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INTERVIEW

IEEE ComSoc in the Asia Pacific Region

Interview with Lingyang Song, IEEE ComSoc AP Region Director

by Stefano Bregni, Global Communications Newsletter Editor-in-Chief, IEEE Division III Director, and Lingyang Song, IEEE ComSoc AP Region Director

This article continues the series of ten interviews with the Officers of the IEEE ComSoc Member and Global Activities (MGA) Council for the term 2024–2025, which is published every month in the Global Communications Newsletter.

In this series of articles, I introduce the Vice-President and the six Directors of the MGA Council (namely: Member Services, Industry Outreach, and AP, NA, LA, and EMEA Regions), as well as the three Chairs of the Women in Communications Engineering (WICE), Young Professionals (YP), and Sister Societies Standing Committees. In each interview, one by one, they present their sector activities and plans.

Stefano Bregni

Lingyang Song

In this issue, I interview Lingyang Song, IEEE ComSoc Asia Pacific (AP) Region Director.

Lingyang Song received his Ph.D. from the University of York, United Kingdom, in 2007, where he received the K. M. Stott Prize for excellent research. He worked as a research fellow at the University of Oslo, Norway, until rejoining Philips Research UK in March 2008. In May 2009, he joined the Department of Electronics, School of Electronics Engineering and Computer Science, Peking University, and is now a Boya Distinguished Professor. His main research interests include wireless communication and networks, signal processing, and machine learning. He was the recipient of the IEEE ComSoc AP Young Researcher Award in 2012, the IEEE ComSoc Leonard G. Abraham Prize in 2016, the IEEE ComSoc Heinrich Hertz Award in 2021, and the IEEE ComSoc AP Outstanding Paper Award in 2021. He is a fellow and a distinguished lecturer of the IEEE.

Stefano: Hello Lingyang! Please, would you introduce a bit of the Asia Pacific Region and Board to our readers?

Lingyang: The IEEE ComSoc AP Board (APB) offers an exceptional platform for stimulating, coordinating, and promoting the activities of ComSoc members and Chapters throughout the AP region.

The AP Region has grown to be the largest in number of members and geographical area in IEEE ComSoc. The AP region now accounts for 42% of ComSoc members (AP/World = 10,575/25,242 in 2023). Besides ComSoc, the AP region now accounts for 41% of IEEE members (AP/World = 187,221/460,709 in 2023).

This is your first time serving as IEEE ComSoc AP Region Director. How was your first impression when you were appointed? And on the first days after you started serving in your new position? What was the first difficulty you faced?

I have long-time service experience for IEEE ComSoc APB, beginning in 2013 as the Vice Chair of the Membership Development Committee (MDC). I subsequently held roles as Vice Chair and then Chair of the Technical Affairs Committee (TAC) until 2021. Following that, I served as the Vice Director of APB, mainly responsible for TAC, until 2023. Upon being appointed as the APB director in 2024, my first impression was a profound sense of honor and responsibility. The opportunity to lead and represent such a distinguished board filled me with both excitement and a deep sense of duty.

In the first days after starting my new position, I was warmly welcomed by an incredibly supportive and enthusiastic team. Perhaps the first difficulty I encountered was the need to enhance the APB platform to encourage more ComSoc members to join. From 2022 to 2023, the number of ComSoc AP members has decreased from 11,649 to 10,575 (–9.2%). Addressing this decline and finding ways to boost membership is one of the top priorities for me as the new APB Director in 2024.

What are the most difficult challenges that you face in the AP Region?

One challenge that I face in the AP region is to increase the membership. As mentioned earlier, the region has seen a decline in membership. Reversing this trend and increasing member engagement, especially in under-represented geographical regions, is a top priority.

Another challenge that I face is to enhance diversity, especially to help junior researchers and women researchers in their career progression. It's crucial that we create an inclusive environment that encourages and nurtures talent from all backgrounds.

Furthermore, the rapid pace of technological advancements, particularly in areas such as artificial intelligence, presents both an opportunity and a challenge. AI has recently made a profound impact on the fundamental principles and key technologies of wireless communications, and we must stay at the forefront of these developments.

The Distinguished Lecturer Program (DLP) and the Distinguished Speaker Program (DSP) are particularly appreciated by our Members. What are your most recent activities under these ComSoc Programs?

