
Global Communications Newsletter

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Aerospace and Electronic Systems, Communications, and Lasers and Electro-Optics, Society Chapter-India Major Technical Activities During 1998 and 1999

By Ram G. Gupta, India

The IEEE Communications Society has awarded the 1998 ComSoc Chapter of the Year Award to the IEEE-AES-COM-LEO's Society Chapter-India. The Award was presented ceremoniously at GLOBECOM '98, held in November 1998 in Sydney, Australia. The IEEE Aerospace and Electronics Systems Society has issued a Certificate of Recognition for of the activities undertaken by the Chapter.

The 17th Digital Avionics System Conference, held in Seattle, Washington on October 31-November 6, 1998, has issued a Certificate of Appreciation for the Indian Coordination Chair.

The Chapter partially sponsored a national symposium on "Advances in Microwaves and Lightwaves" and a workshop on "Recent Trends in Communication" in co-operation with University of Delhi. The areas covered were Global Trends in Communications, Personal Communication Services, New Satellite Services, ISDN Developments and Applications, and Spectrum Management and Related Radio Regulatory Mechanism. There were also several technical sessions.

The Chapter successfully held the IEEE International Symposium on Wireless Communications 1998 for the Next Millennium-ISWCM '98 September 17-18, 1998 in New Delhi. That event attracted 75 participants from different countries, including Australia, Japan, the United States, Canada and India. There were 33 technical papers in eight sessions with eight invited talks from eminent personalities in the field. The Symposium concluded with two sessions of panel discussions, which were very fruitful. Complimentary copies of the Proceedings of the Symposium were given to the participants. Copies of the Proceedings were also sent to a few academic and R&D institutions in the country.

The Chapter distributed complimentary copies of the IEEE International Conference on Personal Wireless Communications, held in Delhi and Mumbai in 1996 and 1997, respectively, to academic institutions and R&D laboratories. The Chapter has also given complimentary copies to the Indian Institute of Technology Delhi library. The Chair of the Chapter received these books as complimentary copies from the publisher.

The Chapter co-sponsored the National Convention of Electronics and Telecommunications Engineers, held by the Institution of Electronics & Telecommunications Engineers India in cooperation with IIT Guwahati, in Guwahati on November 12-14, 1998. The Convention along with an industrial exhibition, was a success with participation by delegates from both public and private concerns and from R&D institutions from all parts of the country. The theme was "The Role of Electronics and Telecommunications in Remote Education and Development."

The Chapter, in association with the Delhi Chapter, arranged

a talk by Dr. Vijay Garg from Lucent Technologies, USA, on "CDMA: An Emerging Technology for Wireless Communications," which was given on November 27, 1998 at C-DoT. The response was overwhelming. Complimentary tutorial notes were distributed. The demand for such excellent tutorials is increasing day by day. The participants have made a request to the Chapter Chair that Dr. Vijay Garg be listed as Distinguished Lecturer and be called to India for more tutorials of this nature.

The Chapter co-sponsored the International Conference on Optics and Opto-Electronics Systems at the Instruments R&D Establishment, Dehradun, on Dec. 9-12, 1998. Participants numbered 360 from all areas of the world, including 86 from outside India. Among the topics covered were Optics Design, Fabrication, Image Evaluation, Thin Films, Integrated Optics, Holographic, Differential Optics, Quantum and Non-Linear Optics, Photo Refractive Materials, Sensors and Display, and Pattern Recognition. Presentations were made for 260 technical papers.

The Chapter sponsored the registration fee of several authors whose papers were of excellent quality and who, because of financial constraints, were not able to participate in TENCON '98 (IEEE Region Ten Conference), held Dec 17-19, 1998.

The Chapter sponsored the International Conference on Photonics '98, held in IIT Delhi Dec. 14-15, 1998. This Conference and Exhibition attracted 300 participants. The focus of the event was on fibers and cables, integrated optics and passive devices, optoelectronic devices, systems, networks and applications. There were 38 technical sessions in addition to the plenary and concluding sessions.

