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INTERVIEW

Promoting the Visibility and Professional Growth of Women in Communications Engineering (WICE)

Interview with Toktam Mahmoodi, IEEE ComSoc WICE Committee Chair

by Stefano Bregni, Global Communications Newsletter Editor-in-Chief, IEEE Division III Director, and Toktam Mahmoodi, IEEE ComSoc WICE Committee Chair

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 Toktam Mahmoodi

In this issue, I interview Toktam Mahmoodi [S'06, M'09, SM'16], IEEE ComSoc WICE Committee Chair. Toktam is a Professor of Communication Engineering and Director of the Centre for Telecommunications Research (CTR) at King's College London. Previously, she was a visiting research scientist at F5 Networks, a research associate at Imperial College London, a Mobile VCE researcher, and a telecom R&D engineer. Toktam is chair of IEEE WICE and vice-chair of the IEEE ComSoc Aerial Communication Emerging Tech initiative. Her research focuses on the areas of mobile and cloud networking and includes network intelligence, edge learning and networking, ultra-low latency networking, and network modeling and optimization. She has contributed to the ETSI, IETF, and 3GPP standards, and has played an active role within 5GPPP in defining 5G vision for vertical industries. She has also served on several editorial boards including the executive editor of ETT, guest editor of the JSAC series on network softwarization, area editor of IEEE Communications Standard Magazine on management & orchestration, and editor of IEEE communication letters. Toktam served as technical committee chair and member of various IEEE ComSoc conferences, including ICC, GLOBECOM, PIMRC, WCNC, and ICT.

Stefano: Hello Toktam! What is the IEEE ComSoc WICE Committee? What are its goals?

Toktam: The Women in Communications Engineering (WICE) is a Standing Committee of the IEEE Communications Society, reporting to the Member and Global Activities (MGA) Council. Its mission is to promote the visibility and roles of women networking and communications engineers and to provide a venue for their professional growth. Any woman ComSoc member is automatically a member of WICE. Anyone supporting Equity, Diversity, and Inclusion is also welcome to join WICE.

What are your impressions after your three years serving as a WICE Member and now Chair?

I have been the WICE chair since Jan 2024, and vice-chair since Jan 2022. One of the amazing achievements in this 3-year window is the representation of women in ComSoc membership, with an increase from 11% in early 2022 to 20% at the end of 2024.

It is a vivid community, with an active committee and a large number of volunteers, organizing a significant number of events in ComSoc conferences to promote the visibility and roles of women communications engineers and to provide a venue for their professional growth.

WICE has active social media channels on LinkedIn and Instagram, where events and activities are publicized.

Any ComSoc member is welcome to the WICE events and is encouraged to join WICE social media channels for up-to-date news on the events and activities.

What is the composition of the WICE Committee?

The WICE committee has 15 members serving in different roles including secretary, publicity chair, award sub-committee, industry liaison, student activity coordinator, coordination with WIE, as well as four members-at-large. The WICE committee members are volunteers who are ComSoc members and work together passionately towards the WICE mission.

Would you please recall some of the main activities and events organized by WICE during 2024?

WICE organized technical sessions, panels, and mentoring, as well as career coaching and career inspiration events in eight conferences in 2024.

The aim of technical sessions and panels is two-fold, to provide further visibility to senior female colleagues, as well as being inspirational venues for the younger generation of ComSoc members.

The other events aim to target a spectrum of career stages from junior to mid-senior level, providing opportunities for mentoring, career coaching in leadership, and other senior training opportunities e.g. elevation to ComSoc Fellow.

Among programs supported by WICE, the ComSoc Child Care Grant is one of the most appreciated at ICC and GLOBECOM conferences. Would you please recall its mission and why is it so appreciated by members?

One of the best WICE initiatives is the Child Care program, which is received enthusiastically by the community, but has its challenges. While WICE has been offering childcare grants in ComSoc flagship conferences, we also acknowledge that often finding childcare support in another country, i.e. the conference venue, is a major challenge for families. In addition to the childcare grant, in 2024, WICE sponsored a dedicated childcare space with suitable facilities at the conference venue. Through local volunteers, we also supported parents in finding local childcare providers.

