
From Computing Conference Paper to Journal Submission

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Abstract

It is accepted that academic conferences are one of the major forms of transmission of research findings within the computing disciplines. However in the various ranking systems for academic research, for disciplines other than computing, publication in academic archival journals is often more highly valued. A submission to a computing conference may sometimes be a self contained piece, but the conference format is of necessity brief and means that many aspects of the research must be glossed over. The lengthier journal article format can provide more scope for presenting your work in depth. Thus a conference submission can also be viewed as but one step in a journey to a more considered piece of research and a higher quality publication. This paper discusses the issues that need to be taken into account and presents some guidelines for upgrading a conference paper to a journal submission.

Keywords

Computing publications, Conference Paper, Academic Journal, self-plagiarism, Research Performance Assessment

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Introduction

A recent European study conducted in response to increasing pressures from Governmental research productivity and quality measurement initiatives, has noted the tendency to apply inappropriate bibliometrics such as the ISI journal citation databases for the computing disciplines (Meyer et al., 2009). Clear & Young, (2007) have similarly noted, in the New Zealand context, that computing publications are poorly represented in that collection. As Meyer et al have observed, *"In the computer science publication culture, prestigious conferences are a favorite tool for presenting original research—unlike disciplines where the prestige goes to journals and conferences are for raw initial results. Acceptance rates at selective CS conferences hover between 10% and 20%"* (2009).

Echoing this perspective from Europe, the recent conference and journal ranking process undertaken by the Computing Research and Education Association of Australasia (CoRE) has seen the Australian government accept a parity of esteem for selected conferences and journals within the computing and engineering disciplines (CoRE, 2009).

To emphasise the point Meyer et al. (2009) further note: *"Journals have their role, often to publish deeper versions of papers already presented at conferences. While many researchers use this opportunity, others have a successful career based largely on conference papers. It is important not to use journals as the only yardsticks for computer scientists"*.

Yet there may be additional reasons to extend and revise a conference paper for a subsequent journal submission. McCartney & Tenenberg note that journals

can offer more cycles of review and improvement than conferences can support, and thus can result in a higher quality publication. The feedback received after conference presentation can be incorporated into a later journal submission. Journals often have a stronger review and editorial team which may mean your work will get a better and fairer reception. The author gets another publication from the research, and more tellingly that is:

"...in a journal rather than a conference. Not unreasonably given the points discussed above, many people place greater value on journal publications" (McCartney & Tenenberg, 2008).

Reasons to Publish

For a striking expression of this distinction see the appendix attached which draws on the work of New Zealand social scientists Davidson and Lunt (2000), but adapted for the computing disciplines, and indicates the prestige associated with differing forms of academic publication. In the original version *"publishing in academic conferences"* did not *"contribute towards building an academic career"*, but did *"provide an opportunity to test ideas"*. The other reasons to publish of: *communicate ideas; enhance academic reputation and feel good about ourselves* were all satisfied by most forms of publication. The Performance Based Research Fund (PBRF) process critiqued in (Ashcroft, 2005) applies similar judgements to those outlined in Appendix A below in assessing the quality of academics' work and their publications. Therefore having a judicious balance of publications across categories (including journals) is a sensible strategy for weathering research ranking exercises.

It is also important to decide where to publish. The higher ranked journals (cf. CoRE, 2009) carry more weight and prestige, but are highly competitive and selective venues, with lengthy publication lead times. Some authors deliberately aim high and then work down the journal status hierarchy after rejection and feedback. Others select a journal they believe will be more likely to understand and accept their work. Nonetheless rejection is a not uncommon outcome, so be prepared for it – it happens to the best. As Moti Ben Ari acknowledges: *"(I follow my own advice scrupulously, yet I have had my share of rejections)"* (2000). Another sound strategy often involves submitting to a special issue in your own topic area. These come out from time to time and can often be identified by keeping actively linked within your research community.

This paper therefore outlines a few steps that should be considered by computing academics when seeking to promote a conference paper to a journal submission.

Guidelines for Journal Publications

Academic journal editors desire to publish high quality original work, or as noted by McCartney & Tenenberg (2008) *"work of archival quality worthy of the ACM moniker"*. Thus your work needs to meet several tests, more simply stated *"the five R's of academic publication"*, derived at a research colloquium session on academic reviewing (McNaught & Clear, 2004):

- Relevance
- Rigour
- 'Riginality
- Requirements of Editor
- Readability

Demonstrating Originality

Given that your work has already been published in a conference setting, the onus is on you to show that your journal submission is substantively different from the original. You will need to check the policy of the journal on previously presented work. As noted in Collberg & Kobourov (2005) both ACM and IEEE have policies on prior publication and simultaneous submission, including strictures against self-plagiarism:

"Both policies emphasize novelty of the new result as an important criterion, and ACM puts a number to it: 'at least 25% of the paper is material not previously published'".