The Chapter sponsored a one-day short course by Prof. Vijay Bhargava of the University of Victoria on Wireless Multimedia Systems. This event, held at the Malviya Regional Engineering College, Jaipur on December 15, 1998, provided an opportunity for participants from semi-urban areas of India to gain exposure. The course was attended by 165 participants.

The Chapter helped organize ELITEX '99, which focused on technologies developed in electronics. This event was held on February 2-3, 1999 at the India Habitat Centre, New Delhi. It was a great success and attracted the highest number of visitors for any such exposition organized in the recent past. During the exposition the following new software products were released: Multimap, Leap Office Ver.2.0, a communication co-processor chip, and a bilingual Hindi dictionary on CD. Attendees in Bangalore participated via video conference link through INSAT, designed and developed by STPI. It is the first application of its kind.

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SoftCOM '99 Conference Report

By G. Luderer, USA

The Seventh International Conference on Software in Telecommunications and Computer Networks, SoftCOM '99, was held October 13-16, 1999 on the Adriatic Sea. The conference took place on a ship cruising the route Split-Rijeka-Trieste-Venice-Split. The Marco Polo is a full-facility, 10,000-ton vessel normally cruising the Adriatic Sea as an automobile ferry. Each day of the conference the ship was anchored in one of the ports of the route, and overnight it sailed to the next destination. The participants had the opportunity to share ideas in forced captivity and then enjoy the pleasant and inspiring ambience while visiting the ports along the Adriatic coast. For the duration of the conference, the ship's car deck served as a fair ground for exhibitors of software and telecommunication products from the surrounding countries.

The SoftCOM conferences have been organized since 1993 by the University of Split, Croatia (by the faculties of the Electrical Engineering, Mechanical Engineering, and Naval Architecture departments), the Technology Center Split, and HT-TKC, the Croatian Telecom Split. The conference has been sponsored by the Ministry of Science and Technology of the Republic of Croatia, the University of Split, and by the IEEE Communications Society (COMSOC), represented through the COMSOC Communications Software and Communication Switching and Routing Technical Committees. Originating as a local event, SoftCOM has gained increasing international stature not only by cruising on a ship between countries since 1997, but also by attracting an increasingly international audience, which was certainly helped by the sponsorship of IEEE COMSOC, obtained first for SoftCOM '98.

Sixty papers submitted for presentation underwent the customary rigorous review process. Nearly 75 percent of the submitted papers were recommended for presentation within the technical program. The accepted papers were classified into seven groups: Software Architecture, Design and Applications; Advanced Services in Telecommunication Networks; Internet Services and Applications; Network Design, Management and Control; High-Speed Networks, Traffic Modeling and Control; Wireless Communications and Mobile Networks; and Electromagnetic Compatibility. The complete technical program spanned eight sessions. The Technical Committee also invited several experts to present the state of the art in some selected areas in contemporary communication, namely: Quality of Service in the next Internet (Danthine); robot vision (Pavesic); adaptive multi-wavelet approaches (Hall); voice over IP and computer telephone integration (Walters); video editing (Pakstas); and the esoteric topic of quantum mind computing (Soucek).

The tutorials selected show an emphasis on local access. Last year's tutorial on cable modems (Mollenauer) was followed by this year's treatment of power line communications (Krawarik), and third-generation mobile (Walters). The Internet

area was covered by the hot topic of IP routing and label switching (Danthine). In deference to the topic of the conference, there was also a tutorial on software architecture concepts (Luderer). The SoftCOM '99 Conference also included a set of panel discussions in the framework of Professional Circle sessions. Besides that and the exhibition, a telecom business forum was also held.

The organizers of SoftCOM '99 should be congratulated for having developed an innovative conference concept with several outstanding features. First, it ties together visited countries from the Adriatic rim. Then it offers an exhibit area moving between international locations. Finally, the ambience aboard ship keeps the participants together for increased interaction as a captive audience. Last but not least, it also offered a pleasant trip through some very attractive areas along the Adriatic coast, some of them still suffering from the consequences of an unfortunate war in this area. Successful innovation can seldom be achieved without taking some risks, and the team of organizers has been trying very hard. For example, a multimedia remote interaction experiment via satellite from last year was not continued. In summary, besides the usual attributes of a successful technical conference, SoftCOM '99 offered a unique mix of attractive features.

