

Guest Editorial

Special Issue on Selected Papers From the IEEE Sensors 2020 Conference

AS THE flagship conference series of the IEEE Sensors Council, IEEE SENSORS JOURNAL receives each year several hundreds of paper submissions, on various topics related to sensing technologies, sensors devices, their communications and applications. The IEEE Sensors 2020 Conference was initially planned to be held as a traditional face-to-face event in Rotterdam, The Netherlands, between October 25 and 28, 2020. However, the Covid-19 pandemic, and the gathering and travel restrictions that were implemented all over the world obliged us to change the format of the conference, and make it a fully virtual, on-line event.

The topics of the conference did not change though. The program contained 13 regular tracks and five focus sessions. The regular tracks targeted areas such as sensor materials, fabrication and packaging, chemical, optical, mechanical, magnetic or acoustic sensors, microfluidics and biosensors, sensors networks and the IoT, as well as emerging sensor applications, among others. A special track was dedicated to sensors in industrial practices. The five focus sessions targeted areas such as flexible and printed, energy autonomous, sensing systems, sensor systems for assisted living and effective tele-health, sensors and sensor systems for agrifood and connected farming, quantum sensors, as well as bioresorbable and biodegradable sensors.

The General Co-Chairs of the IEEE Sensors 2020 conference were Paddy French, from TU Delft, The Netherlands, and Troy Nagle, from NC State University, USA. The program was coordinated by the technical program committee (TPC) Co-Chairs Gijs Krijnen, from the University of Twente, Enschede, The Netherlands, and Rolland Vida, from the Budapest University of Technology and Economics, Hungary. The TPC was supported by 30 track-chairs, and ten focus session chairs.

The conference received 708 paper submissions, which is an excellent number, taking into account the circumstances of the pandemic, and the fact that we had to turn the conference into a fully virtual event. To evaluate these papers, 770 reviewers provided more than 2500 reviews. For each submitted paper, we received at least three independent reviews, the average number being around 3.6. Based on these, we decided to accept 381 papers to be presented at the conference, 158 as oral lectures and 223 as posters. This represents an acceptance rate of 53.8%. The track that received the most submissions was that on sensor systems, signals, processing, and interfaces, with 109 papers, but the area of physical sensors also attracted more than 80 submissions.

It is now a tradition that the authors of some of the best papers of the IEEE Sensors Conference are invited to prepare an extended version of their original conference material and submit it to a Special Issue of the IEEE SENSORS JOURNAL. This year was no exception to that. Based on the results of the conference review process, the overall technical quality of the papers and their originality scores, the TPC Co-Chairs ranked the best conference papers, and decided to invite the authors of 47 manuscripts (6.6% of the 708 original submissions) to prepare such extended journal articles.

The general submission rules of the IEEE SENSORS JOURNAL require authors to expand their original conference material from a four-page article (three pages of technical content plus one additional page of references) to a full journal article of up to eight pages. In these extended versions, authors could improve their initial results, taking into account the suggestions received from the conference reviewers, but had to add new material and new results as well.

After receiving these extended papers, we have organized once again a thorough review process, with reviewers evaluating not only the technical quality of the extended papers, but also their level of novelty, compared to the original conference papers. Some of the reviewers were selected from among those who reviewed the original conference papers, but additional new reviewers were also involved. Based on this new round of reviews for the extended manuscripts, we have accepted 21 papers to be included in this Special Issue of the IEEE SENSORS JOURNAL.

We would like to thank all authors that accepted our invitation and the reviewers for their dedicated time and effort, which is especially appreciated considering the difficult period of the coronavirus pandemic, affecting the international research community as well. We would also like to thank Leigh Ann Testa and Eileen McGuinness for their support in the preparation of this issue, and to the Editor-in-Chief of the IEEE SENSORS JOURNAL, Prof. Sandro Carrara, for his heartfelt support toward the successful publication of this Special Issue.

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