Annually, the Chapter Coordination Committee (CCC) of APB collaborates with the IEEE AP office in running the Distinguished Lecturer Program (DLP). DLP provides the means for ComSoc chapters to identify and arrange lectures by renowned experts on communications and networking-related topics.

In 2024, notable lectures included "Reconfigurable Intelligent Surfaces for Communications and Radar" by Prof. Kumar Vijay Mishra, held in Kolkata, Guwahati, Silchar, Balasore, Bhubaneswar, and Jabalpur, "Enabling Terahertz Communications for 6G and Beyond Wireless Networks" by Prof. Nan Yang, held in Seoul, Yokohama, Osaka, and Taipei, and "Security Enhancements of 5G Wireless Networks/Security Enhancements of the Internet of Things/Security Enhancements of NDN Networks" by Prof. Maode Ma, held in Canberra and Townsville.

What are other membership activities in the AP Region that you consider most significant and you would like to highlight in particular?

Each year, the Technical Affairs Committee (TAC) of APB selects winners for the AP Young Researcher Award and the AP Outstanding Paper Award. The AP Young Researcher Award honors young active researchers in IEEE ComSoc publications and conference activities over the last 3 years, and the AP Outstanding Paper Award honors outstanding original papers authored by members in the AP region over the last 3 years.

The Women in Communication Engineering Committee (WICEC) of APB was newly created in 2022 to promote the visibility and roles of women communications engineers in the AP region. It promotes WICE activities to make connections among women researchers and increase the number of young women researchers. The number of IEEE Women Members in the AP region increased from 36,219 to 43,776

(+20.9%) from 2022 to 2023, and the AP region comprised 55.7% of IEEE women members (AP/World = 43,776/78,612) in 2023.

The AP WICE Outstanding Achievement Award was newly established in 2024. This new award recognizes women engineers of IEEE ComSoc from the AP region who have done outstanding technical work and achieved high visibility in the broad field of communications engineering.

The Young Professionals Committee (YPC) of APB seeks to engage young professionals and students in the communications disciplines through educational workshops and professional development activities. Many seminars and workshops are held to facilitate the exchange of insights and experiences between distinguished researchers and young professionals every year.

As an example, YPC hosted a seminar in Beijing, China, on August 10, 2024, where many inspiring talks were presented, such as "How IEEE ComSoc can Help Your Career Development" by Prof. Sherman Shen (former president of ComSoc), "Emerging WLANs Technology: Future Directions and Open Challenges" by Prof. Nei Kato (chair of ComSoc Sendai chapter), "Deep Learning based Radio Map for MIMO and Cell-Free Massive MIMO" by Prof. Wei Zhang (vice president of ComSoc), "AIGC for Wireless Data" by Prof. Shiwen Mao (member-at-large of ComSoc board of governors), and "Task-Oriented Semantic Communications with Modularized Communication-Learning Co-design" by Prof. Angela Zhang (member-at-large of ComSoc board of governors).

To conclude, what are your plans for 2025?

To take the APB to the next level of excellence, the APB team will work closely to provide better services to members in the dynamics of the membership and technical areas. Specifically, we aim to expand our membership base, with a particular emphasis on underrepresented geographical regions.

Furthermore, we intend to foster the growth of ComSoc's technical areas through interdisciplinary research. We also plan to enhance diversity and inclusion among participants in ComSoc activities, helping junior researchers and engineers in their career progression.

Finally, we are committed to strengthening the communication platform for all AP regional members, facilitating connections and exchanges. Overall, we will become even more proactive in APB activities.

CHAPTER REPORT

IEEE ComSoc Lebanon Chapter Event Series: Resilience Through Knowledge Sharing

by Jacques Demerjian, IEEE ComSoc Lebanon Chapter Chair

Note from the Editor-in-Chief: This report was submitted some months ago before Lebanon got involved in a war. My solidarity goes to the IEEE ComSoc Members of the Lebanon Chapter and all those who are suffering as a result of wars there and anywhere in the world.