The French Cryptographic Legislation

Maryline Laurent, France

The French cryptographic legislation is known as one of the strictest in the world. However, since 1990 the French government has been liberalizing cryptography to a certain extent. The government wants to first align French legislation with European law gradually. This will provide European users with the possibility to protect their communications with a common cryptographic means, and this will allow French companies to develop security products designed for the whole European market. The second objective is that the French legislation should not be an obstacle to French companies developing cryptographic-based applications such as the promising electronic commerce. Finally, on September 1, 1999, a law project which is essential for EDI (Electronic Document Interchange) was adopted by the French government. This law project considers that the digital signature is as legal as the hand-written signature indicated at the bottom of a paper document. That means that as soon as the application decree is approved, paper documents will no longer be required when establishing contracts.

Until the 1920s, cryptography was mainly reserved to military applications, since it was considered as dangerous as a war weapon. In 1992, the mechanisms allowing people to certify electronically the source of a document by forging some digital signatures were liberalized. People were authorized to exchange some authenticators along with their documents without any previous declaration nor authorization to the French Information Systems Security Service (SCSSI, Service Central de la Securite des Systmes d'Information). However, at that time data encryption mechanisms were still strictly controlled, and people were obliged to register their secret keys to a trusted third party, so national security officers could access the keys and decrypt data.

Since 1998, the legislation for data encryption has been made less strict, but some rules still applied depending on whether the encryption mechanism is imported, exported, for private use, or provided within security equipment. Recent decrees 99-199 and 99-200, approved in March 1999, specify that data encryption based on secret keys with a length less than 40 bits can be freely employed for private use and importation, but it should be submitted for declaration if provided in a product, and for authorization if exported. If the secret key length is between 40 bits and 128 bits, the encryption mechanism is still freely usable for private use and importation, provided that the cryptographic materials were declared once either by the provider, importer, or producer. For provision within a product, it should be declared in any case, and for exportation, it is still submitted for authorization.

10th International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC '99)

By Ryuji Kohno, Japan

The 10th International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC '99) successfully took place in Osaka, Japan, on September 12-15, 1999. The symposium was organized in cooperation with the Institute of Electronics, Information and Communication Engineering (IEICE), the Institute of Image Information and Television Engineers (ITE), the Institution of Electrical Engineers (IEE), the IEEE Japan Council, and the IEEE Kansai Section.

The event witnessed a tremendous increase in the number of papers published, reaching 325 papers from 25 countries around the globe. The paper contributions were well balanced between academia and research organizations from industry and government.

More than 600 people participated in the three-day conference, including academic and industrial researchers working in radio communications technology, representatives from industrial manufacturers, as well as telecommunications operator managers. PIMRC has evolved rapidly since its beginning in 1990. It is clear that PIMRC is improving with the passage of time and moving forward to become the premier conference on wireless communications.

After nine tutorial sessions, the technical program combined the conference plenary session and the panel sessions with 54 technical sessions (with approximately five papers/session) and two poster sessions on the topics of third-generation wireless systems, satellite broadcasting, digital signal processing, adaptive array, multiuser detection, optical communications, channel modeling, radio resource management, IMT-2000, software radio, digital broadcasting, interference cancellation, wireless ATM, coding, OFDM, multi-carrier CDMA, synchronization, turbo codes, equalization, networking, wireless LAN, power control, wideband CDMA, dynamic channel assignment, spread spectrum, propagation, protocol, ITS, antenna, spreading sequence, and chipset.

In general, the technical program content exhibited a main focus on physical-layer radio communication issues as well as nomadic computing, but involved networking on upper layers. Specifically, there were four technical sessions devoted to physical-layer issues (interference suppression, code acquisi-

tion and tracking, modulation and coding, and power control) and two technical sessions each to mobile computing, third-generation systems, and wireless data networks.

