

State of the Journal Editorial

Matthew B. Dwyer

◆

1 PEOPLE MAKE TSE POSSIBLE

THE past 12 months have been an eye opening experience for me as editor-in-chief of the *IEEE Transactions on Software Engineering (TSE)*. I have come to understand the enormous professional and community effort involved in the publication of the top journal in the field of software engineering research. Contributions come in many forms and from many people. Many hundreds of authors have submitted their best work to *TSE* and hundreds of experts in the field have made time to conduct thorough scholarly review of that work. The dedicated cadre of 40-plus members of the editorial board have orchestrated and brought their expert judgment to bear in the review process. Finally, members of the IEEE professional staff have supported authors, reviewers, and editors in their efforts.

I want to personally thank everyone involved in *TSE* for making the journal the success that it is. Two groups of contributors deserve special mention: reviewers and associate editors.

In this issue, you will see a list of individuals who volunteered their time to review manuscripts for *TSE*. A large number of *TSE* manuscripts have a full review process commissioned on their behalf. This means that a manuscript is assigned to three experts in the field for review. The efforts of reviewers are voluntary and they contribute their time to help maintain the standards of the field and of *TSE* and to provide constructive feedback to other researchers to advance the field. As an author, when you submit a manuscript to *TSE* I hope that you are cognizant of the debt that you owe the software engineering research community—if you are the sole author then you owe three reviews. If you are asked to review a *TSE* manuscript please keep that debt in mind. Many of the individuals who reviewed for *TSE* in 2014 did not submit a paper this past year and they should consider their service a debt paid forward.

Associate editors of *TSE* play a critical role. They assess manuscripts to make judgments about their appropriateness for the journal. When appropriate they commission a set of reviews from experts in the field. Perhaps most critically, when reviews are returned they interpret and synthesize the set of reviews to provide a coherent message and judgment to the authors about their paper.

I was fortunate to inherit an editorial board from my predecessor that was filled with thoughtful, dedicated experts who want to see the software engineering community's research advance and excel. Seven members of the editorial board retired in 2014: Marta Kwiatkowska, Bev Littlewood, Dag Sjøberg, Jane Cleland-Huang, Frank Tip, Murray Woodside, and Betty Cheng. I thank each of them for their service which, in some cases, is continuing as they shepherd papers through the review process.

Replacing the expertise lost this year was one of my greatest challenges. I have been fortunate to have this group of renown scholars accept invitations to join the *TSE* editorial board in 2014: Myra Cohen, Abhik Roychoudhury, Natalia Juristo, Eric Tanter, Massimiliano Di Penta, Tevfik Bultan, Sam Malek, Adrian Marcus, Mira Mezini, Corina Pasareanu, Thomas Zimmerman, Andrea Zisman, Phil McMinn, and Alessandro Garcia. This is a diverse group spanning eight countries, four continents, academia and industry, and providing broad coverage of software engineering topics with deep expertise.

The *TSE* editorial board has been enhanced by the addition of John Grundy as Associate Editor-in-Chief. John joined me back in January of 2014 to assess and refine the process by which manuscripts are handled at *TSE*.

2 REFINING THE MANUSCRIPT REVIEW PROCESS

A key focus of 2014 at *TSE* was to make the processing of submitted manuscripts transparent to authors, efficient in its use of reviewer time, and expeditious.

Towards this end we have posted a manuscript review process description under the "Submit a Manuscript" tab on the *TSE* home page (<http://www.computer.org/portal/web/tse/home>). Along with that description is a statement of the criteria that govern the judgments made about manuscript acceptance by reviewers and editors.

Relative to most other software engineering journals *TSE* presents issues of scale. In 2014 *TSE* received approximately 342 submissions of which 78 were accepted; the approximation is due to writing this editorial before the end of the year. This 22 percent acceptance rate mirrors the top conferences in the field.

Timeliness in reviewing is always a concern of authors. Listing average time in review is not very meaningful because the review process takes different paths that incur differing amounts of editorial and review work. We distinguish four different process outcomes *expedited rejection*, *rejection*, *rejection with revision*, and *acceptance*. The first of these seeks to

identify papers that are inappropriate for *TSE* and provide quick feedback to authors, the second commissions a set of reviews that lead to an immediate negative decision, and the third involves a cycle of revision and re-review before a negative decision is reached. The final outcome is a decision to accept a manuscript—which may or may not involve a cycle of revision.

For papers accepted in 2014, expedited rejection decisions took 31 days on average, whereas a full review leading to rejection took 129 days. Rejection with revision and acceptance took, on average, 227 and 242 days respectively. These last two categories reflect the increased review time inherent in conducting multiple rounds of review. Nevertheless we believe that it is desirable to reduce this seven-eight month time for a full *TSE* review process.

The *TSE* editorial board has undertaken efforts to refine the process of handling manuscripts. For example, we now conduct an initial expedited review in which a single expert helps to inform an associate editor whether a paper should undergo a full review. In this expedited process two people assess each manuscript: the associate editor and the expert. In many cases we have found papers that would not be successful in a full review process and this allows us to both save reviewer effort and provide quick constructive feedback helps the author reshape and refine their work. We have had several authors thank us for that feedback.

We have been using our refined process for much of 2014 and the initial experience is promising. Papers undergoing expedited review reach decisions about a week faster than they would without this process. Editorial efforts to monitor and engage with reviewers have also brought down time in review for papers that have undergone revision. Decisions to reject with revision are down to 138 days and acceptance decisions averaged 157 days for recent manuscripts. While the sample size is small, about 20 papers, we now believe that it is possible to achieve a five-month time in review for *TSE* manuscripts. This will allow papers to appear electronically within six-seven months of submission—a turnaround that is comparable to that of top software engineering conferences.

3 JOURNAL-FIRST PUBLICATION

A number of research communities have initiated journal-first publication processes with the goal of marrying the benefits of the multi-round reviewing typical of journals with the dissemination and reputation building aspects of conference presentation. In 2015 *TSE* will work to develop a model of journal-first publication that works for the software engineering research community.

At *TSE* we believe that an effective journal-first model must be cognizant of the fact that there are multiple high-quality journals and conferences that serve the software engineering community. Towards that end, we have initiated conversations with stakeholders in several software engineering journals and conferences to explore journal-first publication approaches. As these conversations continue we will engage more broadly with the research community to communicate our plans and solicit feedback.

A pilot program of journal-first *TSE* publication will be run in cooperation with the International Conference on Software Engineering (ICSE) in 2015. Papers submitted to *TSE* in 2014, accepted to the journal before the end of 2014, and that are not extensions of previous conference papers will qualify to be presented at a special session at ICSE. Due to limitations on conference presentation slots, for this year we will only be able to invite a limited number of papers for presentation. We plan to expand on this pilot program going forward.

Matthew B. Dwyer
Editor in Chief