In a country beset by economic crises, a collapsed banking system, and the persistent danger of war, the IEEE ComSoc Lebanon Chapter has remained steadfast in its commitment to fostering knowledge, innovation, and community through a series of impactful events. Despite the challenging environment, our chapter has organized and co-organized a variety of approximately 25 events in 2023 and 2024, each designed to serve the needs of our professional and academic communities.

These events fall into four distinct categories: the IEEE ComSoc Lebanon Chapter Workshop Series, the IEEE ComSoc Lebanon Chapter Lecture Series, the IEEE ComSoc Lebanon Chapter Social Event Series, and the Conferences.

Workshop Series: Empowering Technical Proficiency

The IEEE ComSoc Lebanon Chapter Workshop Series is dedicated to providing hands-on, practical knowledge in emerging technologies. Our workshops aim to bridge the gap between theoretical understanding and real-world application. By focusing on topics such as Artificial Intelligence, Raspberry Pi programming, Arduino, Machine Learning, LaTeX editing, 6G: Technologies and Challenges, etc., we empower our participants — ranging from students to professionals — to enhance their technical skills, thereby increasing their competitiveness in a global market.

Lecture Series: Expanding Horizons Through Expert Insights

Our Lecture Series serves as a platform for experts from various fields to share their insights and experiences. These lectures are not only an opportunity for knowledge dissemination but also for fostering critical discussions on contemporary issues in technology and communication. We believe that by bringing together thought leaders, we can inspire new ideas and solutions that address both local and global challenges. A variety of lectures have been presented:

- Automated Risk Assessment Using Game Theory and Monte Carlo Simulations (Dr. Mohamed Nassar, University of New Haven, USA)
- Achieving Configuration Security through Moving Target Defense (Dr. Shuvalaxmi Dass, University of Nebraska at Kearney, USA)
- Immersive Technologies: A Journey into Virtual and Augmented Reality (Dr. Walid Karam, University of Balamand, Lebanon)
- From modular robotics to programmable matter, some hardware and algorithmic perspectives (Dr. Benoît Piranda, University of Franche-Comté, France)
- On Darkweb's Anonymity Networks (Dr. Jacques Bou Abdo, University of Cincinnati, USA)

IEEE Day 2023 Minifootball & Streetball Fiesta at Antonine University.

The Lebanon Chapter Chair (bottom right) and Officers are celebrating a successful Chapter event.

LEBANON — Social Event Series: Building a Stronger Community

In addition to our technical and educational events, the IEEE ComSoc Lebanon Chapter recognizes the importance of social engagement. Our Social Event Series is designed to strengthen the bonds within our community by providing a space for networking, collaboration, and mutual support.

A prime example of this is the "IEEE Day 2023 Minifootball & Streetball Fiesta," held at Antonine University. This event featured Minifootball and Streetball competitions with teams composed of students (IEEE members and non-members), Chapters/Joint Chapters (JC), Young Professionals (YP), and Affinity Groups. The fiesta was a vibrant celebration of teamwork and sportsmanship, attracting 160 participants who came together to compete, connect, and enjoy a day of friendly competition.

Such events not only demonstrate our ability to organize conferences and seminars that attract researchers and students but also highlight our capability to create sporting events that bring together young and old, fostering a positive and inclusive atmosphere. These efforts help build a resilient community that can withstand the pressures of our challenging environment.

ORGANIZING/CO-ORGANIZING CONFERENCES

The IEEE ComSoc Lebanon Chapter has been instrumental in promoting knowledge and collaboration through the organization of conferences and events that unite experts and enthusiasts in the communications field.

These conferences offer significant learning opportunities while also reinforcing our collective strength and resilience. Notable examples of our co-organized events include the Open Day for Artificial Intelligence (ODAI'24) and the IMCET'23 (IEEE International Multidisciplinary Conference on Engineering Technology) Conference, among others.

MOTIVATION: PERSISTENCE IN THE FACE OF CHALLENGES

Organizing these events in Lebanon, a country facing significant challenges, is a testament to our chapter's resilience and dedication. The economic collapse, banking system failures, and ongoing threats of conflict have made it increasingly difficult to maintain professional and academic activities. Yet, it is precisely in these times of hardship that we see the value in our efforts. By continuing to host these events, we offer a beacon of hope and a reminder that, even in times of challenges, there is room for growth, learning, and collaboration.