At the conference plenary session, four speakers gave talks about technical challenges faced by the telecommunication industry today. The first plenary talk, entitled "Towards Advanced Communications Using Millimeter-wave Technologies and R&D Activities in Yokosuka Research Park," was presented by Dr. Shingo Ohmori, director of the Yokosuka Radio Communications Research Center of the Communications Research Laboratory, Japan. In his presentation, Dr. Ohmori highlighted some of the research activities on terrestrial millimeter-wave technologies for providing forthcoming multimedia communications. Subsequently, Mr. Kota Kinoshita of NTT DoCoMo gave another plenary speech entitled "R&D and Standardization Activities for IMT-2000." One of the final two plenary talks, given by Dr. Tom Rowbotham, director of Technology at British Telecom, presented a vision of "The Wireless Millennium." The other final plenary talk, entitled "The Need for Coordination in Standards for Nano, Pico, Micro & Macro Cellular Systems in a Software Defined Radio Context" and presented by Dr. Mark Cummings, president and CEO of enVia, USA, discussed the important concept of software-defined radio for future research and business in wireless communications.

The final agenda in the conference program was the special banquet speech entitled "Wireless Communications toward 21st Century" and given by Dr. Shuzo Kato of Mitsubishi Wireless Communications Inc. Also on the agenda was the celebration of student paper awards. During conference all participants were invited to visit an International Exhibition, Communications and Networking Expo '99 (COMUNET '99), which offered an opportunity to exchange information about advanced communication and networking technologies.

In this summary we only intend to provide a flavor of the conference program. The conference record should be consulted for details.

The Eleventh PIMRC '2000 will be held in London, UK, on September 18-21, 2000. A preliminary home page can be found at: <http://www.pimrc2000.com>

APSITT '99 Held in Mongolia with the Support of IEEE COMSOC

By Kenzo Takahashi, Malaysia; B. Sukhbaatar, Mongolia; and Kazuhiro Sato, Japan

APSITT '99 Organizing Committee

The 1999 Asia Pacific Symposium on Information and Telecommunication Technologies (APSITT '99) was held at the Mongolian Technical University (MTU) in Ulaanbaatar, the capital city of Mongolia, on August 30-31, 1999. The purpose of this international conference is to provide a common forum of discussion on information and telecommunication technologies to leading people, academicians, and relevant engineers in a worldwide linkage, especially in the Asia Pacific region, and stimulate the regional academic activities toward the near-future information society. Mongolia has a long history in the Asia-Eurasia region, 2.38 million population (1997), a wide, beautiful plateau covered with grasses and green trees facing Altai mountains and Gobi desert, and natural resources and relevant industries. The country is making outstanding progress in its development. We can see an Internet Café in the town now. However, it is not so long since the country opened its society to the world, and many foreigners are still unfamiliar with Mongolia. The

previous conferences of APSITT were held in 1993 and 1997, and extended to the conference in Mongolia.

The first APSITT was held in 1993 in Bangkok, Thailand, on November 11-12, in commemoration of the 50th Anniversary of the Engineering Institute of Thailand (EIT). It was sponsored by EIT, the IEEE Communications Society (IEEE COMSOC), the Institute of Electronic, Information and Communication Engineers of Japan (IEICE), the Asian Institute of Technology (AIT), and the other relevant organizations. About 200 people participated in the conference from eight countries, including North American countries. Four years later, APSITT '97 was held in Hanoi, Vietnam, on March 13-14, in commemoration of the 40th Anniversary of Hanoi University of Technology (HUT). This was sponsored by HUT and IEICE, and co-sponsored by IEEE COMSOC, the Vietnamese Government, the Radio Electronics Association of Vietnam (REV), AIT, and the other relevant organizations. About 250

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people from 10 countries participated, again including north American countries. IEEE COMSOC played the role of international leadership in the regional academic activities and contributed to opening the regional societies to the world.

The fundamental idea of APSITT was taken over also in APSITT '99, which was held in commemoration of the 30th Anniversary of MTU, with coordination by Dr. Y. Inoue, APSITT '99 Committee Chair, Vice President of IEICE COMSOC, who received the title of MTU's Honored Professor for his contribution in science, research and the success of APSITT '99. The conference was sponsored by MTU and IEICE, and supported by IEEE COMSOC, the Mongolian Government, the Ministry of Education, the Ministry of Infrastructure of Mongolia, the School of Telecommunication and Information Engineering, Mobicom Corporation, Mongolia Telecom, the Mongolian Telecommunication Association, Multimedia University (MMU), which was established for international higher education of multimedia technologies and services in Malaysia, and some relevant organizations. About 160 people participated, from eight countries including the United States. In the conference, 60 papers were presented, and ideas, procedures, background and relevant topics were keenly discussed by the speakers and participants.

