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The Future of Mobile Radio

In just a few days, as I write this column, Vodafone will launch the first 5G network in Spain. For months, 5G has been continuously in the news, not just because the first rollouts are fast approaching but also for its relevance in defining the future technological landscape and the evolution of key verticals. Recent developments have shown that the impact of 5G and cellular technology, in general, goes beyond technical aspects. This is due, in part, to the ubiquitous presence of cellular technology in our lives and, increasingly, industrial activities.

There are certainly many aspects of 5G that need to be designed or optimized. However, as the rollouts approach, research has begun on what future beyond-5G (and 6G) networks should be. It is too early to know what those networks will look like, but *IEEE Vehicular Technology Magazine* (*VTM*) is shedding light on technologies that have the potential to be part of these networks. This month, *VTM* features its first special issue on 6G. Organized by former editor-in-chief Klaus David and internationally recognized experts Harald Haas, Jaafar Elmirghani, and Xiao-Hu You, it includes nine articles that describe the visions, drivers, and requirements for 6G; discuss the role of artificial intelligence and machine learning in the operation of wireless

networks; and present technologies that could be part of the beyond-5G ecosystem. See the "From the Guest Editors" column for more detail. I sincerely thank Klaus, Jaafar, Harald, and Xiao-Hu for their great work, and I look forward to new ideas and proposals for a 6G issue in 2020.

We also welcome open-call submissions in the magazine's fields of interest. For this issue, in addition to the 6G special content, three open-call articles are included. The first, "Task Offloading in Vehicular Mobile Edge Computing: A Matching-Theoretic Framework," by Bo Gu and Zhenyu Zhou, studies the case of task offloading in mobile edge computing (MEC) scenarios with local, incomplete information. The article models the interactions between tasks and MEC edges as a matching game and proposes algorithms to minimize the time needed to execute a task.

The next article, "User-Centric Clustering for Designing Ultradense Networks: Architecture, Objective Functions, and Design Guidelines," by Yan Lin, Rong Zhang, Luxi Yang, Chunguo Li, and Lajos Hanzo, discusses user-centric (UC) clustering as a promising design principle to address some of the challenges encountered in ultradense networks (UDNs). The authors introduce a UC-UDN architecture and analyze how to construct clusters in UC-UDNs. They also discuss some open research challenges.

The final article, "Mobile Network-Connected Drones: Field Trials, Sim-ulations, and Design Insights," by Xingqin Lin et al., addresses a topic of increasing interest: drones and unmanned aerial vehicles. The authors offer a practical perspective on the ability of mobile networks to connect to drones flying in the sky and present field measurements of the cellular connectivity that can be provided for low-altitude drones using a terrestrial, commercial 4G LTE network. They also analyze the performance of mobile networks that serve many drones simultaneously over a wide area. The authors conclude that the existing mobile LTE networks for terrestrial use can support the initial deployment of low-altitude drones, although challenges related to interference and mobility may need to be addressed.

I would like to draw your attention to the three open calls for articles appearing elsewhere in this issue. These include the first *VTM* open calls for papers for "Connected and Automated Vehicles" and "Automotive Electronics." Although we have accepted and published contributions on these topics previously, we have never had formal open calls for them. The third open call is an updated version of our mobile-radio request for submissions. Thanks to Elisabeth, Joao, and Matthias for preparing these calls.

We also plan to soon publish an open call for articles on transportation systems. Please have a look at these calls, and we look forward to your submissions! **VT**