The past year, the program was run in ICC 2024 in Denver, USA, and GLOBECOM 2024 in Cape Town, South Africa. Some of the parents' testimonies include the following.

"From my daughter's perspective, she absolutely loved it. She kept on saying, "Let's go to the conference!" even after the conference ended. From a parent perspective, I really like that I could attend the conference along with my daughter and swing by her room whenever I had some time to check on her."

"As a family of two academic researchers, attending conferences with our child has always been a complicated process. This time at ICC 2024, it has been exceptionally easy thanks to the on-site childcare service provided by WICE."

The childcare program also created a networking and peer-support opportunity for parents attending the conference, as

"The childcare service not only provided my son with a safe and engaging environment where he made new friends, but it also allowed me to connect with and become friends with other parents."

What are your plans for 2025?

In 2024, we tried more than ever to reach out to other bodies and initiatives that share similar missions and ambitions to WICE, e.g. WIE at the IEEE level, ACM-W, and N2Women. We organized multiple events in 2024, in collaboration with WIE, e.g. in WCNC 2024, and GLOBECOM 2024. We are also planning events with ACM-W in INFOCOM 2025 and with N2Women in ICC 2025.

We also tried to proactively reach out to conference organizers, helping with achieving greater gender balance in technical committees, keynote speakers, and other highly visible roles. I am delighted to see for example GLOBECOM 2024 had an equal number of male and female keynote speakers from across academia and industry.

Our childcare program is still in its infancy and while we continue trying different models of supporting parents that fit within the IEEE legal framework, we also continue working with the legal team aiming to change policies in the direction of providing more support to young families and parents while attending ComSoc conferences.

Finally, building on the amazing progress we had with closing the gender gap in ComSoc membership, we would like to see such progress in senior-level members such as Fellows. In 2025, WICE is planning a series of online workshops for supporting ComSoc female members in their fellowship applications.

Any more remark you wish to make, to conclude our conversation?

As the first year of my term as the WICE chair comes to an end, I would like to take this opportunity to express my gratitude and appreciation to the entire WICE Board, who works passionately and tirelessly in their volunteering roles.

I am also grateful for the time and dedication of all volunteers who organize WICE events at conferences, as well as the speakers, panelists, and attendees on whom the event's success depends.

I would also like to thank you, Stefano, the ComSoc President, the MGA as well as the ComSoc staff for their amazing support. My wish is that WICE will continue to thrive, and thus, contribute to the growth of our Society.

COMSOC CONFERENCE

IEEE Latin-American Conference on Communications (LATINCOM 2024)

6–8 November, 2024, Medellín, Colombia

by Sergio Armando Gutiérrez, General Co-Chair, Natalia Gaviria Gómez, General Co-Chair, George Rouskas, Technical Program Co-Chair, Juan Felipe Botero, Technical Program Co-Chair

LATINCOM 2024 Is Back To Medellin Seven Years After Last Time In The City And Fifteen Years After Its Creation

Medellin, the second most important city in Colombia, district of Science, Technology and Innovation welcomed IEEE LATINCOM 2024 between November 6 to 8. In this city, where the conference was held for the first time fifteen years ago, IEEE ComSoc and Universidad de Antioquia organized this year's edition that brought together researchers, students, and industry practitioners from various sections of the Communications and Networking field.

The response to the call for papers at the conference was strong and wide, making this edition substantially diverse as signified by the submission of 98 works from various countries around the world. In addition to an important Latin American representation, the program also included papers submitted from North America, Asia, and Europe.

Conference Facts and Statistics

The conference received 98 submissions. After an exhaustive review process, 49 papers were accepted for an acceptance ratio of 50%. We had 83 active TPC members that contributed 329 total reviews with an average of 4 reviews per member.

