs of technical conferences can be found on the website of TCSR[5].

References

- [1] SDR Forum website, <http://www.sdrforum.org/>
- [2] Smart Radio Challenge: www.radiochallenge.org
- [3] R&D for Expansion of Radio Frequency Resources, <http://www.soumu.go.jp/>
- [4] E2R project website, <http://www.e2r.motlabs.com/>
- [5] TCSR website, <http://www.ieice.org/cs/sr/eng/>

Report on Overlay Network Symposium and Workshop 2006



Akihiro NAKAO (The University of Tokyo)

Kiyohide NAKAUCHI (NICT)

Masayuki MURATA (Osaka University)

1. Introduction

As wide-area overlay network test-beds distributed across the world have shown their potentials as a viable means to explore unforeseen network architectures and services, overlay networks have become popular vehicles for experimenting with innovative network services and disruptive network architectures, since those services and architectures can be successfully deployed using overlay networks without changing the underlying networks. Recent trends that put forth overlay network research represent increasing interests in defining, evaluating, and deploying new network services and architectures among research community. It is also worth noting that the same overlay network research community proposes forthcoming national projects such as GENI (Global Environment for Network Innovations) and Euro-NGI/Euro-FGI in order to explore new generation network architectures, which encourage clean-slate thinking and exercise splendid ideas and experiences learned from overlay network research.

In order to gain momentum in respect to new generation network research by means of overlay network technologies and to mark the first milestone in our efforts to form an international research community, we have organized a two-day joint program of overlay symposium and overlay workshop in the early December in 2006.

The symposium[1] on Dec. 8th, 2006 aimed to set a trend in new generation network research from the overlay-network's aspect and introduced the national strategies and efforts in United States, European Union, and Japan from this perspective. The international technical workshop[2] on the following day introduced and discussed several invited talks from across the world, including visionary keynotes, challenging ideas and work-in-progress reports on overlay research and proposals for new generation network architectures.

This two-day program was held at the Faculty of Engineering Bldg. 2 at the Hongo Campus of the University of Tokyo. It was jointly organized by the University of Tokyo, Osaka University, and NICT in cooperation with the Ministry of Internal Affairs and Communications, and was also technically sponsored

by the IEICE Technical Committee on Information Networks (IN), Network Systems (NS), and Communication Quality (CQ). The number of participants in the symposium and the workshop was 280 and 106, respectively.

2. Overlay Network Symposium

The symposium was initiated by the keynote speech given by Dr. Hideo Miyahara, President of Osaka University, and was followed by 7 visionary invited talks, short talk on session overview, panel session, and demo session.

In the keynote address, Dr. Miyahara posed the need of integrating advanced science and technology for future information networks and pointed out the overlay technology is a viable means for the goal. In invited talk sessions, Prof. Jennifer Rexford (Princeton University) and Dr. Rick McGeer (HP Labs) gave a talk on the NSF-funded GENI project and PlanetLab, respectively, and introduced a series of research activities on overlay networks in the United State. Prof. Daniel Kofman (ENST, France) showed the activities of Euro-NGI, which was the coordinating project in EU FP6 IST program. Prof. Akihiro Nakao (The University of Tokyo) pointed out that overlay research should bring proposed research ideas a step closer to widely deployable real systems and proposed CORE project, which enables an advanced collaborative overlay research environment in Japan. Finally, Prof. Tomonori Aoyama (NICT / Keio University) showed a view on new generation network architecture and introduced NICT's activities on the fundamental technologies for the architecture.

3. Overlay Network Workshop

The international workshop on the second day was organized by 16 technical invited presentations (8 from Japan and the others from abroad). The workshop covered a broad range of topics on overlay networks, such as proposals for a new network architecture using a network virtualization; separation of service providers and infrastructures, overlay environment to enable network architecture research, overlay platforms to improve the Internet availability by achieving robust routing and TCP's performance enhancement, overlay-based measurement techniques, and the future direction

of PlanetLab. Active discussions continued throughout the workshop.

