

Message From the New Editor-in-Chief

AS THE new Editor-in-Chief (EiC), it is my great honor and pleasure to present you the first 2023 issue of IEEE TRANSACTIONS ON COGNITIVE COMMUNICATIONS AND NETWORKING (TCCN), which includes 18 interesting papers reporting the latest advances in spectrum sharing and artificial intelligence (AI) empowered communications and networking. My work just started in January, following Dr. Ying-Chang Liang who was one of the co-founders of IEEE TCCN and served as EiC from 2019 to 2022.

IEEE TCCN is a relatively young journal co-sponsored by the IEEE Communications Society and IEEE Signal Processing Society. Since its inception in 2015, IEEE TCCN has been committed to timely publishing of high-quality manuscripts that advance the state-of-the-art of cognitive communications and networking research. The focus of the Transactions is on the “cognitive” behaviors (i.e., intelligence) in all aspects of communications and networking, from the physical layer (PHY) functions (including hardware designs) through various applications (including architecture), and in all kinds of communication networks and systems regardless of type of traffic, transmission media, operating environment, or capabilities of communicating devices. The current four major areas of the Transactions include (i) cognitive radio (i.e., spectrum sharing and coexistence); (ii) AI-empowered communications; (iii) AI-empowered networking; and (iv) AI-empowered resource management.

As a reader, author, and late on an associate editor, I have witnessed the significant growth of the Transactions in the past few years. IEEE TCCN now attracts an increasingly large number of submissions from researchers all around the world. It is ranked in Q1 (i.e., “first quartile” or the top 25%) of all the journals in the subject area “Telecommunications,” and its impact factor is 6.359 in 2022 according to Clarivate Journal Citation Reports (JCR), which is comparable to the traditional top publications in the area, such as IEEE TRANSACTIONS ON COMMUNICATIONS and IEEE TRANSACTIONS ON VEHICULAR TECHNOLOGY.

Along with the fast rollout of 5G wireless systems all over the world and the rapid development of 6G visions, a lot of interesting and impactful works are being carried out, much of which are closely relevant to the scope of IEEE TCCN. Previously, a generation is defined by its key technology (or, feature), e.g., 3G by Code-Division Multiple Access (CDMA) and 4G by long-term evolution (LTE). The next generation (NextG) wireless systems (5G and beyond),

however, are highly different with respect to the spectrum, device, network, service, and performance metrics. For the many diverse nextG technologies that are under development, spectrum sharing and intelligence are arguably the two definitive features, which are exactly the two focus areas of IEEE TCCN. The timing is right for IEEE TCCN to attract more high-quality papers to showcase innovative and cutting-edge research in NextG and to achieve overarching impacts in the field.

We have several exciting news to share. Periodicals Review and Advisory Committee (PRAC) review has recently been completed for IEEE TCCN with its achievements recognized. Starting 2023, the number of issues will be increased from four to six per year. This will help to reduce the submission-to-publish time of accepted papers, thus befitting both our authors and readers. Furthermore, IEEE Communications Society is enforcing a strict term limit for editorial board members of its publications. As a result, some of our associate editors will retire soon this year. I would like to thank them for their great contributions to the Transactions and welcome them to come back after a suitable gap. Several new associate editors have joined our editorial board recently, who are technical leaders in their specific research areas. Please join me to welcome our new associate editors: Drs. Ahmed Alkhateeb (Arizona State University), Gregory D. Durgin (Georgia Tech), Nada Gomie (National Institute of Standards and Technology), Guangjie Han (Hohai University), Jia Liu (Ohio State), Danda Rawat (Howard University), Dola Saha (University at Albany, SUNY), Yi Shi (Virginia Tech), Avinash Srinivasan (U.S. Naval Academy), Jing Yang (Penn State University), Zhengchun Zhou (Southwest Jiaotong University), and Nizar Zorba (Qatar University)!

I would like to take this opportunity to thank the Steering Committee for this great honor and opportunity to serve the TCCN, and the two previous EiCs, the inaugural EiC Dr. Michele Zorzi and Dr. Ying-Chang Liang, who have laid a solid foundation for the Transactions, put it on the right track, and made amazing achievements in such a short period of time. Thanks also go to our editorial board members, Editorial Assistant Dr. Ruizhe Long, authors, readers, and IEEE supporting staff for their hard work and support. I look forward to working with you all on continuing the success of IEEE TCCN and bringing it to the next level.

Enjoy the issue!

SHIWEN MAO, *Editor-in-Chief*
Wireless Engineering Research and Education Center
Auburn University
Auburn, AL 36849 USA



Shiwen Mao (Fellow, IEEE) received the Ph.D. degree in electrical and computer engineering from Polytechnic University, Brooklyn, NY, USA, in 2004. He is a Professor and an Earle C. Williams Eminent Scholar, and the Director of the Wireless Engineering Research and Education Center, Auburn University, Auburn, AL, USA. His research interests include wireless networks and multimedia communications. He is a co-recipient of the 2021 Best Paper Award of Elsevier/KeAi *Digital Communications and Networks*, the 2021 IEEE INTERNET OF THINGS JOURNAL Best Paper Award, the 2021 IEEE Communications Society Outstanding Paper Award, the IEEE Vehicular Technology Society 2020 Jack Neubauer Memorial Award, the 2004 IEEE Communications Society Leonard G. Abraham Prize in the Field of Communications Systems, and several best conference paper/demo awards. He is a Distinguished Lecturer of the IEEE Communications Society and IEEE Council of RFID and the Editor-in-Chief of IEEE TRANSACTIONS ON COGNITIVE COMMUNICATIONS AND NETWORKING.