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IEEE Journal of Selected Topics in Signal Processing

Special Issue on Joint Communication and Radar Sensing for Emerging Applications

For the sake of enhancing the exploitation of the permanently allocated, but potentially under-utilized spectral resources, sharing the frequency bands between radar and communication systems has attracted substantial attention, which motivates the research of joint communication and radar (JCR) designs. In general, there are two main research directions in JCR: 1) Radar-communication coexistence (RCC) and 2) Dual-functional Radar-Communication (DFRC) system design. The first category of research aims at developing efficient interference management techniques, so that the two systems can operate without unduly interfering with each other. On the other hand, DFRC techniques focus on designing joint systems that can simultaneously perform wireless communication and remote sensing, which benefits both sensing and signaling operations via real-time cooperation, de-congests the RF environment, and allows a single hardware platform for both functionalities. This type of work has been extended to numerous novel applications, including vehicular networks, indoor positioning and covert communications. This special issue seeks to bring together contributions from researchers and practitioners in the area of wireless communications and radar with an emphasis on new approaches and techniques for joint communication and sensing designs. We solicit high-quality original research papers on topics including, but not limited to:

- Spectrum analysis and management for communication and radar systems
- Opportunistic spectrum sharing for communication and radar systems
- Interference channel modeling and estimation for communication and radar spectrum sharing
- Interference mitigation techniques for communication and radar spectrum sharing
- Fundamental theory of dual-functional radar-communication systems
- Joint precoding/beamforming design for dual-functional radar-communication systems
- Joint receiver design for dual-functional radar-communication systems
- Security and privacy issues in communication and radar spectrum sharing
- MIMO and massive MIMO dual-functional radar-communication systems
- Millimeter wave dual-functional radar-communication systems
- Joint sensing and communication design for unmanned aerial vehicle (UAV) network
- Joint sensing and communication design in 5G vehicular-to-everything (V2X) network
- Wi-Fi based indoor positioning and target detection/recognition
- Radar-assisted low-probability-of-intercept (LPI) communications
- Machine learning based approaches for radar and communication signal classification
- Experimental demonstrations and prototypes

In addition to technical research results, we invite very high quality submissions of a tutorial or overview nature; we also welcome creative papers outside of the areas listed here but related to the overall scope of the special issue. Prospective authors can contact the Guest Editors to ascertain interest on topics that are not listed.

Prospective authors should visit <http://www.signalprocessingsociety.org/publications/periodicals/jstsp/> for information on paper submission. Manuscripts should be submitted using the Manuscript Central system at <http://mc.manuscriptcentral.com/jstsp-ieee>. Manuscripts will be peer-reviewed according to the standard IEEE process.

Extended Deadline

Manuscript Submission:	January 31, 2021 February 26, 2021
First review completed:	April 30, 2021
Revised manuscript due:	June 15, 2021
Second review completed:	July 31, 2021
Final manuscript due:	September 15, 2021
Publication date:	November 2021

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