GCN GLOBAL COMMUNICATIONS NEWSLETTER

November 2022
ISSN 2374-1082

CHAPTER REPORT

IEEE Malaysia ComSoc/VTS Joint Chapter 2021: The Year of Online Activities

by Mohamad Yusoff Alias, Chair of the IEEE Malaysia ComSoc/ VTS Joint Chapter

Since the beginning of the Covid-19 pandemic in 2020, a lot of the activities that were normally held physically have to be converted to online activities instead due to movement restriction order. By 2021, online activities have become a norm and the pandemic did not stop the chapter from continuing to organize activities that were beneficial to the members and to the community in general. Throughout 2021, IEEE Malaysia ComSoc/VTS Joint Chapter was able to organize a total of 131 activities that include 23 administrative and strategic meetings, 10 membership development programs, 84 technical activities, 10 educational activities, 1 humanitarian/social activities and 3 conferences.

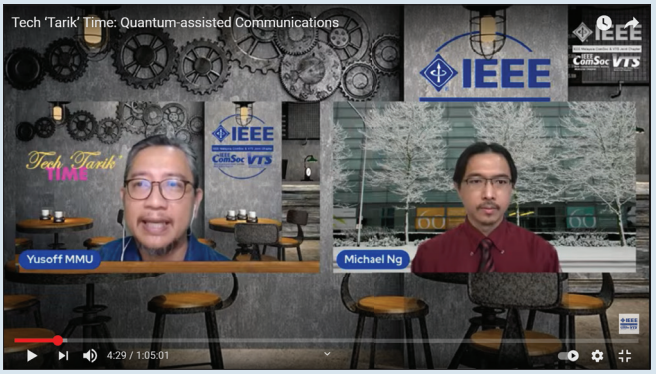
The year started with the 22nd Annual General Meeting (AGM) which was held virtually on 6th February 2022 via Google Meet. The meeting was attended by 48 members. This was then followed by the Mini Leadership Camp (MLC) which was held on 9th and 10th of April 2021 as a preparation for activities to be conducted for the rest of the year.

The most significant activities that were conducted in 2021 were the technical activities. There was a total of 84 activities conducted throughout the year as compared to only 24 the year before. Among the main highlight was the technical forum entitled "Accelerating Digital Transformation in Challenging Times" which was held on 5th July 2021. The forum panelist featured three well-known speakers in Mr. Imri Mohktar, Group Chief Executive Officer (GCEO) of Telekom Malaysia, which is the biggest telecommunication provider in Malaysia, Dr. Fadhlullah Suhaimi Abdul Malek, Chairman of Malaysia Communication and Multimedia Commission (MCMC), which is the main regulatory body in Malaysia and Prof. Dr. Hafizal Mohamad, a well-known researcher and IEEE member from Universiti Sains Islam Malaysia (USIM). The forum was moderated by Prof. Dr. Borhanuddin Ali, who is one of the most outstanding volunteers for IEEE ComSoc in Region 10. The event has garnered more than 1000 viewers when it broadcasted on Facebook Live and YouTube Live.

2021 also saw the introduction of some new activities that have never been introduced before. The first one is the "Let's Collaborate" program which aims at introducing research centers and their activities, members, and projects to the public. In 2021, three research centers related to three different universities namely Center for Wireless Technology (CWT), Multimedia University, Wireless and Photonic Network (WiPNET), Universiti Putra Malaysia and Centre for Communication Systems and Networks (CCSN), Universiti Tunku Abdul Rahman (UTAR) were involved in the program on 5th August, 8th September and 21st October, respectively.

Another new activity that was introduced was the Tech "Tarik" Session which is a technical sharing session on current topics that might be an interest to the members and the public in general. The first of such session was the "Quantum-assisted Communications" by Prof. Dr. Soon Xin Ng (Michael) from the University of Southampton on 16th August. Then, there was a session on "3G Sunsetting: The dusk of a Mobile Technology"

Poster for the technical forum entitled "Accelerating Digital Transformation in Challenging Times which was held on 5th July 2021.



