

On the future development of TKDD

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Self-nomination for the EiC role

I always considered SIGKDD my main research community. I have been publishing at KDD and attending it over 4 decades (the 90s, the 00s, the 10s, and the 20s), organizing successful workshops¹ and tutorials². I have been serving the Editorial Board of TKDD as **Associate Editor since 2018**: in these years I had first-hand experience of hurdles of TKDD manuscripts handling and I developed ideas on how to improve the current status, as I will discuss later. I've also been serving the Editorial Board of many other journals in the research area, including ACM TIST, IEEE TKDE, DMKD, JDSA, KAIS and more.

Finally, I'm **General Chair of ACM SIGKDD 2024 Conference**, which could ease the establishment of interesting synergies between the journal and the conference.

At this stage of my career, having a top management role in a research-only institute, I have *plenty of time to devote to research and to service*: I would be deeply honored to take the role of EiC of TKDD and I strongly believe I could do a great job in reestablishing the prestige of the journal, while reducing the processing time for submitted manuscripts.

Assessment of TKDD current status

From the standpoint of a submitting author, a member of the community, and that of an Associate Editor, I have witnessed several raising concerns with TKDD submission processing:

1. Decreasing prestige of the journal (as compared to its early years);
2. Increasing difficulties in finding reviewers;
3. Necessity of using less experienced reviewers;
4. Lower quality and longer duration of the review process;
5. Potentially ending in the publication of lower-quality submissions.

Note how all these points might be strengthening one another: (1) is surely a cause for (2), which in turns causes (3), (4), (5), and all of these contribute to (1), closing a *vicious loop*.

Of course, there are other exogenous factors that contribute to a perceived decline of TKDD prestige w.r.t. the early years of the journal. These include organic shifts in attention and interest of the research community on certain topics, or the emergence of new topics in the area: e.g., the hype around Deep Learning, the recent advances in Foundation Models and Generative AI, the consequence growth of conferences such NeurIPS, ICML, ICLR, and the establishment of new journals, such as TMLR or Nature Machine Intelligence.

¹See, e.g., <https://link.springer.com/book/10.1007/978-3-540-78478-4>

²See, e.g., <https://francescobonchi.com/tut026.pdf>, which has 445 citations as of today.

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Nevertheless, it is also worth noting that in Google Scholar, TKDD appears in the **15th position** in the ranking by **h5-index**³ just in the area “Data Mining”, doing worse than venues such as TKDE, TIST, ICDM, KAIS, ECML PKDD, IEEE Big Data, just to mention a few. This is surely a poor performance for a journal that, being “ACM Transactions on”, should be (by definition) the top of its own area (together with the KDD conference).

Goals for the future development of TKDD

As it is natural for a research field and its community to keep adapting their scope, so it is natural that the key journal in the area must be reactive and adaptive to a continuously changing environment and rising competition. Besides the need to adapt, there are other *dimensions* along which, we believe, TKDD’s future EiC should work to improve the journal. These are summarised in the following three high-level goals.

[G1] Increase visibility of published manuscripts - As of today, once a manuscript get published on TKDD, it’s visible on the TKDD webpage and nowhere else: it essentially goes forgotten, unless the authors put some effort in publicizing it. However, it should be the journal itself to pay some effort to popularize its content in all possible ways, as more visibility for a paper implies higher discoverability, more citations, and in the end, more attention, interest and prestige for the journal itself. Among the concrete actions that we propose below for improving the visibility of TKDD published manuscript, let us mention: a clever use of social media (as many other journals already do), the creation of promotional videos (similarly to what done for the published papers at the KDD conference), and a stronger partnership with the KDD conference (see below for details).