The authors of the papers came mainly from Latin American countries such as Brazil, Colombia, Chile, and Ecuador. However, the conference had submissions from all over the world, receiving papers from Belgium, Canada, Chad, France, Italy, Japan, and Spain, among other countries, confirming the growth of IEEE Latincom internationally which enables it to reach a broad and diverse public.

The topics that attracted the most submissions were: "Mobile and Wireless Networking," "Selected Areas in Communications," "Communication QoS, Reliability and Performance," and "AI, Big Data and ML for Networking." This fact shows the importance of the transition to 6G technologies and the integration of network management technologies with automation that can be implemented using AI/ML techniques.

Keynotes

IEEE LATINCOM 2024 had the honor to include in its technical program four keynote speeches delivered by top researchers in different fields of Communications.

From Colombia, Professor Oscar Caicedo presented advances in the applications of Large Language Models, an innovative approach to Artificial Intelligence, in the context of Network Management. From Canada, Professor Sandra Cespedes presented her pioneering work on Interplanetary Networking, covering different challenges that communication networks face in the context of multi-satellite infrastructures.

From Türkiye, Professor Sinem Coleri, who is also a member of the ComSoc Distinguished Lecturer program, introduced her recent research and development efforts in the context of explainable and generative AI in 6G networks.

Finally, from Belgium, Professor Steven Latré, Vice President of Research and Development at Imec, wrapped up the keynote sessions with his presentation on the transformations that Machine Learning represents for computer networks.

These enlightening keynote presentations addressed important and relevant topics at the forefront of the state-of-the-art and put

Natalia Gaviria Gómez (left) and Sergio Armando Gutiérrez (right), General Co-Chairs, with Oscar Caicedo (center), Keynote Speaker.

The banquet dinner was held in the Aquarium of Parque Explora, the largest fresh water aquarium in Latin-America.

forward the challenges that will drive the research and development in the communications and networking field in the near future.

Panels

IEEE LATINCOM included in its program two panels that enabled discussion spaces between industry and academia.

On the one hand, the IEEE WICE/YP (Women in Communications Engineering / Young Professionals) panel addressed challenges in telecommunications covering topics from the introduction of Artificial Intelligence, the recent cybersecurity threats, and novel countermeasures, to the overall opportunities driven by 5G.

On the other hand, the panel on Cybersecurity on Critical Infrastructures enabled an interesting discussion and ideas exchange from the perspectives of industry, academia, and representatives of a company operating the electrical infrastructure in Colombia.

Tutorials

From the perspective of providing hands-on demonstrations of state-of-the-art topics, the conference included two tutorials. On the one hand, Professor Jose Brenes and Adrián Lara, from Universidad de Costa Rica introduced traffic monitoring from home assistants, a relevant topic from the context of understanding IoT traffic.

On the other hand, Professor Miguel Camelo from the University of Antwerp presented the development of digital twins by using Graph Neural Networks, an important artifact that enables research and experimentation at large scale in computer networks.

Technical Sessions

Out of the 98 submissions received due to the wide acceptance of the conference Call for Papers, 49 papers were selected after a rigorous review process performed by the Technical Program Committee.

These 49 papers were organized in 12 technical sessions delivered during the three days of the conference, including topics such as Security, Applications of Artificial Intelligence and Machine Learning in the context of Computer Networks, Tools, Sensors and Vehicular Networks, Cloud Computing Reliability and Optical, Wireless and Mobile networks, from Physical and Access Layers to Infrastructure. 48 of the submitted papers had oral presentations with important attendance and constructive questions that contributed to enlarging the understanding of the presented work and highlighting the relevance of the respective contributions.

The best paper of the conference was in the area of Vehicular Networks, achieving an outstanding evaluation from the reviewers.

Attendees at the Aquarium of Parque Explora.

Welcome Reception and Banquet

The main venue of the conference was the Four Points Sheraton Hotel in Medellin. In this same place, the conference had a welcome reception on the first day of the conference. This was an important social networking space that allowed a productive interaction among the attendees, the keynote speakers, and the researchers who enriched the conference with their presence.