Our motivation stems from a deep belief in the power of knowledge and community. We are driven by the conviction that, despite the obstacles, we can still contribute to the global discourse on communication technologies and help our members stay at the forefront of their fields. The IEEE ComSoc Lebanon Chapter Event Series is more than just a series of events; it is a symbol of persistence, resilience, and the enduring spirit of our community. Much like the Phoenix Myth, symbolizing hope, continuity, and the unyielding nature of its Lebanese people, we can rise from the ashes and get on with our lives.

CHAPTER REPORT

IEEE ComSoc Delhi Chapter

Unlocking the Potential of 6G: Technologies and Challenges

by Vivek Ashok Bohara, IEEE ComSoc Delhi Chapter Chair, India

The Indraprastha Institute of Information Technology Delhi (IIIT-Delhi) recently conducted a 2-day skill development and training workshop titled "Unlocking the Potential of 6G: Technologies and Challenges" on 19th and 20th July 2024. This workshop was sponsored by the SPARC (Scheme for Promotion of Academic and Research Collaboration) Project, an initiative by the Ministry of Human Resource Development, Government of India, and supported by the IEEE Communication Society, Delhi Chapter. It also had the support of the IEEE VTS Delhi Chapter and IEEE Communication Society, Lebanon Chapter.

The workshop aimed to share insights on the latest research in wireless communication from various perspectives, such as THz communication, quantum communication, non-terrestrial networks, and high mobility communications on a global scale. Its primary goal was to enhance the knowledge of faculty, students, and industry professionals in advanced topics of telecommunications and allied domains, offering a unique balance between theory and hands-on lab experiments.

The first day began with a warm welcome from the Organizing Committee, led by Prof. Vivek Ashok Bohara from the Department of ECE at IIIT-Delhi and Chair of the IEEE Communication Society Delhi Chapter. This was followed by a greeting from Prof. Ranjan Bose, Director IIIT-Delhi, addressing around 90 participants.

The workshop featured both theoretical presentations and practical demonstrations over two days. The first day included presentations by renowned speakers from academia and industry. Prof. Emil Björnson, IEEE fellow and Professor, KTH Royal Institute of Technology, Stockholm, Sweden, delivered a talk on "Massive Near-Field Spatial Multiplexing: Higher Capacity Without More Bandwidth." This talk discussed the concepts of radiative near-field propagation, spherical wavefronts, finite-depth beamforming, and spatial degrees of freedom, which will be explained and connected to the physical antenna array dimensions. Dr. Abhishek Kumar, Assistant Professor at JNCASR, further introduced "Terahertz Topological Photonic Integrated Circuits for 6G Communication." Dr. Neel Kanth Kundu presented on "Quantum Communications in 6G Wireless Networks." In the afternoon, a representative from Rohde & Schwarz discussed industry advancements in 6G communication, followed by a hands-on demonstration by Mr. Rahul on solar communication.

The second day started with a talk on "BEM Receivers for Severe Doubly Selective Fading Communication Channels" by Prof. Yong Liang Guan, Distinguished Lecturer, IEEE VTS and Professor, NTU Singapore. In this talk, Prof. Guan also shared recent results in advancing this research by exploiting BEM (Basis Expansion Model) channel estimation, pseudo-pilot, joint channel estimation and equalization, and other concepts. Prof. Vivek Ashok Bohara then presented on "Vehicular-Visible Light Communication for 5G and Beyond 5G V2X Communication." The morning session concluded with Dr. Nadine Abbas from Lebanese American University discussing "UAV-Aided Strategies for Advancing Communications." Dr. Abbas is also a representative of the Lebanon Chapter, with the IEEE ComSoc Lebanon Chapter and the Delhi Chapter being part of the IEEE Sister's Chapter Program. In the afternoon, Ms. Saswati provided a hands-on demonstration on indoor Li-Fi communication, followed by Mr. Khagendra's demonstration on indoor IRS-assisted communication.

After the valedictory function.

Workshop practical session.

This workshop was unique due to its mix of theoretical talks and practical hands-on sessions, providing participants with firsthand experience of current research in 6G cellular systems. The sessions were open to all workshop attendees and students. Participant feedback was very positive, appreciating the initiative by the SPARC Project, IEEE ComSoc Delhi Chapter, and the ECE Department of IIIT-Delhi.