"Quantum-assisted Communications" by Prof. Dr. Soon Xin Ng (Michael) from the University of Southampton on 16th August.

by Dr. Ahmad Nasruddin 'Atiqullah Fakrullah, Senior Director, Next Generation Technology and Standards Division, Malaysian Communications and Multimedia Commission (MCMC) on 15th September.

(continued on next page)

In 2021 as well, our chapter has organized for the first time ever the inaugural National Colloquium on Internet of Things (NCIoT) on 25th and 26th October 2021. The aim of the colloquium was to look into the current research and applications in Malaysia. NCIoT managed to attract more than 50 participants especially students who were eager to listen to some of the experts in IoT in Malaysia. The program included one keynote address, two hands-on workshop, one industrial forum and four technical talks.

Apart from NCIoT, the chapter also organized two flagship conferences namely the 26th IEEE Asia-Pacific Conference on Communications (APCC) from 10th to 13th October 2021 and the 15th IEEE Malaysia International Conference on Communications (MICC) on 1st and 2nd December 2021. Aside from that, there is also one technically co-sponsored conference which is the 7th International Conference on Space Science and Communication (IconSpace2021). For APCC, there were 5 tutorials sessions on the latest topics and 7 keynote speakers by world renown speakers. On the other hand, for MICC, there were 3 tutorial sessions, 3 keynote speakers and one industrial forum.

Overall, 2021 has seen a great jump in online activities and people have started to adapt to such mode of delivery. Online activities can bring quite a number of advantages on its own such as easier to get speakers from outside of Malaysia since there is no need for travelling, the advantage of having both live and recorded sessions for those who were not able to attend and giving opportunities for people to join the session despite their tight schedules. On the other hand, there were some disadvantages as well such as lack of focus and interaction by audiences, technical difficulties due to connectivity issues, as well as lack of in person demonstrations. It is hope that in 2022 the situation will become better for in-person activities or at least as hybrid mode.

CHAPTER REPORT

Virtual Webinars at IEEE ComSoc Santa Clara Valley Chapter and Santa Clara University's School of Engineering

by Alan J Weissberger, IEEE GCN Correspondent and IEEE Techblog Content Manager, IEEE ComSoc SCV Chapter, CA, USA

IEEE ComSoc Santa Clara Valley Chapter (ComSocSCV) and Santa Clara University's School of Engineering (SoE) collaborated this Spring 2022 to produce two very well received virtual webinars:

1. OpenRAN and Private 5G — Opportunities and Challenges on March 22, 2022 and
2. Critical Cybersecurity Issues for Cellular Networks (3G/4G, 5G), IoT, and Cloud Resident Data Centers on May 26, 2022.

The presentations and lively discussion by the panelist and moderators made the event both informative and intellectually stimulating.

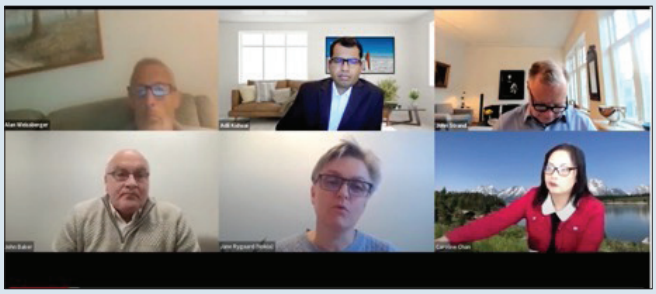
OpenRAN and Private 5G Issues

Some of the issues and questions addressed in the first webinar were:

- Can mix and match OpenRAN module interoperability result without solid standards?
- Is OpenRAN just a different form of vendor lock-in (as Light Reading claims)?
- How will a legacy carrier manage and maintain a "brownfield" network of conventional RAN and OpenRAN?
- Can 5G private networks compete with new WiFi offerings? Or 4G-LTE private networks? Or 5G based fixed wireless access (FWA) public networks?
- Will carriers be bypassed by new entrants offering 5G private networks using frequencies licensed by enterprise customers?
- What can OpenRAN and Private 5G providers do better, cheaper, and with more value than Classic RAN and Wi-Fi?
- Who are the competitors: Mobile carriers, legacy wireless infrastructure vendors, Wi-Fi players, new OpenRAN players, others?
- Where are the REAL opportunities for companies to take market share from the big base station vendors in both OpenRAN and private 5G?
- What are the barriers to success and what's being done to resolve them?

