

Member's Forum

For several years now, many members of the AI research community have expressed dissatisfaction with the paper review process for the National Conference on AI (AAAI). Accepted papers are almost universally written very conservatively, and many of the most interesting recent results have appeared in only specialty conferences, not at AAAI. The innovative, controversial papers that used to characterize the conference are getting harder and harder to find in the proceedings.

Several efforts have been made by program chairs in recent years to improve the situation. For AAAI-93, an extensive effort was made to encourage reviewers to accept "innovative" papers. Instructions to reviewers were changed, and the review form itself was modified to include the following language:

Innovative Research: We are asking reviewers to make an effort to identify promising research in its early stages. If you think this paper has shortcomings, but its publication could spur debate and provide possible new directions for research, indicate why in the following space.

However, by all measures the '93 NCAI has precisely the same problem as previous years. Papers listed in the "Preliminary work" category were almost universally rejected. At the post-review meeting Feb 28, committee members, area chairs and the program chairs mostly agreed that the effort to increase the number of "innovative" papers was a failure.

My explanation of this fact is grounded in the psychology of group processes. The dynamic of the review committee meetings is like many other group processes. It is much easier for a reviewer to raise some doubt in the group than it is to support the claim that the paper has no serious problems. Since only two or three of the committee members have read the papers being discussed, the rest have to rely on the main

reviewers. In this climate, a single strongly negative review raises enough doubts for rejection to be almost certain. Almost 75% of submitted papers were rejected. This phenomenon is not unique to AAAI; it is commonly found in a variety of human group decision making contexts.

The fact that any strongly negative view tends to cause rejections has an important consequence. In the cases where there is significant controversy over a paper (one strong positive review and one strong negative) it is likely that the paper will be rejected during the review process. Instead of having our arguments about the validity of a controversial piece of work at the conference and in public, controversial work is weeded out at the closed-door program committee meeting.

I would suggest that not only does the rejection of controversial papers make for a dull conference, it has a strongly negative effect on the rate of progress in the field. Certainly many controversial ideas go nowhere, but a few turn out to be genuinely innovative. In other scientific fields, controversies are hashed out in public. Just because some subset of a field thinks an idea is crazy or a method flawed, doesn't mean that the author doesn't get a fair, public hearing. Think about "cold fusion" in physics—or about quantum mechanics. Ideally, the flaws in scientific ideas or methods are found by public discussion, not by the decisions made by "expert" bodies in private discussion. The rejection of controversial papers also leads to the perception that the review process is unfair and overly conservative.

Of course, granting agencies, editorial boards, and program committees have to make decisions. There isn't always enough money, publication space or presentation time to go around. However, a key principle of that decision making process should



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be that whenever possible, scientific controversies should be discussed (and decided) in public forums, and that controversial opinions should have time and space to be heard.

On the basis of the above principle, I propose that the NCAI program chairs modify the review process to facilitate the acceptance of controversial papers. My suggestion is any paper that gets a "high confidence accept" from any reviewer be accepted, no matter what the other reviews are. Such papers should still be discussed at the PC meeting, in case the positive reviewer changes his or her mind during the discussion. However, the presence of negative opinions about the paper, even strongly negative ones, should not be sufficient to prevent its presentation in public.

This change in the rules will guarantee that controversial papers will be discussed at the conference, increasing the interestingness of the sessions and the proceedings. It is likely to increase the number of innovative papers presented without requiring the reviewers to modify their opinions or behavior. The proposal is unlikely to cause a dramatic increase in the number of papers accepted, nor cause the admission of clearly inferior papers. If a AAAI PC member feels a paper is very good, I would suggest that it is unlikely to be clearly inferior, even if it is controversial.

One problem with this proposal is that it may slightly reduce the present barriers to unethical conflicts of interest influencing the review process, since a single person could affect the outcome. I believe the current safeguards would remain adequate under my proposed change, and that such conflicts are not, and are not likely to become, a significant problem at NCAI program committee meetings. Nevertheless, a strong, clear statement of precisely what constitutes conflict of interest would be worth drafting, debating and accepting as an organization. Additional enforcement mechanisms for such a code of ethics might also be worth considering (e.g. keeping a persistent database of potential conflicts to be avoided).

The benefits of such a plan far outweigh the risks, in my opinion. I believe it can increase the rate of progress in the field, increase the interestingness of the NCAI conference and make the review process seem less arbitrary to members of the community. It will bring the discussion of controversial papers out into a significant public forum, where they belong. I believe this proposal will work, since it doesn't require changes in the behavior of the reviewers, nor changes in the psychology of group dynamics. The plan has a clear rationale, and a good chance of fixing an important problem in the field. I urge the program chairs of NCAI-94 and future years to adopt this proposal.

- Lawrence Hunter
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