# Signing Off: The State of the Journal

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IT has been a pleasure and a privilege to serve as Editor-in-Chief of *IEEE Transactions on Software Engineering (TSE)*. When I took on the role in 2010, I set out some goals for myself and for the journal that aimed to balance the preservation of TSE's standing as the leading archival research journal in software engineering with the equally important goal of modernizing the journal in light of the changing publication landscape and the nature of software engineering [1]. It is of course not for me to judge the journal and its standing, nor the extent to which I have met the goals that I set four years ago—that judgment falls to readers; I can, however, reflect on the state of the journal as suggested by various quality indicators and describe the changes that the journal has undergone.

The previous editor-in-chief, Jeff Kramer, left the journal in a strong state, with a steady stream of submissions and a healthy backlog of accepted papers awaiting publication. The journal's impact factor was a very respectable 3.75.

However, with a large backlog of papers came some difficulties—many authors were rightly unhappy that their papers were taking too long to get published, often a year after acceptance, having waited a year or longer for the papers to be reviewed. Although papers' preprints were appearing online in the IEEE Computer Society Digital Library as soon as they were accepted by the editor-in-chief, it was noticeable that authors' earlier work published in conference and workshop proceedings was more likely to be read and cited. To partly address this issue, TSE's page budget was doubled, allowing more and longer papers to be published, and the journal moved from bimonthly to monthly publication, allowing papers to appear "in print" much sooner after acceptance than before.

I put "in print" in quotation marks because one of the inevitable changes that had to be made to the journal was the move to mostly online publication. This was not an easy step for many to accept, and the final (compromise) solution was that although TSE is now an online publication, a hard-copy quarterly digest accompanied by a CD of the published papers in digital form is now sent to subscribers.

The combination of the large publication backlog, the increased page budget, and the increased frequency of issues to 12 per year had an inevitable effect on the journal's impact factor, which dropped two years in a row. However, it was important for me as editor-in-chief to implement these production changes, and I am now happy to say that the journal's impact factor is on the rise again, and continues to be the highest of any software engineering research publication.

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- *December 2013*

Another rather controversial decision I took was to stop publishing special issues in TSE. I floated this idea and its rationale in my TSE editorial "How Special Should Issues Be?" [3], and it has now become actual practice. Program chairs of flagship conferences like ICSE—the International Conference on Software Engineering—still have the option of inviting a selection of "best paper" authors to submit their extended work to the journal; however, if these papers are accepted, then they appear when they are ready for publication not according to an artificial special issue schedule. This may have had an effect on the journal's impact factor too, but I have always held the uncompromising view that papers need to be evaluated as consistently and rigorously as possible, a process that was sometimes being compromised by the guest editorial process.

## TSE by Numbers

For those interested in publication and production numbers, I offer this short summary.

TSE received 437 papers in 2013 (compared to 389 in 2012, 360 in 2011 and 384 in 2010). 49 papers were accepted and 364 papers were rejected in 2013, of which 75 were administratively rejected by associate editors (AEs), 104 were administratively rejected directly by the editor-in-chief, while 185 were reviewed and then rejected or recommended revision and resubmission as new papers.

In total TSE published 94 papers in 2013 (compared to 82 in 2012, 48 in 2011, and 48 in 2010). These papers covered 1,770 pages in 2013 (compared to 1,512 pages in 2012, 904 in 2011, and 904 pages in 2010).

The journal's impact factor rose to 2.588 for 2012 (compared to 1.98 in 2011 and 2.216 in 2010). The TSE impact factor for 2013 will be published by ISI/Thompson in the summer of 2014.

## TSE by Content

I have perhaps focused too much attention in this editorial thus far on production issues. I did this because of the impact that these can have on the perception and accessibility of the journal to its authors and readers. During my tenure as editor-in-chief, I had hoped that by making TSE more accessible to its various constituencies [2] that the community would engage more actively with each other, through the journal, to shape the field. I was perhaps overly ambitious in this regard, and it appears that our community still regards conferences as the forum of choice for discussion and debate, with journal publication serving as the archival repository for the detailed work [4]. This does not always make for easy reading of some TSE papers, but perhaps archival accounts of state-of-the-art research need not always be "easy reading." I have discussed this issue with

my successor, and he has some exciting and innovative plans to bridge the conference-journal divide and perhaps engage the community further through TSE. I leave it to him explain, with my best wishes.

I am often asked what areas of software engineering are current or popular. I find this difficult to answer because it is not clear that the rather slower journal publication process provides an accurate indicator of what research is current, but rather what is mature. What I have observed over my four years however is that TSE does get a disproportionately large number of submissions in the areas of software testing and of empirical software engineering. It is also clear to me that both the testing and the empirical studies communities have established some agreed forms of presentation that their members find acceptable during peer review. Although this often leads to papers that can appear to an outsider to be rather formulaic, they are also indicators of a mature sub-discipline that has well-established criteria and benchmarks for scholarly research. These communities are to be congratulated on achieving this, and I hope that other communities within software engineering, who are clearly generating many creative and well-researched contributions, also reflect on how the research is presented and supported with evidence and how it is moderated by recognition of threats of validity.

In response to my call for broadening the scope of TSE, the journal saw an increase in submissions that address some of the more human-centered issues around software development. While I encouraged such submissions and recruited new specialist associate editors to handle them, many of these submissions have not survived the peer review process, often because they did not articulate clear research goals or contributions, or did not contain the kind of rigorous evaluations that are needed for archival publication. The human-computer interaction (CHI) and Ubiquitous Computing (Ubicomp) communities have good examples of well-evaluated research in this area, so one of the challenges for the future is to draw upon good exemplars of human-centered research in these communities and to transfer to software engineering. This applies particularly to areas such as requirements, process, and security engineering, all of which involve a significant human component.