WORKSHOP

3rd Women in Smart Communications (WiSC) Workshop

Held at IEEE MeditCom, Madrid, Spain, 2024

by Lina Mohjazi, IEEE UK and Ireland ComSoc Chapter

The 3rd edition of the Women in Smart Communications (WiSC) Workshop took place on July 10, 2024, showcasing leading female experts in wireless communication technologies from both academia and industry. Organized by IEEE WIE UK & Ireland, IEEE ComSoc UK & Ireland, IEEE WIE IEEE ComSoc Spain, and IEEE WICE, the event offered a platform to discuss cutting-edge developments in smart communication networks alongside fostering youth empowerment in network design and innovation.

Chaired and moderated by Dr. Lina Mohjazi, Assistant Professor at the University of Glasgow, the workshop hosted Technical Talks and a Panel Discussion, delivering thought-provoking insights into the advancements of smart wireless communications and the role of women in pushing the boundaries of this rapidly evolving field.

Technical Talks: Insights into the Future of Wireless Communication

The first session featured inspiring technical talks from renowned female experts from academia and industry, who shared groundbreaking research and innovation shaping the future of wireless networks.

Prof. Sinem Coleri from Koc University, Turkey, presented her talk titled *AI-Based Ultra-Reliable Wireless Networked Control Systems in 6G*. Her presentation delved into the transformation of wireless communication from human-centric networks to the machine-driven world of 5G and beyond. She explored how generative AI and optimization techniques are being applied to ultra-reliable channel modeling, pushing the boundaries of control systems in 6G networks. The use of AI promises higher accuracy and adaptability, enabling new applications like remote surgery and autonomous vehicle platoons.

Dr. Francesca Marcello from the University of Cagliari, Italy, discussed *Empowering Wellness: Human Behaviour Recognition for Well-being and Sustainability*. Her research focuses on how the Internet of Things (IoT) and behavior recognition technologies can optimize energy usage and improve user well-being in smart buildings. Through advanced sensor networks and wearables, her work highlights how monitoring human habits can lead to behavioral changes that benefit both personal health and the environment.

Dr. Marta Orduna from Nokia, Spain, explored the potential of inclusive technology in her talk titled *INCLUVERSO 5G — Inclusive Immersive Communication Experiences Over 5G Networks*. Dr. Orduna's research in immersive communications aims to promote inclusion, particularly for individuals with psychosocial vulnerability. Her work within the *INCLUVERSO 5G* project demonstrates the possibilities of using XR technologies to provide virtual training and remote assistance to vulnerable communities, all supported by private 5G networks.

Panel Discussion. From left to right: Lina Mohjazi, Sinem Coleri, Francesca Marcello, Marta Orduna, and M. Julia Fernández-Getino García.

Lina Mohjazi welcomed the audience.

Prof. M. Julia Fernández-Getino García from Universidad Carlos III de Madrid, Spain, wrapped up the session with her talk, *Challenges in Pilot Transmission for Multicarrier-Based Communications Towards 6G*. Prof. García's research tackles the challenges of pilot transmission in upcoming 6G networks. With the ever-increasing demand for data, she discussed alternative strategies for efficient channel estimation and synchronization, paving the way for the high-mobility and long-distance applications of the future.

Panel Discussion: Women Advancing Smart Communications: Building Reliable Systems and Empowering Behavioural Change

Following the technical talks, the event continued with an engaging panel discussion titled *Women Advancing Smart Communications: Building Reliable Systems and Empowering Behavioural Change*. Reflecting on their career journeys, the panelists discussed strategies to empower young innovators in network design and modeling. The panel focused on the need for mentorship and skill development to enable the next generation of leaders in the field to build more reliable and sustainable systems. The panel also discussed how to navigate the career challenges in a man-dominated field.

With a commitment to fostering innovation and promoting gender equality in the field, the WiSC Workshop was attended by 50 in-person and online attendees and received significant engagement and interest. The event stood as a beacon of inspiration for young professionals, particularly women, looking to make their mark in smart communication technologies.

This year's WiSC event truly highlighted the intersection of technology and societal impact, with women leading the charge toward a more connected, sustainable future.

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