

Publication of Overview Papers on SPS Challenges

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The Technical Directions Board - Subcommittee 'Challenges and Data Collections' has conceived a plan to organize challenges under the purview of SPS as an important means of supporting the signal processing community in their strive towards comparable and reproducible research, but also to provide service to industry and support for many active members of the community who would organize challenges independently. At the same time, it should increase visibility and relevance of SPS for researchers and practicing engineers in signal processing alike.

A major benefit that SPS could offer to organizers and participants of SPS Challenges is the dissemination in one of its major and highly recognized publications. Already now, overview papers on challenges receive many citations to the benefit of both the authors and the journals, even if these journals have relatively low impact otherwise. As a typical number, not more than half a dozen such papers can be expected per year for all of SPS.

At its meeting in Athens on October 8, 2019, the IEEE SPS Publications Board approved the concept of publishing such papers in

IEEE Transaction on <relevant area of challenge> or JSTSP

with the following provisions:

- (a) challenge papers are warmly encouraged to be submitted to the relevant IEEE Trans. or JSTSP
- (b) such papers go through the full normal review process
- (c) AEs should judge challenge papers with the expectation of novelty and rigor in the dataset descriptions and analyses, scientific quality of the evaluation methodology, novel comparative analysis of the results, formulation and explanation of new scientific insights in the problem(s) addressed
- (d) AEs should not expect new algorithms to be presented in challenges papers
- (e) The Transactions may introduce an according category ('Challenge Summary Paper') to signal to the reader the different character

For implementation, a procedure has to be defined which ensures that the finally published challenge papers meet the expectations of the SPS Publications Board with respect to technical quality and scope. It is suggested that the process is modelled after the process for SPS overview articles and that a description of this category of papers is published at the SPS website similar to <https://signalprocessingsociety.org/publications-resources/overview-articles>.

The proposed procedure stipulates:

Step 1: The lead author of a challenge paper submits a 2-page white paper to the EIC of the targeted journal.

Step 2: The EIC of the targeted journal verifies - possibly using feedback from the editorial board - that

- a) the scope and technical level of the Challenge fits to the journal
- b) the set of authors is competent and able to represent the technical aspects of the Challenge

Step 3: If approved in Step 2, the EiC forwards the proposal to the Publication Board for approval. If approved, the EiC encourages submission of a full manuscript within a three-month window through Manuscript Central.

Step 4: The authors submit the full paper to the EiC. The EiC selects an associate editor (AE) for coordinating the review of the paper, possibly after consulting with a relevant TC. The AE is informed about the intended nature of the paper and selects according reviewers. If available, at least one member of the challenge subcommittee of the TC supporting the Challenge should serve as one of the reviewers.

With this procedure, it should be assured, by the involvement of the EiC and the Publications Board, that the special character of such papers can be accounted for, and that, by the regular review process in Step 4, the technical quality is not compromised.