## TSE by People

I would like to conclude by acknowledging the various people that have made TSE work over the last four years, and to whom I am indebted for their support and guidance during my tenure as editor-in-chief.

The TSE Editorial Office staff have been fantastic throughout. Alicia Stickley provided direction and oversight, Hilda Carman made sure the peer review processes and systems worked smoothly, Jennifer Carruth took on the unenviable job of investigating the increasing cases of plagiarism and double submissions, and Joyce Arnold coordinated the many different facets of journal publication, from peer review to production. I am particularly grateful to Kathy Santa Maria, who played a pivotal role in the production of TSE. Kathy was the person who pulled together each issue of TSE, from copy editing individual papers to

hardcopy and web production. I was always able to discuss with Kathy the smallest issues like page numbers of individual papers to strategic issues like setting annual page budgets and web presence for the journal—and always with good humour and pragmatism essential for such discussions.

It is hard to imagine how I could have survived the job without Debby Mosher. Debby is the person behind the apparently anonymous tse@computer.org e-mail address. Many of the e-mails that come from that address are automated by the paper management system, Scholar One, but most are vetted by Debby, and all correspondence to that address is read and responded to by Debby personally and with breathtaking efficiency. I interacted with Debby almost every week and sometimes every day for four years. She combines a deep knowledge of the automated systems and the humans (authors, reviewers, editors and administrators) who use them, making her indispensible to the effective functioning of TSE. I have also valued her insights into how best to handle exceptional difficulties in peer review, conflicts of interest, and appeals.

For a substantial journal like TSE, I sometimes felt that my job as editor-in-chief was largely an administrative shepherding one. I would intervene editorially if there were exceptional issues, but the journal was mostly edited by the Editorial Board of associate editors. And it is these AEs, past and current, to whom I give my deep thanks. One of the biggest privileges of my own editorial job was to read the expert summaries and assessments by AEs on different papers—I will miss this learning part of my job immensely. Almost without exception, AEs responded professionally and positively to my regular requests to handle new submissions (averaging about 1.5 per day!), to interact with reviewers and authors, and to arbitrate appeals and cases of misconduct. They were my sounding board for new ideas, my advisors in the face of problems, and of course, most importantly, they were the technical evaluators and validators of what is eventually published in TSE. I would like to take this opportunity to thank the outgoing AEs in particular whose terms of office end with mine. They are: Antonia Bertolino, Elisabetta di Nitto, Harald Gall, Carlo Ghezzi, Dimitra Gianakopoulou, John Grundy, Paola Inverardi, Michael Jackson, Ross Jeffery, Neno Medvidovic, Gregg Rothermel, Wolfram Schulte, Dag Sjoberg, Paul Strooper, and Walter Tichy. I am especially grateful to them for agreeing to handle papers already in their care after their tenures as AEs ended.

Finally, I would like to conclude by thanking all the "users" of TSE—the authors who submit papers, the reviewers who voluntarily provide their expertise to assess the papers, the editors who exercise expert editorial judgment in the face of sometimes conflicting and partial information, and of course the readers who read the papers and, I hope, make good use of them.

TSE is very fortunate that Professor Matt Dwyer has agreed to be its next editor-in-chief. For those who don't know Matt, his impressive professional biography is provided below. Those who do know Matt will recognize him as an outstanding software engineering researcher, a generous contributor to and leader of the professional software engineering community, and a very personable and

approachable person. I am in no doubt that TSE will grow and flourish under his stewardship, and I wish him all the best.

Signing off now. Happy New Year to you all.

Bashar Nuseibeh

December 2013

## REFERENCES

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[3] B. Nuseibeh, "Editorial: How Special Should Issues Be?" *IEEE Trans. Software Eng.*, vol. 36, no. 4, pp. 449-450, July/Aug. 2010.
[4] B. Nuseibeh, "Editorial: What Makes a Publication Archival?" *IEEE Trans. Software Eng.*, vol. 37, no. 2, p. 145, Mar./Apr. 2011.

**Matthew B. Dwyer** received the bachelor's degree in electrical engineering from the University of Rochester in 1985, the master's degree in computer science from the University of Massachusetts at Boston in 1989, and the doctorate degree in computer science from the University of Massachusetts at Amherst in 1995. He is the acting chair of the Department of Computer Science and Engineering at the University of Nebraska-Lincoln. From 1985 to 1990, he worked at Intermetrics, Inc., on the development of embedded systems and compilers. He was a faculty member at Kansas State University and currently holds an appointment as Extraordinary Professor at Stellenbosch University, South Africa. He has published widely in the areas of program analysis, software specification, and automated formal methods. His work has received several awards including the ICSE "Most Influential Paper" and SIGSOFT "Impact Paper" awards in 2010 and he has been named an ACM Distinguished Scientist (2007), a Fulbright Research Scholar (2011), and an IEEE fellow (2013). He has served as program chair of a number of top research conferences including: the ACM SIGSOFT Symposium on Foundations of Software Engineering (FSE 2004), the International Conference on Software Engineering (ICSE 2008), and the ACM SIGPLAN Conference on Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA 2012). His editorial work includes serving as co-editor-in-chief for the *International Journal of Software Tools for Technology Transfer* (2001-2007), associate editor of *ACM Transactions on Programming Languages and Systems* (since 2009), editorial board member for *CACM Research Highlights* (since 2013), and associate editor (2006-2009).

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