4. Conclusion

This two-day event has confirmed the trend in new generation network research and has shown that overlay network technologies will catalyze exploration for innovative network architectures and network services. As pointed out through the symposium and the workshop, we need to incorporate our inventions including advanced science and technology in designing future information networks making use of the overlay technologies. We firmly believe that overlay research and network virtualization technique open a new era of new generation network research and put forth our proposed research ideas a step beyond mere proposals into the real production systems. Finally, considering the global nature of the network research, we posit that it is important to form an international research community, and we believe that the two-day event we have organized has marked an important milestone toward this goal.

References

- [1] Overlay Network Symposium 2006. <http://overlay-sympo.nict.go.jp/e/>
- [2] Overlay Network Workshop 2006. <http://overlay-sympo.nict.go.jp/e/workshop/>



Fig.1 Symposium Hall



Fig.2 Invited Speakers and Committees



Fig.3 Keynote Speech by Dr. Hideo MIYAHARA



Fig.4 Invited Speech by Prof. Jennifer REXFORD



Fig.5 Invited Speech by Dr. Tomonori AOYAMA



Fig.6 Panel Session

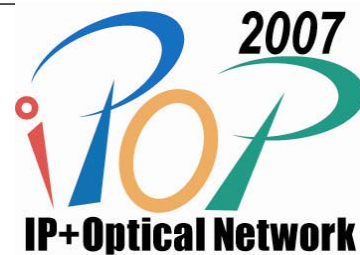


Fig.7 Workshop Room



Fig.8 Visionary Speech by Prof. Akihiro NAKAO

About the 3rd Conference on IP + Optical Network (iPOP 2007)



Keiji Miyazaki, iPOP 2007 Organization Committee

1. Introduction

Following its successful launch in 2005, iPOP has established itself as the prestigious conference on IP + Optical network technologies. We are pleased to announce iPOP 2007 which will be held at NTT Musashino R&D center, Tokyo, Japan, June 7-8 2007. The conference, the third annual event in its series, brings together those working in this important field from the industry and academia. The event is intended to promote the exchange of ideas, sharing of the knowledge and findings, and experience in the state-of-the-art IP and Optical Networking technologies. We encourage you to make plans to join the iPOP 2007.

2. The Conference's Offerings

iPOP 2007 will feature GMPLS networking product exhibitions and technical sessions. The Technical Program Committee of iPOP 2007 is working hard to produce a program with eminent key note speakers and technical sessions on latest developments of IP + optical networking technologies including GMPLS/ASON, applications with high-bandwidth demand, optical services such L1VPN, Bandwidth-on-Demand and Photonic Grid, network management, and testbed/field trial.

Like iPOP 2006, over 200 attendees from industry and academia around the world are anticipated.

iPOP 2007 is chaired by Mr. Tadanobu Okada, NTT, Japan, and Prof. Bijan Jabari, George Mason University and ISOCORE (Isocore Internetworking Lab, <http://www.isocore.com>), USA. It is organized by the Organization Committee chaired by Prof. Naoaki Yamanaka, Keio University, Japan and Mr. Akira Chugo, Fujitsu Labs., Japan. It is sponsored by PIL (Photonic Internet Lab, <http://www.pilab.jp/>) and ISOCORE(<http://www.isocore.com/>), technical co-sponsored by PIF (Photonic Internet Forum, <http://www.scat.or.jp/photonic/english/>) and Keihan-na Consortium(<http://www.khn-openlab.jp/bunkakai-gw/kokino-net/sousetsu/index-e.html>).



Fig.1 Sponsors



Fig.2 Technical co-sponsors

3. Conclusion

Attendance to iPOP 2007 will be a great opportunity to learn about state-of-the-art IP and Optical Networking technologies. The participation expense is 8,000 Yen and expense for student is 4,000 Yen. For up-to-date information on venue, access, program and registration, please visit <http://www.ipop2007.com>.



Fig.3 iPOP 2006 Reflections

A User Authentication System Using Schema of Visual Memory

Takumi Yamamoto (Shizuoka University) Atsushi Harada (Mitsubishi Electric Corporation)

Takeo Isarida (Shizuoka University) Masakatsu Nishigaki (Shizuoka University)



1. Introduction

Although password-based systems are now widely used in all kinds of authentication, they have some shortcomings in its neglecting of a human limitation. On the password-based systems, if a user chooses a short or meaningful password, it can easily be guessed by a password crack program. To avoid this, users must choose secure passwords (long and random strings). However, most of users prefer to use simple passwords or hesitate to change them frequently since it is not easy for humans to remember a long and random string. In fact, it is known that many users tend to use their names or birthdays as their passwords, to write down their passwords in pocket notebooks, or to reuse the same password in different cases of authentication. These humans' behaviors degrade the security of the authentication system. Further information about the shortcomings of password-based systems is described in [1,2].

