How to be a good reviewer? Reviewer Tutorial for ACCV 2024

Slides adapted from ICCV 2023

(featuring content from ICCV'19, CVPR'21-23)

Thank you
for serving as
a reviewer!

We are all counting on you:

- Area chairs for clearly justified guidance for paper accept/reject decisions.

- Authors for fair consideration and constructive feedback.

- Community for ensuring that every conference paper teaches something worthwhile.

Note:
This deck is adapted from the Reviewer Tutorials of previous conferences. The policies and details may have changed during the years. The PCs of ACCV 2024 have carefully checked the consistency with the latest policies, there could be subtleties that might have been missed. Please contact PCs if you notice any potential issue.

If you write bad, poorly justified, ill-considered, or unfair reviews…..

- Authors may feel unwelcome or mistreated by the review process.

- A reader may waste time on a flawed or uninformative paper that was accepted, or may waste time in research because a valuable paper was rejected.

- Area and Program Chairs, who may greatly influence your career advancement, may remember that you let them down.

If you write good, insightful, well-justified, constructive reviews….

- The authors' faith in the vision community will increase, and, even if they need to resubmit, they will know what needs to improve.

- Researchers will continue to flock to vision conferences for the latest and greatest in computer vision ideas and techniques.

- Area and Program Chairs will love you because you will make the paper decision much easier.
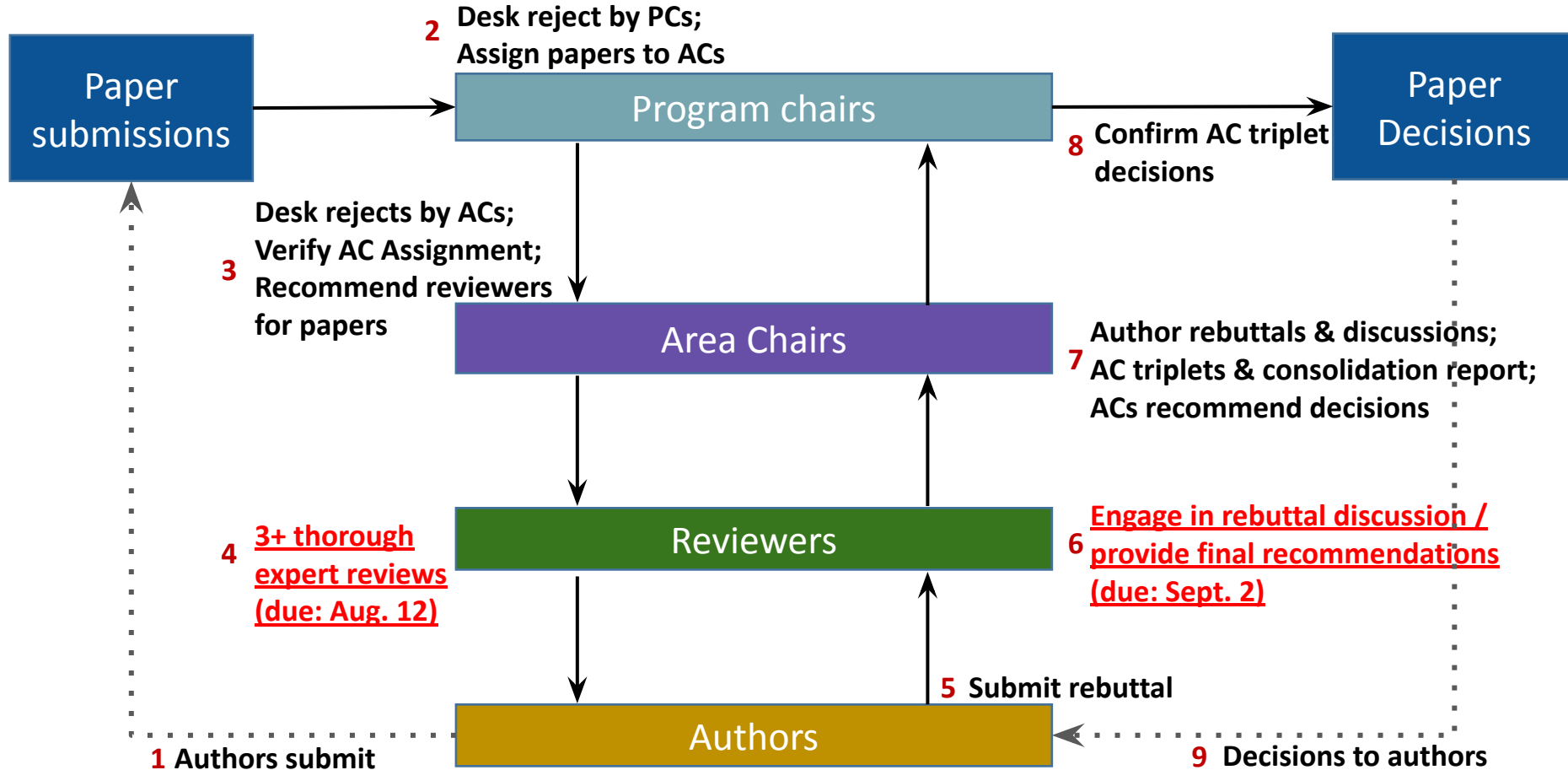
Tutorial Goals: To Understand