Also, to provide a memorable experience to the participants of IEEE LATINCOM 2024, the organizing committee chose as venue for the Banquet the Aquarium of Parque Explora. This facility, which is the largest freshwater aquarium in Latin America, contains a wide set of fauna from the main rivers of Colombia, including fishes from the Amazonas River. This aquarium is one of the most noticeable and outstanding venues in Medellin, remarking the vocation of the city to science and innovation. The attendees have the opportunity to spend a networking space, while enjoying the dinner, in one of the most attractive places in the City.

Conclusion

LATINCOM 2024 has been an opportunity to confirm the potential of the Latin-American community to generate high-quality research in the communications and networking field. This edition provided a relevant forum for the exchange of ideas among researchers and students from different countries and made it possible to obtain an overview of the most relevant topics and challenges that are shaping the area.

For the organizing committee and Universidad de Antioquia, it was an honor to have this opportunity to hold the conference, trusting it boosts further innovations and contributions, based on the cooperation links developed in this space.

CHAPTER REPORT

Tutorial on Amateur Radio at IEEE MELECON 2024, Porto, Portugal

by Miroslav Skoric, IEEE Austria Section

The 22nd IEEE Mediterranean Electrotechnical Conference (MELECON 2024) was held in Porto, Portugal, from 25th to 27th June 2024, as a major international forum presenting design methodologies, techniques, and experimental results in emerging electro-technologies. It brought together researchers and practitioners from different fields of electrical engineering and computer science. The technical sessions were organized into four main tracks: Track 1 — Power, Energy, and Power Electronics; Track 2 — Smart Industry and Manufacturing; Track 3 — Future Healthcare; and Track 4 — Digital Transformation.

The face-to-face sessions were held in Alfandega Congress Center, an old building of historical importance positioned near the river coast but modernized for contemporary meetings. The location was easily accessible by public transportation from other parts of the city.

MELECON 2024 hosted four half-day tutorial sessions. One of them, entitled "Advantage of Winlink Global Radio Email® infrastructure and APRS™ positioning tool from the Mediterranean coastal perspective," was performed by Miroslav Skoric (amateur radio identifier YT7MPB) from IEEE Austria Section, with the assistance of two local Portuguese radio amateurs, Paulo Pinto CT1ETE and Paulo Teixeira CT2IWW. The tutorial focused on emergency

Group photo during 6G Summit.

communications and email services, such as *Winlink* (also known as *Winlink 2000*) and related hardware & software solutions. Considering that the primary audience of MELECON conferences are technology people who primarily reside in countries surrounding Mediterranean Sea, we intended to increase awareness for alternative ways of handling emails in cases of emergency at sea or shore.

On the other side, APRS (Amateur Packet Reporting System), as a predecessor of the Internet-of-Things (IoT), appeared in the early nineties as an amateur radio system for multilateral informing on what was going on in a geographical area and has been continually upgraded with new features. Today, APRS includes weather-related information, movable objects information (car traffic), road works, nearby gasoline stations, announcements for incoming radio amateur gatherings, home locations of "hams," repeater frequencies, and so on. The

primary purpose of APRS is to help radio amateurs who traveled through unknown territories (E.g., foreign countries or remote states/provinces within their own country) to feel comfortable by looking at the display of their mobile (vehicle) transceivers (or even hand-held amateur radios) – without any need for cell telephony or Internet providers. The system uses a single VHF radio frequency across a continent, so no radio channel changes after crossing national borders.

The presenter arrived in the area a few days before the main event to prepare fresh data for discussion during the tutorial session. The accommodation included a terrace and a small garden, both capable of temporary antenna installation. Among them were Alpha Antenna MIL 2.0 and DXCommander Rapide -both of vertical design and intended to reach distant correspondents on the amateur radio HF (high frequency) bands across Europe. Besides that, two ground-plane antennas, Sirio GPA 135–175 and Sirio SD 2000/U, were also tested on the VHF and UHF parts of the radio spectrum, respectively. An innovative version of the antenna coaxial cable, Messi & Paoloni Ultraflex 7 "Sahara," completed the experimental portfolio for this occasion. Initial results (better than expected) were presented & discussed during the tutorial lecture.