To cope with these shortcomings, image-based user authentication systems using "pass-images" instead of passwords have been studied for reducing the burden of memorizing passwords. The authentication based on recognition of pass-images [1,2,3] is especially effective since humans are significantly more efficient about recognition of previously seen images than precise recall of passwords. Fig.1 shows an example of the typical image-based user authentication system which using photographic images [3].

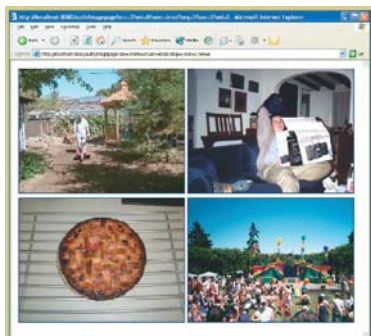


Fig.1 An example of the typical image-based user authentication system [3]

However, on such systems, there is another problem that it is needed to present a user's pass-image on their display at each authentication trial, so they can be vulnerable against an observing attack (shoulder surfing). An observing attack can be a serious problem for image-based authentication systems since the use of the images makes it easier not only for the legitimate users to remember their pass-images, but also for an attacker to peep and remember them.

Moreover, attention needs to be paid to illegal acts by the legitimate users; a legitimate user could intentionally leak his/her own authentication information to the others (e.g., for illegal sharing of a content). Pass-images are still easy to be shared since users could tell the meanings of their pass-images to the others even if we use "random-art" images (abstract images consisted of some geometric patterns produced by random computation [4]).

To solve the problems mentioned above, we propose an image-based user authentication system which has robustness against both the observing attack and the authentication information leakage with words.

2. Authentication System Using Unclear Images

To solve the problems mentioned in Section 1, we propose a scheme which employs "unclear images" as pass-images. An unclear image is created from an original meaningful image by image processing such as grayscaling, mosaicing, and noise adding to the spatial frequency domain.

The left image in Fig.2 shows an example of the original image. Using the image processing, the right

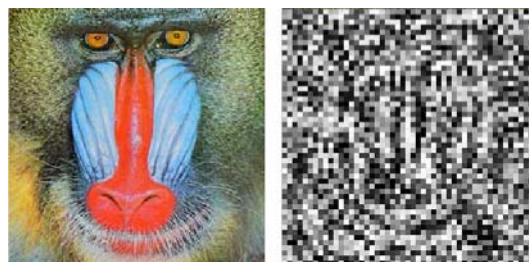


Fig. 2 An example of the original image and the corresponding unclear image.

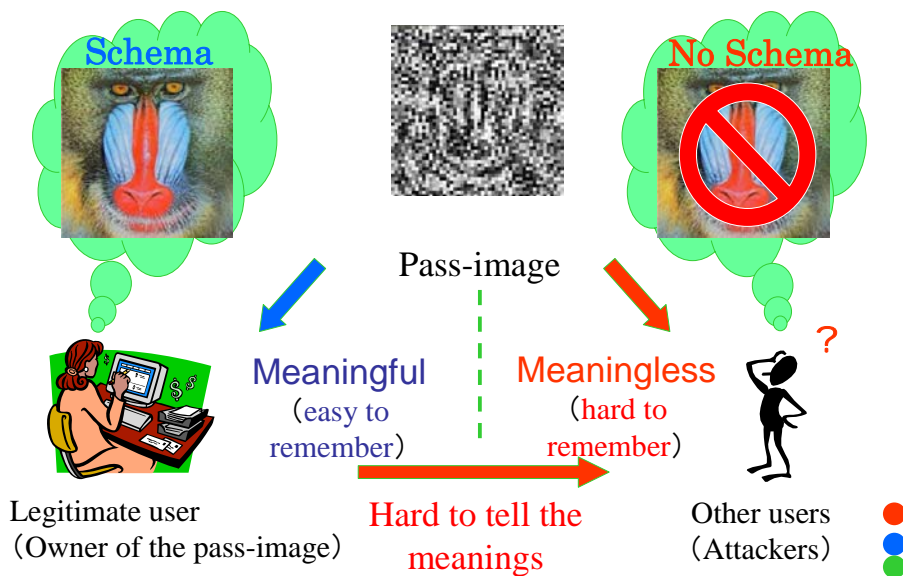


Fig. 3 The overview of our system.