[G2] Increase quality of published manuscripts - In recent years, it has become very hard to find reviewers for TKDD submitted manuscripts, as there is no incentive nor visibility associated to the task. This fact forces the Associate Editors to rely on less experienced reviewers which sometimes might be more “generous” than experienced ones, overlooking some important weaknesses of the manuscript, and eventually leading to publications of not top-quality manuscripts. It is our opinion, instead, that TKDD, as the top journal in the area, *should be selective and publish top papers only*. The more selective is the journal, the higher the quality of the published manuscripts, and the higher the perceived prestige of the journal itself. Among the concrete actions that we propose below let us mention: the creation of a committee of **5 Senior Associate Editors** (SAEs), each one with an area of responsibility; higher standards for a submission to pass the editorial filter and to be sent to reviewers; the establishment of a **Review Board** and the creation of incentives for reviewers; proactive search for high-quality and timely special issues.

[G3] Decrease time from submission to decision - Reducing the time to arrive to a decision is a key factor for the reputation and the attractiveness of the journal. As an author, I recently received the first round of reviews on a paper that I submitted to TKDD **more than 15 months ago**. Of course this is not ok and need an intervention. The establishment of a Review Board, the establishment of incentives for the reviewers, the increase in the number of SAEs with their own areas of responsibility, the frequent meetings with the SAEs, are all actions that should help reducing the time from submission to decision.

³h5-index is the h-index for articles published in the last 5 complete years. It is the largest number h such that h articles published in 2018-2022 have at least h citations each.

Concrete interventions for improving TKDD status

Having identified the main dimensions of improvement, we next present a series of very concrete *interventions* and discuss how they can be key to achieve the above-discussed goals.

(I1) Senior Associate Editors (SAEs) - As of today TKDD has one Senior Associate Editor. Our first concrete intervention proposal is to rise this number to 5 SAEs, that together with the EiC would form a Scientific Board aimed at supervising the healthy development of the journal. *Diversity and inclusion* criteria would be followed in selecting the SAEs, as well as the AEs.

(I1.1) Macro-areas: We plan to associate each SAE to a macro-area of responsibility. While submitted papers do not necessarily fall in one macro-area only, they will be assigned to one SAE by the EiC. Having macro-areas of responsibility is a way of keeping the SAEs more engaged with the journal and more proactive in following the evolution of their macro-area and proposing ideas and corrections. As an example, the 5 macro-areas associated to the SAEs could be:

- Theory and Foundations
- Data Science Methods
- Machine Learning Methods
- Large Scale Systems
- Applications

(I1.2) Special issues: As of today, special issues play a minor role in TKDD. We propose to increase their importance. In particular, *each SAE should proactively search for at least one special issue per year*, in the macro-area of competence. Instead of waiting for special issues to be proposed, each SAE should make the effort of thinking about the latest emerging hot topics in the macro-area of competence and imagining what could be a good and timely special issue. Then should look for the right people to organize it. These should be top researchers in the area. This way we can obtain meaningful, timely and highly attractive special issues. It is enough one timely special issue to bring a lot of visibility and citations to a journal.

(I1.3) Bi-monthly meeting: We plan to have a meeting with the 5 SAEs every two months to monitor the smooth processing of submitted manuscripts, discuss about possible special issues, and brainstorm in general about the status of TKDD, to spot and adjust early on, things that do not work well.

(I1.4) More desk-rejection by SAEs: In our community, we tend to desk reject a submitted manuscript at the level of the editor, only if it is not compliant with the call for papers, or it is not legit in some way. Top journals (e.g., Nature or PNAS) have a desk-rejection rate well above 50%, in some cases reaching 80%. We don't claim we should do exactly the same, but we believe the SAEs should be instructed to carefully check new submissions before sending to peer-reviewing, and do so only if they believe it is a truly worth submission. For instance, a submitted manuscript could be desk rejected by the SAE just because of lack of novelty. Of course, the desk rejection decision should be well motivated by the SAE in the letter. Benefits of higher desk-rejection rate are manifold: less peer-reviewing load, shorter turn-around, and prestige induced by higher selectivity.

(I1.5) Associate Editors (AEs): We plan to have around 50 AEs, roughly 10 AEs for each SAE. Although we don't plan to have a rigid assignment of AEs to SAEs, we can expect that given the association of SAEs to macro-areas, it will come naturally that SAEs will tend to work with the same set of AEs.