01 Process

02 Guideline

03 Dos & Don'ts

04 Ethics

The Review Process: Overview

Paper submissions

2 **Desk reject by PCs; Assign papers to ACs**

Program chairs

Paper Decisions

8 **Confirm AC triplet decisions**

3 **Desk rejects by ACs; Verify AC Assignment; Recommend reviewers for papers**

Area Chairs

7 **Author rebuttals & discussions; AC triplets & consolidation report; ACs recommend decisions**

4 **3+ thorough expert reviews (due: Aug. 12)**

Reviewers

6 **Engage in rebuttal discussion / provide final recommendations (due: Sept. 2)**

5 **Submit rebuttal**

Authors

1 **Authors submit**

9 **Decisions to authors**

The Review Process: In Detail

1. **Program chairs (PCs) assign papers to area chairs (ACs)**.

2. **ACs suggest multiple reviewers per paper**, with help of TPMS and OpenReview Matching.

3. **Papers are assigned to reviewers** (3 per paper) using an optimization algorithm that takes into account AC suggestions, paper load and conflict constraints (between ACs, reviewers and authors), and the prayers of PCs that nothing goes wrong.

4. **Reviewers submit initial reviews**. ACs check quality of reviews, chase late reviewers, and assign emergency reviewers as necessary.

5. **Authors receive reviews** with a mixture of gasps, grimaces, grumbles, and the occasional grin. After much thought and re-reading of paper and reviews, authors submit rebuttals.

6. **Discussion among reviewers and ACs**, based on all reviews, rebuttal, and paper. Reviewers update their ratings and justification.

7. **ACs make decisions and write meta-reviews.** The decision and meta-review are recorded by the primary AC for each paper and checked/approved by the secondary ACs. ACs in a triplet discuss borderline papers. Additional opinions may be sought from other non-conflicted expert ACs. In addition to accept/reject decisions, AC pairs provide a roughly ranked list of oral/spotlight nominations to the PCs.

8. **PCs make final determination** and verify decisions, based on the recommendations of the ACs

The role of reviewers in the process

Review
Provide an independent, objective, critical, and comprehensive review
- Key: What is the knowledge advancement in the paper?

Discuss
Discuss with AC and reviewer buddies to (hopefully) reach consensus
- Explain clearly the basis of your review and recommendation
- It is OK if the reviewers disagree with one another even after discussions
- AC will form recommendations weighing in reviews, rebuttals, and discussions

Recommend
Make your final recommendations with solid justifications
- Read the rebuttal and discussions. Do they change your position? Why?
- This facilitates the ACs to make final recommendations for the paper

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What paper should be accepted?