The honorary chair of APSITT '99 was the President of Mongolia, H.E. Mr. N. Bagabandi. The conference was chaired by Prof. D. Badarch, President of MTU. The opening session was inaugurated by Dr. B. Enkbold, the Director of the Press and Information Department, President's Office of Mongolia, and the message from the President of Mongolia was delivered to the participants. This message was given with expectations of strengthening multilateral cooperation in the Asia Pacific region and bringing the information and telecommunication technologies of Mongolia into the global marketplace.

The Minister of Infrastructure Development of Mongolia (MOID), H.E. Mr. Batkhuu, attended and greeted the participants at the reception. Mr. T. Naranmandah, Deputy Director General of MOID, who is acquainted with Prof. K. Takahashi (MMU) in AIT, also greatly contributed to the success of the conference from the Governmental standpoint. The opening session was addressed by Prof. D. Badarch, President of MTU, and congratulated by Prof. T. Miki, Vice President of IEEE COMSOC. Three keynote speeches were presented by Prof. B. Sukhbaatar, Vice President of MTU, Dr. T. Aoki, President of NTT-DATA (Ex. Senior Executive Vice President of NTT) in Japan, and Prof. Ghauth Jasmon, President of MMU.

The conference was continued with a guest speech session that included speeches by Dr. Hendrick Berndt, Chairman of the TINA Consortium, and Prof. T. Aoyama, Chairman of IEEE COMSOC Asia Pacific Committee. The conference also included a tutorial session, and eight technical program sessions for general papers, especially in the field of information networking, multimedia services and applications, IP and ATM issues, mobile communications, optical communications, and information technology policy and planning. The most current technologies were introduced to the participants in each session, and relevant opinions were exchanged between speakers and participants from both technological and strategic viewpoints.

On the occasion of the conference, Prof. T. Miki organized a workshop of IEEE COMSOC with current IEEE members in telecommunications organizations and relevant universities of Mongolia, and provided a chance for the participants to understand the strategy and future perspectives of IEEE ComSoc activities. The number of IEEE COMSOC members in Mongolia seems not enough to establish a local Chapter at this time. However, it will surely encourage them in parallel with the evolving socio-economic situation of Mongolia, that these conferences and workshops could be successfully organized and performed with the support of IEEE COMSOC.

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The technology sessions on Information Technology, Strategic Electronics, Communications, Micro-Electronics and Photonics, Technology Development Programs of DoE, and Material and Components, as well as the panel discussions on Indigenous Technology Development for Improving the Global Competitiveness of the Electronics and IT Sector in India, were well attended. The exhibition showed tremendous potential and created impact both within and outside in terms of awareness and availability of indigenous technologies/products. The following technologies were transferred to the industry for its full commercial exploitation: a micro remote terminal unit, a versatile color sensor, and an integrated receiver decoder system.

The major event for the Chapter, the 1999 IEEE International Conference on Personal Communications (ICPWC '99), was held Feb. 17-19, 1999 at the Rajputana Palace Sheraton, Jaipur, India. The response was overwhelming, with 187 participants from 25 countries. There were 24 technical sessions with 101 papers, four exclusive tutorials, and the plenary and panel discussion sessions during the conference. The plenary session was chaired by Shri P.S. Saran, member, Telecom Commission, Government of India. Nearly 90 percent of the technical papers were presented, an incredible achievement. To encourage participation from the semi-urban and rural areas of India, 38 complimentary registrations were granted to the colleges and universities around Jaipur. This will also ensure the technical activities of IEEE and the Chapter are known in the area around Jaipur. In addition, 15 complimentary copies of the proceedings and tutorial notes were given to volunteer students from the local engineering colleges who helped organize and ensure the smooth running of the Conference. An additional 200 copies of the proceedings are being shipped to IEEE for wider circulation throughout the world.