image in Fig.2 is created. Although the unclear image loses its color and resolution considerably, it still holds a certain degree of information of the original image. But it looks like a meaningless image for the users who have never seen the original image. Even for humans it is hard to remember a meaningless image. That is why it is expected to be difficult for illegal users to remember the legitimate user’s unclear pass-image, even if the illegal users are allowed to freely observe the legitimate users’ authentication trial.

The overview of our system is shown in Fig.3. Only the legitimate users are allowed to see the original images corresponding to their unclear pass-images in the enrollment phase. By seeing the original images, the legitimate users can recognize the meaning in the unclear pass-images and can easily remember them by using the original images as clues. In other words, our scheme gives only the legitimate users a kind of knowledge of their unclear pass-images by showing the corresponding original images. This kind of knowledge is called as “schema” in cognitive psychology [5]. Schema means a structure of knowledge that is unconsciously organized in humans’ mind when humans memorize any incoming information. If once a legitimate user forms the schema of his/her unclear pass-images which is associated with the corresponding original image, he/she can easily recognize the meaning of the unclear pass-image. Therefore, the legitimate users can remember their unclear image as if it is a meaningful image, so the burden of memorizing their pass-images is small.

Usually, users cannot learn the appropriate schema without seeing the corresponding original image. Therefore, it is also expected to be difficult for a legitimate user to leak his/her unclear pass-image precisely to anyone with words via e-mail or telephone.

3. Goal (Future works)

Our system has performed well in laboratory-style experiments to quantify the effect of using unclear pass-images in user authentication. For more detail about the experiments, see [6]. In the future, we would like to examine the relationship between security and usability of our scheme with more experiments in different settings. The security and usability could be affected by the unclearness of the pass-images. So, we are to pursue an appropriate way of creating unclear images, too.

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From Editor's Desk

The Rainy Season

The rainy season, known as Tsuyu usually begins in June in Japan. It is the period from spring to summer, when the country is covered with the seasonal rain front, called 'Baiu front', and experiences a continuous spell of rainy weather. During the period, high atmospheric pressure from the continent hits high pressure from the Pacific Ocean over the Japanese archipelago. In the areas where two different types of air collide, many clouds are formed to produce rainfall. Entering the rainy season is called 'Tsuyu-iri' and ending the period is 'Tsuyu-ake'. The Japan Meteorological Agency annually announces 'Tsuyu-iri' and 'Tsuyu-ake' as a change of seasons. While we all enjoy the benefits brought about by the utilization of science and technology, there are ancestral ways in Japan that people hung the 'Teru-Teru-Bozu' under eaves and hope it will be fair weather tomorrow. During such the rainy season, IEICE Communications Society replaces its Board of Directors including GNL Editorial Staffs. At the moment, a new organization will start from May, just this Global News Letter is published and handed you. Please look forward to the new organization of Board of Directors, and also next GNL, with expectation!.



Figure 1 Teru-Teru-Bozu

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Call for Papers

----- Special Section on Communication Quality -----

The IEICE Transactions on Communications announces that it will publish a special section entitled "Special Section on Communication Quality" in **May 2008**.

As telecommunications technologies advance, everyone has been able to communicate more easily with others and enjoy video content through the Internet. The primary factors behind voice and video communication delivery are the improvements in the high-capacity telecommunications infrastructure and the enhancement of telecommunications service operations, management, and evaluation techniques essential for stable service delivery. Furthermore, the age is right around the corner where terminals using haptic devices and home information appliances can be connected to a ubiquitous network across fixed and mobile telecommunications boundaries. Under these circumstances, users are expected to demand higher quality and reliability for voice, video, data communications, and other telecommunications services including media for the five senses. To meet such user expectations, it is important to build technologies for measuring, assessing, and managing the quality and reliability of telecommunications services. Because of such reasons, a special section is being planned (scheduled to appear in the May 2008 issue) to further promote research and development of future communications quality.