One important takeaway was that 5G Private Networks will likely offer a very good customized solution for various industry verticals, as illustrated by **Intel's Caroline Chan**. However, a 5G Stand Alone (SA) core network will be necessary to realize the various 5G features needed. Most "5G" networks currently deployed are 5G Non-Stand Alone (NSA) which use a 4G LTE infrastructure for all functions and features.

John Baker of Mavenir opined that there is a real requirement for 2G Open RAN solutions, particularly in many developing countries. Several panelists agreed with him. Mavenir has a specification for 2G OpenRAN, but it is not being considered at this time by the OpenRAN alliance.



Webinar participants (Clockwise): Alan J Weissberger (Moderator), Adil Kidwai (EdgeQ), John Strand (StrandConsult), John Baker (Mavenir), Jane Rygaard (Nokia), and Caroline Chan (Intel).

John Strand of StrandConsult was quite skeptical about the business case for OpenRAN. "I just feel it's too little, too late. We have today almost 200 5G 3GPP networks which have gone live worldwide," he said. "The reality is nowadays 10,000 sites are deployed every month." Meanwhile, members of the open RAN community largely boast about trials as if they are commercial orders for real-world deployments, he added. "Open RAN players will find it very difficult to sell their solutions to the classic operators," Strand concluded.

Other speaker/panelists were: **Jane Rygaard, Head of Dedicated Wireless Networks at Nokia (Denmark) and Adil Kidwai, Head of Product Management, EdgeQ (Santa Clara, CA).**

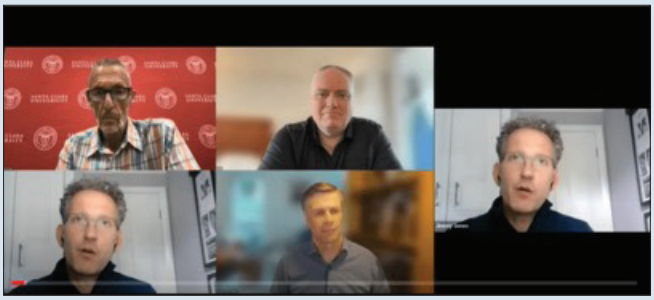
This workshop was covered by **SDxCentral** in two articles:

https://www.sdxcentral.com/articles/news/mavenir-nokia-execs-evaluate-state-of-open-ran/2022/03/

https://www.sdxcentral.com/articles/analysis/will-private-networks-squeeze-out-carriers/2022/03/

Cybersecurity for Cellular Networks and the IoT; Internet Control; Cloud Resident Data Centers

This panel session included Jimmy Jones of Zariot (extreme right and lower left), Colin Constable of the @Company, and Thomas Foerster of Nokia (middle of bottom row). Moderator Alan Weissberger is in the upper left corner of the image below



Cellular network security naturally leads into IoT security, since cellular networks (e.g. NB IoT, LTE-M, 5G) are often used for IoT connectivity.

It is estimated that by 2025 we will interact with an IoT device every 18 seconds, meaning our online experiences and physical lives will become indistinguishable. With this in mind it is critical to improve IoT security.

The real cost of a security breach or loss of service for a critical IoT device could be disastrous for a business of any size, yet it's a cost seldom accurately calculated or forecasted by most enterprises at any stage of IoT deployment. Gartner predicts Operational Technologies might be weaponized to cause physical harm or even kill within three years.

Jimmy Jones of Zariot stressed the importance of secure connectivity, while explaining the need to protect the full DNA of IoT (Device, Network and Applications) to truly secure the entire system.

Connectivity providers are a core component of IoT and have a responsibility to become part of the solution. A secure connectivity solution is essential, with strong cellular network standards/ specifications and licensed spectrum the obvious starting point.