However policies differ between journals, for instance ACM's Transactions on Computing Education, which has formerly solicited prior conference papers (McCartney & Teneneberg, 2008) note:

"A paper that is based on previously-published work (a conference or workshop paper, e.g.) is expected to contain at least 30% new material, and the original paper should be cited as a footnote to the paper title" [<http://toce.acm.org/authors.html>]

To achieve an original twist in your journal paper away from the original conference submission, you could consider adopting a different focus. McGraths' (1985) three domains as outlined following can be useful:

- Substantive
(Phenomena of interest, e.g. practices, processes, industry, IT, system etc.)
- Conceptual
(theories of relevance to the study)
- Methodological
(ways of studying the phenomena)

For instance if your original conference paper had a focus on the substantive phenomenon, the journal paper could choose to adopt a more methodological focus.

Demonstrating Rigour

Journal editors expect high quality work that demonstrates rigour in both the research process and its reporting. Therefore ensure that your expression, formatting and referencing do not let you down by making your work appear sloppy and unprofessional. Adhere carefully to the editorial and submission guidelines, and write in a clearly phrased and logically structured fashion, so that it appeals to the audience and is in the style of the publication. Read a few prior editions and see what typically gets published, so that you know your work is likely to fit the publication. In particular if the journal has prior work especially relevant to your own submission make sure that you are familiar with it, and where appropriate have cited it.

In extending from a conference paper, there are a few approaches which can enhance the substantive rigour of a shorter piece of work. Frequently a journal article has scope to further develop the literature review and thereby build upon and cite prior work. This may help motivate the study reported in your paper. Alternatively you could choose to make a full literature review the sole focus of your journal article. A journal format may also offer scope to explain in greater depth the methodology applied in the research. More in depth analysis of data may be possible, with more illustrative examples, cases or tabulations of intermediate and final results. There may also be scope for expansion of the discussion, such as outlining

particular frameworks applied within or resulting from the research and further exploring the implications of your work for research and practice.

Some Do's and Don'ts

As an author it is a good idea to put yourself in the shoes of the reviewers and editors of your paper. I highly recommend the brief set of guidelines on "how to get a good review" by Moti Ben Ari (2000), which include some excellent suggestions on choosing a suitable title and abstract for your work. Then from the reviewers' perspective Allen Lee (1995) offers an informative set of guidelines for reviewing a manuscript, which should enable you to act as reviewer for your own work prior to submission. Some key questions to pose yourself are:

- Can you easily summarize your paper and its message?
- Can you clearly state the objectives, contributions and limitations of the study?
- Is your argument consistent with your stated position and well developed throughout?
- Can you forecast how reviewers might react to the paper?
- Have you positioned the work well in its context and with respect to the future possibilities it may present?

There are also common pitfalls to avoid as noted by Murthy and Wiggins (2002), when analysing the reasons for rejections of papers submitted to the Journal of Information Systems. Some critical questions you should ask of your paper before submission are:

- Is the rationale clear and is the paper likely to appeal to the readers of the journal?
- Is there a solid alignment between the motivation, literature review, and theory or resulting hypotheses of the study?
- Is the research design suited to the research question or hypotheses?
- Has the research been well conducted methodologically (e.g. appropriate statistical tests or analysis techniques have been used)?
- Are the conclusions well supported by the research design and findings?
- Is the work sufficiently developed for a journal paper and does it make a meaningful contribution?
- Is the work well organized and written?

Conclusion

This paper has posed a set of issues for consideration, and suggested some guidelines for computing researchers who wish to extend a prior conference publication for acceptance by an academic journal. Revising your conference submissions and taking them to the next step, offers the potential to gain satisfaction from doing more in-depth and better work. Moreover in this era of research performance measurement, it gives you another piece of published evidence to demonstrate the quality and value of your research.

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Appendix A

Assessing Academic Purpose and Merit of Differing Forms of Publication (Revised and Extended from Davidson & Lunt 2000, p.38*)									
Publication Forum	Ranking Significance	Scope	Quality	Esteem	communicate ideas	test ideas	enhance reputation	build career	feel good
		N=national I=international	FR = fully refereed ER = editorially reviewed U =unrefereed	Top Ranking = T Intermediate = I					
Journal Article	1	I	FR	T	√	√	√	√	√
	2	I	FR	I	√	√	√	√	√
	3	N	FR		√	√	√	√	√
	4	I	ER	T/I	√	√	√	√	√
	5	N	ER		√	√	√	√	√
	6	N	U		√	√	√		√
Conference Full Paper	1	I	FR	T	√	√	√	√	√
	2	I	FR	I	√	√	√	√	√
	3	N	FR		√	√	√	√	√
	4	I	ER	T/I	√	√	√		√
	5	N	ER		√	√	√		√
	6	I/N	U		√	√	√		√
Conference Concise Paper	1	I	FR	T	√	√	√	√	√
	2	I	FR	I	√	√	√	√	√
	3	N	FR		√	√	√	√	√
	4	I	ER	T/I	√	√	√		√
	5	N	ER		√	√	√		√
	6	I/N	U		√	√	√		√
Conference Poster	1	I	ER	T/I	√	√	√		√
	2	N	ER		√	√	√		√
	3	I/N	U		√	√			√

* Davidson C., & Lunt N., (2000), *The Art of Getting Published*, Dunmore Press, Palmerston North