1. Scope

This special section aims at timely dissemination of research in these areas. Possible topics include, but are not limited to:

- media for the five senses, haptic devices etc.
- assessment of user satisfaction (modeling and examples)
- subjective and objective assessments of audio and video media quality
- definition and modeling of application level QoS
- relationship (mapping) among network quality, application level QoS and media quality
- measurement methodology for network quality such as IP, TCP and routing
- quality management system based on network measurement and its practical use
- reliability and security assessments of communications infrastructure (modeling and examples)

2. Submission Instructions

Prospective authors are requested to send four copies of manuscripts (the length is recommended within 8 printed pages for a paper, 2 printed pages for a letter) to the following address **by August 17, 2007**. Manuscripts should be prepared according to the guideline given in the "Information for Authors". The latest version is available at the web site, http://www.ieice.org/eng/shiori/mokuji_cs.html.

This special section will accept only papers by electronic submission. Prospective authors are requested to follow carefully the submission process described below.

1. Submit a paper using the IEICE Web site https://review.ieice.org/regist_e.aspx. The acceptable format of the file is PDF file. Authors should choose the [Special-EB] Communication Quality as a "Type of Issue (Section)/Category of Transactions" on the online screen. **Do not choose [Regular-EB]**.
2. Send "Copyright Transfer and Page Charge Agreement" and "Confirmation Sheet of Manuscript Registration" by postal mail (NOT by FAX or E-mail) to the following address (guest editor of the special section) **by August 17, 2007**. Please write "Special Section on Communication Quality" on the envelope.

We cannot start the review process without them, even if we receive the manuscript. For additional guidelines on manuscript preparation, please visit the web-page: http://www.ieice.org/eng/shiori/mokuji_cs.html

Submission to: Tomohiko OGISHI
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* Please note that if accepted, all authors, including authors of invited paper, are requested to pay for the page charges covering partial cost of publications. Authors will receive 50 copies of reprints.

*At least one of the authors must be an IEICE member when the manuscript is submitted for review. Invited papers are an exception. We recommend that authors unaffiliated with IEICE apply for membership. For membership applications, please visit the web-page, <http://www.ieice.org/eng/member/OM-appli.html>

Call for Papers

Special Section on 2007 International Symposium on Antennas and Propagation

The IEICE (Institute of Electronics, Information and Communication Engineers) Transactions on Communications announces a forthcoming Special Section on “2007 International Symposium on Antennas and Propagation” to be published in **June, 2008**.

The 2007 International Symposium on Antennas and Propagation (ISAP2007) will be held in Niigata, Japan on August 20-24, 2007, which aims at providing an international forum for exchanging information on the progress of research and development in antennas, propagation, electromagnetic wave theory, and related fields. This symposium, the 12th ISAP, is organized and sponsored by *IEICE*, and is held in cooperation with URSI, IEEE/AP-S, IET, CIE, and KEES. By taking this opportunity the Special Section on ISAP2007 has been planned to publish articles which are **limited** to the papers **presented** at oral or poster session in ISAP2007. Your participation to the ISAP2007 and the contribution to this special section would be greatly appreciated.

1. Scope:

The major topics include, but are not limited to

- Special Topics (AP for Ubiquitous Systems, AP-related MIMO Technologies, On-body Wireless Communications, Broadband and Multi-band Antennas and Applications, EBG and Metamaterials, SAR Polarimetry and Interferometry)
- Antennas
- Propagation
- Electromagnetic Wave Theory
- AP-related Topics

Deadline information of ISAP2007 is provided at the web site: <http://www.isap07.org/>

2. Submission Instructions:

Papers have to be submitted by **October 15, 2007 (JST)**. Manuscripts should be prepared according to the guideline given in the “Information for Authors”. The latest version is available at the web site, http://www.ieice.org/eng/shiori/mokuji_cs.html, or you can refer to its brief summary attached to IEICE Transactions. The length of the paper should not exceed 8 printed pages in principle. The term for revising the manuscript after acknowledgement of conditional acceptance for this special section could be shorter than that for other sections (60 days) because of the tight review schedule. In this special section, only electronic submission is accepted. Prospective authors are requested to follow the submission process described below carefully.