Colin Constable of the @Company says ISPs should flip the security control of the Internet from the core to the network edge and the endpoint devices. To do that, he has defined a new networking layer and an application layer protocol. Furthermore, Colin cited several questions about the effectiveness of Encryption Keys to protect the integrity of data transferred:

- IT and Data security increasingly rely on encryption; encryption relies on keys; who has them?
- Is there really any point to VPN's Firewalls and Network segmentation if data is encrypted?
- We use keys for so many things TLS, SSH, IM, Email, but we never tend to think about the keys. Why not?
- Do you own your keys? If not someone else can see your data!
- What do we need to flip the way IT is architected?

His recommendations for Keys were as follows:

- Keys should be cut at the edge and never go anywhere else.
- You should be able to securely share keys along with the data being transmitted/received.
- There needs to be a new way to think about identity on the Internet.

Colin's challenge will be to get major ISPs to agree and to get co-authors to present his proposal to the IETF (Internet Engineering Trask Force) as a draft standard.

Thomas Foerster of Nokia noted that telecommunications networks are becoming more complex and reliant on networks of inter-connected devices. With the advent of 5G mobile networks, security threat vectors and the cybersecurity attack surface have expanded, especially with virtualized networks. The exposure of new connected industries (Industry 4.0) and critical services (connected vehicular, smart cities etc.) makes it even more important to secure networks and cloud resident data centers.

Here are Thomas' recommendations to prevent or **mitigate Data Center (DC) attacks:**

- Privileged Access Management across DC entities
- Individual credentials for all user/device entities
- MFA: One-Time Password (OTP) via text message or phone call considered being not secure 2-Factor Authentication anymore
- Network and configuration audits considering NIST/ CIS/ GSMA NESAS
- Regular vulnerability scans and keep network entities up to date
- Tested playbooks to mitigate security emergencies
- Business continuity planning and establish tested procedures

Conclusions

One of the few silver linings of the COVID pandemic lockdowns has been the rise of virtual webinars, which makes it possible for speakers, panelists and audience members to participate in events without having to travel. IEEE ComSocSCV and SCU SoE made very good use of that this Spring and we are quite proud of the results.

References

1. **Event Videos:** https://www.youtube.com/watch?v=fQoaEAbxQG0
   https://www.youtube.com/watch?v=i7QUyhjxpzE
2. **Presentation slides:** https://scv.chapters.comsoc.org/event/openran-and-private-5g-new-opportunities-and-challenges/
   https://scv.chapters.comsoc.org/event/critical-cybersecurity-issues-for-cellular-networks-3g-4g-5g-iot-and-cloud-resident-data-centers/

CONFERENCE REPORT

IEEE Austin Texas Section Hosts the IEEE ComSoc Wireless Communications and Networking Conference (IEEE WCNC 2022)

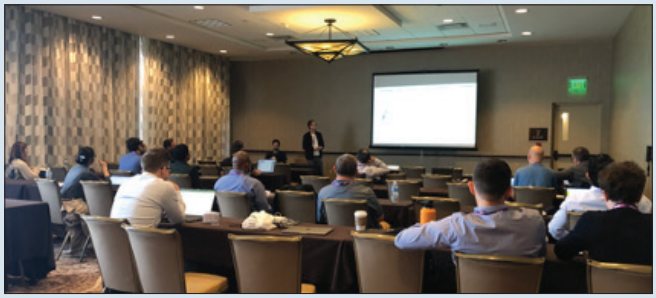
by Damian Valles, Texas State University, WCNC Social Media Chair, and Amit Patel, North Jersey Section ComSoc Chair, USA

Greetings from Austin, Texas. Home of this year's world wireless event, the IEEE Wireless Communications and Networking Conference (IEEE WCNC) 2022. The conference was a four-day event from April 10–13, 2022, held in person and virtually. For those who attended, the location was the beautiful Hilton Austin, located in the heart of downtown. Details about the event, keynotes, events, and topics are detailed online https://wcnc2022.ieee-wcnc.org/.