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(I2) Review Board - As of today there is no Review Board at TKDD. We propose to have one: this is probably the single most important intervention we propose. Of course, to be effective, being part of the Review Board should be associated with prestige and have incentives. The Review Board should be constituted of approximately 150 reviewers. Each Review Board member should commit to review at least 5 papers per year in their area of competence, and to provide timely reviews. The Board should be renewed every year, maintaining the committed members that are happy to serve again, and replacing the under-performers. The Review Board should represent the main source of peer-reviewing for TKDD: however, when needed, reviewers external to the board might be involved by the AEs.

(I2.1) Incentives for reviewers: As stated above, in order to attract committed and experienced researchers, we need to succeed at associating some sense of prestige in serving as a member of the Review Board. Some incentives we might consider in this regard, are:

- The Review Board should be present on the webpage of the journal;
- Best performing reviewers should be awarded, as it happens more and more in conferences: the information about reviewers can be posted on Social Media and they can be presented during the business meeting at the KDD conference.
- The best performing reviewers can also be considered to become Associate Editors, when the Editorial Board is renewed.

(I3) Strengthen partnership with KDD - As of today, only a very loose connection between SIGKDD conference and TKDD journal exists. This is surprising, counterintuitive, and in contrast with what done by many other conferences and journals in the area. Exploiting SIGKDD conference to showcase some of the best papers published in TKDD, would help transferring some of the prestige of KDD to TKDD, as well as giving high visibility to the published articles. Similarly, inviting the best papers from KDD to be published in TKDD through a fast-track, after being extended with 30% novel content, would bring good quality papers to TKDD. Therefore, we propose the following interventions:

(I3.1) Best TKDD articles to be presented at KDD: A selection of the best articles published in TKDD from May 1st of the previous year, to April 30th of the current year, are invited to present their work at the SIGKDD conference in August. These papers can also have a 1-page extended abstract published in the proceedings and a poster at the poster session. This would represent a strong incentive to submit great-quality papers to TKDD, and a fantastic showcase for these papers.

(I3.2) Best KDD papers to be invited on a TKDD special issue: A selection of the best papers published at the SIGKDD conference, are invited to submit an extended version to a TKDD Special Issue of best papers from KDD, with the guarantee of a fast-track reviewing process. This would guarantee good quality articles published on TKDD.

These are quite straightforward ideas, as they're already implemented in many conferences and journals. As General Chair of KDD 2024 edition, I am in a favorable position to easily implement these ideas (once approved by ACM Publications Board and SIGKDD Executive Committee).

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(I4) Use social media to amplify visibility and prestige - Social media are an extremely valuable tool to advertise a scientific work, by reaching a very large audience within the research community. The largest majority of journals and conferences make a very good use of social media to publicize themselves and amplify the reach of their content. Surprisingly, TKDD doesn't seem to use social media at all. We propose to change this situation.

(I4.1) TKDD Twitter activity: There should be a TKDD account on Twitter *announcing and advertising each single published article* and informing about the calls of the Special Issues. This can be handled by one or more Information Director(s) in strict collaboration with the EiC.

(I4.2) Promotional videos: As it happens with KDD accepted papers, each article published by TKDD should be requested to produce a promotional video. This can be then posted on social media by the authors of the article and by TKDD, and maintained on a dedicated TKDD Youtube channel (or on any other platform fit for the purpose).

Conclusions

In this document, I presented my personal assessment of TKDD status and a set of concrete action proposals, aimed at improving the current status. Of course these are just proposals: they would need further brainstorming and the approval by the ACM Publications Board. However, I strongly believe that implementing all, or some, of these would help greatly increasing the attractiveness of TKDD, enhancing the average quality of published articles and their visibility. In the long term this would translate in better bibliographic metrics for TKDD.

I'm strongly committed and would be honored to take the role of EiC for implementing the outlined change.

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