1. Authors have to present their paper at oral or poster session in ISAP2007 for submitting their paper to this special section. At least one of the authors must be an IEICE member when the manuscript is submitted for review. Deadline for online paper submission of the ISAP2007 is **March 1, 2007 (JST)**.
2. Submit papers using the IEICE web site https://review.ieice.org/regist_e.aspx. The PDF file format is the only acceptable file format. Any other file formats, e-mail submission, or postal mail are NOT acceptable. Authors should choose the [**Special-EB**] *2007 International Symposium on Antennas and Propagation* as a “Type of Issue (Section)/Transactions” on the online screen. Do not choose [Regular-EB] Communications or other special sections.
3. The “Copyright Transfer and Page Charge Agreement” and “Confirmation Sheet of Manuscript Registration” have to be sent by postal mail to the following address (guest editor of this special section). Please write “Special Section on ISAP2007” on the envelope.

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Please note that if accepted for publication, all authors, including authors of invited papers, are requested to pay for the page charges to cover the partial cost of publication. Authors will receive 50 copies of the reprints.

Call for Papers

----- Special Section on Brain Communication -----

The IEICE Transactions on Communications announces a forthcoming section on Brain Communication to be published in **July, 2008**.

Recent progress in brain science, especially in non-invasive methods, has enabled quantitative evaluation of human behavior and operation of electronic communication devices by direct brain-derived signals. Neural activities in cerebral cortex and peripheral nerves have been analyzed using imaging techniques, providing us with several models associated with human recognition and action. These advancements have lowered the barrier to realize the seamless communication between human and machine.

In view of these circumstances, an interdisciplinary and comprehensive approach incorporating basic research is important to develop future brain-communication networks and to facilitate human communication effectively. The approach should include biosignal-based communication network technology, novel intelligent device technology, and preference-based neuromarketing technology. This special section on Brain Communication is planned to review and mine for relevant research in the IEICE Transactions on Communications (EB) to be published in **July, 2008**.

We call for papers that contribute to facilitation of present communication and creation of future communication technology. Acceptable topics include, but are not limited to:

- multiunit recording and analysis technology and its applications to interface
- brain-machine interface and neural prosthesis - biofeedback control in biomechanical system
- brain functional imaging and signal processing techniques- communication of thoughts and *kansei*
- memory and learning models in cerebral cortex and its application to information communication
- analysis of human behavior and its application to information communication engineering
- neurodecoding and its application to communication - sensor network and its fusion technology
- sensor technology and biomechanics - neuroinformatics and retrieval methods
- network management and control incorporating brain computation

Prospective authors are requested to prepare a manuscript according to the guideline given in the "Information for Authors." Its latest version is available at the web site, http://www.ieice.org/eng/shiori/mokuji_cs.html. It is recommended that the length of a paper and a letter for this special section are within 8 and 2 pages, respectively. The deadline for submission is **November 10, 2007**.

This special section will accept papers only through electronic submission. The prospective authors are requested to follow carefully the submission procedure described below.

1. Submit the paper at the IEICE Web site https://review.ieice.org/regist_e.aspx. The acceptable format of the file is **PDF**. Authors should choose the [Special-EB] Brain Communication as a "Type of Issue (Section)/Category of Transactions" on the online screen. Do not choose [Regular-EB].
2. Send "Copyright Transfer and Page Charge Agreement" and "Confirmation Sheet of Manuscript Registration" to the address below by postal mail (**NOT by FAX or E-mail**) no later than November 10, 2007. Please do not forget to send "Copyright Transfer and Page Charge Agreement" and "Confirmation Sheet of Manuscript Registration". We cannot start the review process without them, even if we have received the manuscript.

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* Please note that if accepted, all authors, including the authors of the invited papers, are required to pay for the page charges covering partial cost of publication. Authors will receive 50 copies of reprints.

* At least one of the authors must be an IEICE member when the manuscript is submitted for review, except for invited papers. We recommend that authors unaffiliated with IEICE apply for membership. For membership applications, please visit the web-page, <http://www.ieice.org/eng/member/OM-appli.html>.