The conference not only enjoyed the warm and sunny days of spring, but its attendees also had access to Austin's vibrant culture as the Live Music Capital of the World and the city's 6th Street entertainment district. The conference was offered as a hybrid event with attendance from over 46 countries, with nearly half of the participants being virtual.

This year's theme was "Boosting Verticals into Wireless Orbit." Many vertical industries are rolling out 5G applications and using its support of ubiquitous mobile data traffic. Near meteoric growth has fueled exciting new services and solutions. Furthermore, on the heels of 5G is the new 6G standardization efforts defining the technology landscape for the next few decades.

Best technical paper recipients at WCNC'22



In-person technical session at WCNC'22

The organizing committee chairman Fawzi Behmann — Tel-Net Management Consulting and his team of fellow volunteers pulled together an excellent technical program with industry sponsors and exhibitors. The Organizing Committee was able to work in providing online and in-person services for each event of the conference and provide a great experience to all that traveled to Austin, Texas. The conference also offered for the first time a Women in Communications Engineering (WICE) Panel and the Hottest Start-up Session to provide an exchange of information on new ideas and career experiences.

The technical program committee chair Jeff Andrews — the University of Texas at Austin, and his team organized a diverse set of programming that covered a hybrid offering of keynotes, technical sessions, tutorials, workshops, industry-centered panels, presentations, and executive interviews and discussions. There were awards for best papers and generous student travel grants to enable increased participation.

The conference included Dialogue with Industry Leaders, 9 keynote speakers, 2 executive Forum sessions, 12 Industry Panels and special sessions, Startup Forums, 7 industry presentations and over 361 technical papers, 12 Tutorials, and 11 workshops.

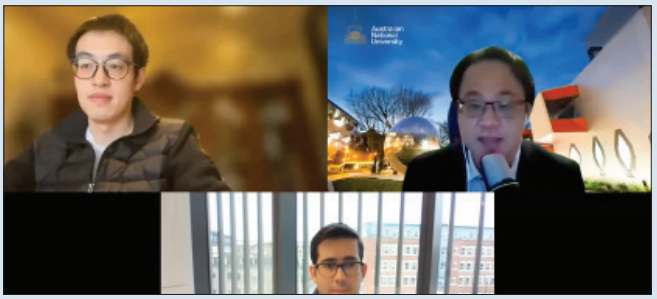
The technical sessions and panels covered a variety of topics. Just a sampling of which included: 5G and Beyond Applications for Industry 4.0 and Industry 5.0, Scaling in public and private networks with ORAN, AI for Network and Network for AI, 6G Cloud-native and AI-native Networks, Non-terrestrial Networks in 5G and 6G, How to Secure Future Communication Networks, From Theory to Practice: Emerging Antenna Array Technologies for 5G-Advanced. Papers from the conference covering these and many other topics can be found in the published proceedings.

Opportunities to participate in tutorials, workshops, and industry sessions were not in short supply. Many activities for each area allowed participants to see and hear great content and insights from leaders in the field.

The technical sessions occurred in person and on-demand. Many that attended in person were provided a great experience to engage with presenters and connect with colleagues with the same research work. Presenters represented all spectrums from industry and academia. The on-demand technical sessions were pre-recorded to offer asynchronous sessions that attendees could watch at their own pace.

The industry sessions provided an excellent opportunity to learn and see new technology ideas from many industry partners in wireless and communication research. The sessions provided experts showcasing industry methodologies and providing an exchange of ideas with colleagues. Audiences interacted in-person with specific questions and had opportunities to attend different industry-focused research discussions.

Industry session panel at WCNC'22



On-demand tutorial from the Australian National University

Most of the tutorials were offered for virtual attendees, along with three in-person tutorials at the conference. Most of the tutorials were pre-recorded for the virtual attendees to select specific topics and offered specific times where attendees had the opportunity to ask questions and interact with the tutorial developers online.

This year's WCNC was a spectacular success and showed the efforts of the volunteers and committee leadership in putting together a program with something for everyone. The technical program was packed with a balanced focus on academic presentations, industry perspectives, and educational sessions.

