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Publish *and* Perish

OVER THE PAST decade I have penned several columns that were critical of the current computing-research publication system, with its heavy reliance on conference publishing. These columns were widely read, and the feedback I received was generally quite positive, but they had zero impact on how we go about publishing our research. Conferences still provide the main vehicle for dissemination of curated computing research. What did I miss?

I believe the main advantage that conferences have over journals is that of predictability. Conferences have clear dates for submission, author feedback, and notification. Journals, in general, have none of these. Such predictability is both a powerful motivating factor and a source of comfort. In spite of their flaws, conference publishing dominates because of the predictability it provides.

Yet the dominance of conference publication comes at a cost. As publishing one's paper at a prestigious conference has become the standard way to build professional credentials, expectations with respect to quality have risen. Reviewers expect papers to be of polished archival quality, and often reject papers—even ones that present innovative, interesting research—that fail to meet their standards for such quality. Rejected papers are then revised and submitted to another conference, but will be judged by another set of reviewers, with somewhat differing expectations. Good papers can bounce from conference to conference, imposing a huge cost on the research community in terms of the reviewing effort. Viewed from this perspective, the predictability of conference publishing is rather illusory.

A simple remedy to this problem is for conferences to adopt a standard element of journal publishing, which is the revision. Some conferences have already adopted this practice and allow a submission cycle to include two rounds of reviewing, to enable authors to revise their papers. This practice should be adopted by all computing-research conferences, I would argue.

But the much bigger issue is that a computing-research conference is “a journal that meets in a hotel.” Every paper accepted to a conference requires one or more authors to travel up to halfway around the world in order to present the paper in an oral or poster presentation. The conference publication system is, therefore, a major source of air travel. For example, over the past 20 years I have air traveled more than two million miles. I used to think of that as a professional status symbol.

But as every passenger of a transoceanic flight contributes about 1.8 tons of CO₂ to the atmosphere, it is fair to estimate that a participant in a conference contributes on the average one ton of CO₂ to the atmosphere (also taking into account hotel and conference rooms air-conditioning and the like). The conference-publication system thus adds to the atmosphere annually tens of thousands of tons of CO₂. As the reality of human-caused climate change is getting clearer by the day, the contribution of our profession to the approaching “climate apocalypse” cannot be ignored. My professional “badge of honor” is turning into a badge of shame, I am afraid.

Of course, conferences are more than a paper-publishing system. First and foremost, they are vehicles for information sharing, community building, and networking. But these can be decoupled from research publishing,

and other disciplines are able to achieve them with much less travel, usually with one major conference per year. Can we reduce the carbon footprint of computing-research publishing?

While ACM has instituted the Carbon Offset Program,^a I believe we need to go further. I propose that ACM (and other professional computing associations) establish a sweeping policy change that would apply immediately to all its conferences, requiring that authors of accepted papers that must fly to participate in a conference may opt out from in-person involvement and contribute instead by video. This will not only reduce air travel but will also broaden participation in computing-research conferences by enabling authors with disabilities or with family constraints to partake as well. An author who elects to participate remotely should pay a reduced registration fee to cover conference expenses. Once we allow authors to attend conferences virtually, we should allow the same option to other conference participants. We will then be able to observe the value of in-person conference participation to our community. My suspicion is that it is much less valuable than we would like to believe.

I believe that ACM should take a leadership role, as it did when ACM Council adopted the Policy Against Harassment at ACM Activities, in recognizing the climate emergency we face and in doing its share to reduce its environmental footprint.

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^a <http://bit.ly/2QRgz3c>

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