Thankfully to Portuguese telecommunication authority ANACOM, a special event radio identifier CR6MPB was granted on time to celebrate MELECON 2024 on international amateur radio waves. The tutorial speaker also arranged a small technical display near the registration desk, including VHF and HF radio stations, antenna tuner, GPS/GNSS receivers, *packet-radio* and *pactor* modems, and specialized computer software. The display took the whole second and third conference days so that paper authors and participants who were absent at the tutorial session had a rare opportunity to get closer to the amateur radio technology, as well as to get first-hand information about how to start using it on behalf of their local communities — particularly in cases of emergency.

CHAPTER REPORT

Thai ComSoc Organized Tri-Party Keynote Talks on ICT & AI

by Keattisak Sripimanwat, IEEE ComSoc Thailand Chapter Chair

In order to update & strengthen the local communications engineering — community, and also for member retention, the IEEE ComSoc Thailand chapter organized a tri-party meeting (policy maker, research institute, and academia) with keynote talks on November 22, 2023.

At the venue, Metropolitan Electricity Authority (MEA) — Bangkok, three onsite topics updating on ICT and AI were given by a) Mr.Nishino Hisanori (National Institute of Information and Communications Technology — Japan), NICT Asia Center — director, on the topic of "ICT-related Research Collaboration Promoted by NICT Asia Center, For Further Collaborations with Thailand" b) Dr.Sompop Phuligraiwong, National Broadcasting and Telecommunication Commission (NBTC), on "IoT and its management in the energy industry," and c) Dr.Somyot Kaitwanidvilai, Dean - School of Engineering, King Mongkut's Institute of Technology Ladkrabang (KMITL), on "AIoT and Technology Trends in Engineering and Innovation."

As a result, this first stage of the tri-party meeting was not only successfully organized, but the preparation for the 30th anniversary of Thai IEEE ComSoc throughout the coming 2024 year (www.quantum-thai.org/30th-ieee-comsoc-anniversary) was also discussed. Local ComSoc's activities and project extensions were introduced. In particular, another flagship event for the 150th anniversary of Thai telecommunications (2025) was mentioned. Later after this 2023 initiated meeting, it was entitled tentatively as; "The Sesquicentennial Thai Telecommunications (1875–2025): from the first telegraphy to quantum ICT era."

ICT & AI - Keynote Talks, AGM 2023 at MEA's head office.

Details and recorded videos are served at www.quantum-thai.org/single-post/ieee-thailand-annual-general-meeting-2023-events.

DISTINGUISHED LECTURER

IEEE ComSoc Distinguished Lecture Tour to Taiwan and San Diego

A Journey of Knowledge Sharing, Ideas Exchange, and Cultural Experience

by Shiwen Mao, IEEE ComSoc Distinguished Lecturer, Auburn University, USA

I successfully completed an IEEE ComSoc Distinguished Lecture Tour (DLT) to Taiwan and San Diego, CA, USA in late March and early April. It was a very nice trip to meet old friends, make new friends, talk to researchers, educators, and students, and enjoy the hospitality on both sides of the Pacific Ocean, as well as a nice experience of Asian and US cultures.

In this DLT, I delivered eight talks, scheduled as follows:

- At National Yunlin University of Science and Technology, Yunlin, Taiwan, hosted by Prof. Arun Kumar Sangaiah, Mar. 26, 2024
- At National Yunlin University of Science and Technology, Yunlin, Taiwan, Hosted by Prof. Arun Kumar Sangaiah, Mar. 26, 2024
- At National Sun Yat-sen University, Kaohsiung, Taiwan, hosted by Profs. Prof. Chun-I Fan and Chun-Wei Tsai, Mar. 27, 2024
- At National Cheng Kung University, Tainan City, Taiwan, hosted by Prof. Y.B. Jason Lin, Mar. 28, 2024
- At IEEE ComSoc Tainan Chapter (at National Sun Yat-sen University), Kaohsiung, Taiwan, hosted by Prof. Chao-Kai Wen, Apr. 2, 2024
- At IEEE ComSoc Taipei Chapter (at Research Center for Information Technology, Academia SINICA), Taipei, Taiwan, hosted by Prof. Ai-Chun Pang, Apr. 3, 2024
- At IEEE ComSoc San Diego Chapter & IEEE San Diego Section (at Qualcomm), San Diego, CA, USA, hosted by Dr. Liangping Ma, Apr. 10, 2024