The best part is that WCNC will be back next time on the 26–29th of March 2023, Glasgow, Scotland, UK, https://wcnc2023.ieee-wcnc.org/ covering a variety of technical topics for all attendees and participants.

CHAPTER REPORT

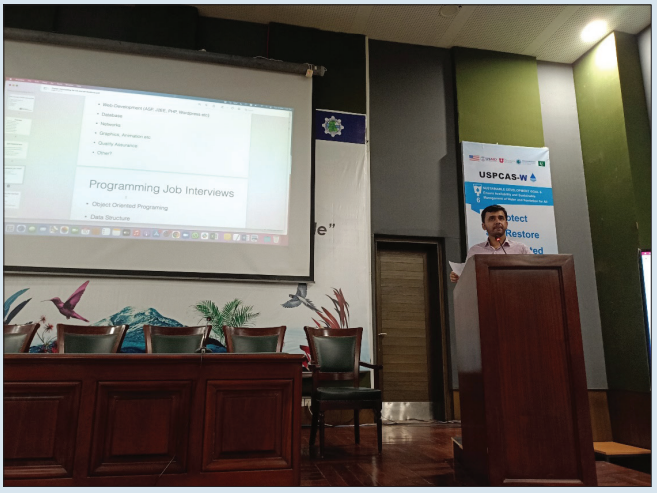
Pakistan Chapter

Workshop on Discovering The Abilities In Graduating Students

by Umair Ahmed Korai, MUET, IEEE ComSoc Karachi Section Chapter, Pakistan

The IEEE Communication Society (ComSoc), Mehran University of Engineering and Technology (MUET), Student Branch Chapter in collaboration with IEEE ComSoc Karachi Chapter, IEEE ComSoc Karachi Section, and QS World Merit organized a workshop titled as "Discovering the Abilities in Graduating Students Towards the Self-Assessment, Job Readiness and Job-Hunting Techniques," on May 10, 2022, at U.S.-Pakistan Center for Advanced Studies in Water (USPCAS-W) auditorium, MUET Jamshoro, Pakistan.

The objective of this workshop was to provide the career counseling and awareness about the possible job opportunities to the fresh graduates. This workshop aimed to develop the job hunting, self-assessments, and job readiness skills along with the career roadmap for fresh graduates. The guest speaker of this workshop was Mr. Waqas Soomro who is working as a CEO of Smart Mentor.io. The workshop was formally started with



Mr. Waqas Soomro, guest speaker of this workshop, delivering his lecture on career counseling and roadmap for fresh graduates

the recitation of the Holy Quran and the national anthem of Pakistan. Afterwards, Dr. Umair Ahmed Korai, Assistant Professor dept. of Telecom Engg., MUET and Vice Chair IEEE ComSoc Karachi Chapter, welcomed the chief guest, guest speaker, organizers, and participants. Prof. Dr. Aftab Ahmed Memon, DEAN faculty of Electrical Electronics and Computer Engineering, MUET Jamshoro, attended the workshop as a chief guest. After the welcome address by Dr. Umair, the guest speaker Mr. Waqas delivered his lecture for 01 hour and 30 minutes.

Mr. Waqas made the students aware of general questions being asked during an interview. He also discussed about the main skills required jobs. He further gave directions for writing personal resume. In last, he shared his visions and ideas about emerging social media app, such as LinkedIn, and its benefits for developing career as most of the people have initially started their career through social media apps like LinkedIn.

The total number of participants in this workshop were 94 out of which 23 were IEEE members and 71 were non-IEEE members. As the capacity of USPCAS-W auditorium is more than 200, hence COVID-19 Standard Operating Procedures were also followed. Before the end of the workshop many questions were asked from the participants and were answered very well by Mr. Waqas. The workshop was then ended with the special thanks to the guest speaker Mr. Waqas Soomro, coordinator, organizers, and participants by Ms. Hafsa Noaman, Chair IEEE ComSoc MUET Student Branch Chapter followed by a group picture with guest speaker and organizing team.

