

## Publishing in *IEEE Transactions on Robotics*

In this issue, Eugenio Guglielmelli (EG), editor-in-chief (EiC) of *IEEE Robotics and Automation Magazine*, interviews Frank Park (FP), EiC of *IEEE Transactions on Robotics (T-RO)* about publishing papers.

**EG:** Could you begin by identifying what you think are the most exciting areas of robotics research today from a publications perspective?

**FP:** If you're asking whether there's some list of hot and cold topics that we secretly maintain at *T-RO*, I can unequivocally tell you the answer is no. Now, I could tell you my personal preferences, but that would be beside the point. Unlike some other journals where the EiC can filter papers based on personal tastes, at *T-RO*, it's our community—the authors, reviewers (who are quite often authors themselves), and our 40 editorial board members—who collectively decide what types of papers we publish.

**EG:** So are you saying that there is some collective process for deciding what areas are hot and cold?

**FP:** No, I didn't mean to imply that. Each paper is judged on its own merit. I think maybe what you're asking is whether there's some conscious deliberation during the review process on whether a paper addresses a timely and interesting topic.

At some level, I'm sure the reviewers and editors do consider that. The more

important criterion, however, is research significance. This is different from originality and novelty, which is something I think reviewers sometimes overemphasize. A result can be novel or original while having little research significance. Perhaps that's the reason why no one bothered to do it that way. At the same time, a paper can report an advance of significant research value on a decades-old problem.

**EG:** I'll be more direct this time. Most authors understand the general principles behind writing a good scientific paper and getting it published. What are some additional considerations for getting a paper published in *T-RO*?

**FP:** I wish I had a formula or algorithm that broke it down cleanly, but I don't. The closest thing to one that I've seen is an article by the former EiC, Seth Hutchinson, published in the December 2010 issue of this magazine. It's cleverly titled "Surviving the Review Process" rather than something more attention grabbing like "How to Get Your Paper Published." It's a very lucid description of our review process and makes clear, for example, that decisions are not the outcome of a majority vote by the reviewers. Obviously, all reviews are not equally valid, and our editors try to sort out any contradictory comments by the reviewers, pointing out which need to be addressed and which can be ignored. Our associate editors, editors, and I are always checking each other's reasoning and arguments behind decisions. I like to think that we get it right most of the time.

**EG:** Is this then an admission that sometimes you get it wrong?

**FP:** I'm sure authors who've had their papers rejected by *T-RO*—you can put me firmly on that list—will say "absolutely." I'll concede that it's infrequent, but it does happen. However, it's more often the case of a less-than-deserving paper getting in rather than a strong paper being rejected. Sometimes a borderline paper is revised and resubmitted, and the reviewers may then only superficially check whether their criticisms have been addressed. I attribute these lapses to reviewer fatigue, and it's a growing problem.

We have three flagship conferences—the IEEE International Conference on Robotics and Automation, IEEE/RSJ International Conference on Intelligent Robots and Systems, and IEEE International Conference on Automation Science and Engineering—not to mention numerous other workshops, symposia, and other journals that ask for reviews, and we have reached a point where finding willing and qualified reviewers is becoming increasingly difficult. By the way, I don't mean to imply that some of our published papers are bad. Today there are many forums in robotics for publishing one's work, and *T-RO* naturally seeks to publish work of the highest impact. I like to think we get it right most of the time, but it is a subjective threshold.

**EG:** I agree completely that we're getting saturated with review requests these days. What can be done?

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**FP:** It's a difficult problem, and I do know there's some ongoing discussion within our Society on ways to alleviate the review burden. Some of these ideas are also tied to finding ways for members of our community to receive the credit they deserve for their conference publications, at least relative to other disciplines. I think we'll be hearing more about these ideas in the near future.

**EG:** Since you mention conference publications, one of the things I've struggled with is how much to add to a conference paper for it to be able to evolve into a transactions paper.

**FP:** We have guidelines in our information for authors, but you can see that, ultimately, the threshold is a subjective one. I've known authors who deliberately hold back showing everything in their conference paper so that

they have enough new material to justify submitting to *T-RO*. In most cases, however, it's not a huge dilemma for our authors. Also, our editors and associate editors are experienced and will indicate clearly what needs to be done for successful evolution, assuming, of course, that the result meets our criterion for research significance.

**EG:** As you said earlier, the publications landscape in robotics is changing rapidly. Where is *T-RO* positioned?

**FP:** Robotics publications are proliferating to the point where we might soon have a bubble on our hands. At *T-RO*, we're faced with the huge task of filtering and curating this ever-growing body of research. Naturally, we want to publish the best papers from the entire ecosystem of robotics, which, as you know, is continually evolving. New

problems and research emerge, and old problems keep coming back. Just look at the resurgence of hands and grasping, for example.

**EG:** Let me ask one final question that I hope will lead to some practical advice for our readers. If I have what I think is a rather nice result, how should I decide whether to submit to *T-RO* or a more specialized journal?

**FP:** That's a tough question. If you ask some of our more experienced senior researchers to name the publications that they're most proud of, I think most would list a number fewer than ten. If, at the end of your career, you think this paper could be on that list, then absolutely—I want you to submit your paper to *T-RO*.

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