I prepared four different talks, and let my host choose one of interest, including:

- Talk 1: RFID-based 3D human pose tracking: Design, generalization, and data augmentation

• Talk 2: AIGC for Wireless Sensing
• Talk 3: How to reduce the reliance on data in deep learning-based wireless research
• Talk 4: Introduction to the Wireless Research and Education Program at Auburn University

The talks are mostly based on our recent work on machine learning-based wireless sensing: one side is on how to use various radio frequency (RF) signals to sense human activities, and the other side is on how to make good use of machine learning models to handle RF signal data and how to make machine learning models less dependent on wireless data, thus reducing the effort on RF data collection. The talks were well received, with good attendance each around 20–50+.

The audience included students, faculty members, and researchers in and outside the specific area. I got very good feedback from the audience during the talk, which also helped me to better understand the problems at hand and to improve my ways of presenting the technical content to a broader audience with various backgrounds.

In addition to research talks and meetings, my hosts also arranged a rich set of extra-talk activities for me.

On the first weekend in Taiwan, I visited the beautiful Sun Moon Lake on Saturday and a local farm on Sunday, feeding cows and fish and having a nice coffee and ice cream along with several graduate students of YunTech. It was also amazing to see the best sunset in Taiwan while staying at the Seasbay Hotel of National Sun Yat-sen University. From a short tour of the Takao Railway Museum in Kaohsiung City, I learned a lot of interesting things about the railway system and the history of Taiwan. In addition to showing me the smart healthcare project at National Cheng Kung University, Prof. Yi-Bing Lin kindly gave me a tour of the Hsinchu Science and Industrial Park and his lab, and I was deeply impressed by the many IoT projects of his team.

In Taipei, I visited the Taipei National Palace Museum, Hu Shih Memorial Hall, and the Museum of the Institute of Ethnology at Academia SINICA, as well as the beautiful campuses of the National Taiwan University and National Taiwan University of Science and Technology. During my stay in Taipei, I experienced the largest earthquake in 20 years in Taiwan. There was an aftershock even during my talk at Academia SINICA. I was impressed to see how calm people were.

After the talk at Qualcomm, my host took me to Lo Jolla Cove and treated me to the beautiful ocean view and a nice lunch. I would like to take this opportunity to thank all my hosts for their kindness and hospitality.

The IEEE Communications Society Distinguished Lecturer Program is highly regarded within the field of communications engineering and technology. It plays a crucial role in advancing knowledge and fostering innovation in the field of communications through high-quality lectures delivered by experts in the field. In addition to serving our members by disseminating new technologies, the program is also highly rewarding to the DLs, such as increasing the visibility and impact of their work and fostering new ideas and collaborations.

I am serving as the ComSoc Technical Committee (TC) Board Director and have been working with the ComSoc TCs. Both TCs and local chapters are the pillars of the ComSoc community, while TCs are more technologically oriented and the chapters are more location-based. The DL program provides an important means for collaboration between TCs and local chapters.

Talk at National Yunlin University of Science and Technology.

Talk at IEEE ComSoc Tainan Chapter (hosted at National Sun Yat-sen University). I am sitting on first row, second from left.

I have visited the lab of Prof. Yi-Bing Jason Lin at National Yang Ming Chiao Tung University with Prof. Arun Kumar Sangaiah from National Yunlin University of Science and Technology. From left to right: Arun, Jason, Shiwen.

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