CHAPTER REPORT

Bangladesh Chapter

IEEE International Conference on Telecommunication and Photonics (ICTP) 2021

by Lutfa Akter, Md. Saiful Islam, Mohammed Imamul Hassan Bhuiyan and Satya Prasad Majumder, Bangladesh

The 4th IEEE International Conference on Telecommunication and Photonics (ICTP) was held at the Department of Electrical and Electronic Engineering (EEE), Bangladesh University of Engineering and Technology (BUET), Bangladesh during December 22-24, 2021. The Conference was organized by the IEEE ComSoc Bangladesh (BD) Chapter with the support of the Department of EEE, BUET.

Professor Dr. Md. Saiful Islam, Secretary of the Chapter was the Organizing Chair. On the other hand, Professor Dr. Raqibul Mostafa, Workshop/Tutorial Coordinator of the Chapter worked as the Publication Subcommittee Chair and Conference Coordinator of ExCom Professor Dr. Mohammed Imamul Hassan Bhuiyan worked as one of the Technical Co-Chairs. Treasurer of the Chapter Dr. Lutfa Akter contributed as the Treasurer of the Conference.

Around 96 technical papers from different countries, that include not only Bangladesh but also USA, UK, Japan, Australia, Poland, Portugal, Turkey, India etc., were submitted and peer reviewed. Based on the evaluations of the distinguished Reviewers at home and abroad and rigorous cross-checking of similarity with other works, only 37 papers were accepted for oral presentation. The Conference started with an Inaugural Ceremony on the 22nd December.

The Honorable Minister, Ministry of Posts and Telecommunications, Government of Bangladesh and the Honorable Vice Chancellor of BUET Professor Dr. Satya Prasad Majumder (Chair of the Chapter) were the Chief Guest and the Special Guest of the Ceremony, respectively. The Honorable Minister inaugurated the Conference. In addition to the registered authors, participants from various organizations, who provided valuable sponsorship to the conference, joined the Inaugural Ceremony. The accepted technical papers were presented in 07 different sessions where each paper was allotted fifteen minutes for presentation including three minutes for questions and answers. Ten renowned Speakers from reputed universities in USA, UK, Australia, Germany, and India presented Keynotes on different areas in telecommunications and photonics. There were also two Invited Talks by distinguished researchers from reputed universities in China and India on telecommunications and photonics.

A Tutorial Session was organized titled "Network: Technology: Industry Practice in Bangladesh" and was attended by the Conference Registrants as well as interested students. A Panel discussion was also organized on Present Status and Emerging Trends of Telecommunication with attendees from various telecommunication entities in Bangladesh as well the Conference Registrants. The Conference ended with a Closing Ceremony where three best paper awards were given for best papers.

GCN GLOBAL COMMUNICATIONS NEWSLETTER

STEFANO BREGNI
Editor-in-Chief
Politecnico di Milano, Italy
Email: bregni@elet.polimi.it

FABRIZIO GRANELLI
Associate Editor
University of Trento, Italy
Email: fabrizio.granelli@unitn.it

IEEE COMMUNICATIONS SOCIETY – MEMBER AND GLOBAL ACTIVITIES
ANA GARCIA-ARMADA, VICE-PRESIDENT FOR MEMBER AND GLOBAL ACTIVITIES
RICARDO VEIGA, DIRECTOR FOR MEMBER SERVICES
ANDRES NAVARRO, DIRECTOR OF LA REGION
FAWZI BEHMANN, DIRECTOR OF NA REGION
LUCA FOSCHINI, DIRECTOR OF EMEA REGION
TOMOAKI OTSUKI, DIRECTOR OF AP REGION
BAEK-YOUNG CHOI, CHAIR OF THE WICE STANDING COMMITTEE
PERIKLIS CHATZIMISIOS, CHAIR OF THE YP STANDING COMMITTEE
REGIONAL CORRESPONDENTS WHO CONTRIBUTED TO THIS ISSUE
Amit Patel, USA (a.j.patel@ieee.org)
Ewell Tan, Singapore (ewell.tan@ieee.org)

IEEE ComSoc IEEE Communications Society

www.comsoc.org/gcn
ISSN 2374-1082