- Any paper that, with ACCV community standards,
    - presents **sufficient knowledge advancement** that is **well grounded**;
    - is of **sufficient interest** to some **ACCV audiences** who could **benefit** from it

- ACCV is inclusive; historically, rejection solely for out-of-scope is rare

Acceptance criteria

- Your job as a reviewer is to provide well-reasoned recommendations to Area Chairs to enable them to make final decisions on all papers:
  - **Highlight Paper or Best Paper Award:** major advances that will heavily impact the field; will be used by many people, create new capabilities, etc.
    - E.g., ResNet (CVPR 2016 Best Paper), Mask R-CNN (ICCV 2017 Best Paper)
  - **Accept:** Multiple types of papers fit into this category
    - Potential to be very significant; worthwhile for the whole community to hear about.
    - Incremental steps that expand the sum of the community's knowledge or add bricks to the cathedral of knowledge; papers introducing useful tools; papers of interest to a subcommunity.
    - Creative ideas that are hard to judge but could be promising -- no one knows the future, so we should give the benefit of the doubt to *plausible* ideas.
  - **Reject:** unlikely to be significant.

Why not accept everything?

Papers can have a *negative* impact:

- Wrong or fraudulent results mislead the field and damage the reputation of the conference.
- Misleading evaluation makes it hard to compare with, kills follow-up.
- Creates bad precedent (weak paper X got in, so this one should too).
- Fatigue/overload of too many papers, wastes everyone's time.

Each weak or mediocre paper we accept hurts the conference a little (though not as much as rejecting a good paper).

Review form outline

Summary:

Describe the key ideas, experiments, and their significance (preferably in 5-7 sentences).

Strengths:

Consider the aspects of key ideas, experimental or theoretical validation, writing quality, and data contribution (if relevant). Explain clearly why these aspects of the paper are valuable.

Weaknesses:

Consider the aspects of key ideas, experimental or theoretical validation, writing quality, and data contribution (if relevant). Explain clearly why these are weak aspects of the paper.

Rating and Justification:

Provide detailed justification of your rating. It should involve how you weigh the strengths and weaknesses of the paper.

Additional comments:

Minor suggestions, questions, corrections, etc. that can help the authors improve the paper, if any.

Guidelines

- **Take the time to do a good review**
  - Many experienced reviewers take 2-4 hours per paper. If you're fairly new to reviewing (e.g. grad student), plan on least 4 hours per paper and take the time to read the paper twice, consider related work, look up unfamiliar techniques, etc.

- **Be impartial**
  - **Judge each paper on its own merits.** There is no global quota on the number of papers the conference can accept, and no requirement that the acceptance rate in your pile should match the acceptance rate of the conference.
  - **Be aware of your own bias.** We all tend to assign more value to papers that are relevant to our own research. Try to ignore "interestingness of topic" or "fit to the conference" and focus on whether the paper can teach something new to an interested reader.
  - **Try to discount the identity of the authors** if you happen to know it (e.g., through arXiv). If you *do not* already know who the authors are, *do not* attempt to discover them by searching arXiv.

Guidelines (cont.)

- **Be specific and detailed**
  - Your comments will be much more helpful to the ACs and the authors than your scores
  - Do not simply give summary judgments ("not novel", "unclear", "incorrect") – justify them in detail!
  - This is particularly important for prior work. It is *not OK* to simply say "this has been done before": you need to give specific references and explain what is the overlap exactly!

- **Be professional and courteous**
  - Belittling, sarcastic, or overly harsh remarks have no place in the reviewing process.
  - Avoid referring to the authors in the second person ("you"). Instead, use the third person ("the authors" or "the paper"). Referring to the authors as "you" can be perceived as being confrontational, even though you may not mean it this way.
  - Do not ask the authors to cite your own papers just for the purpose of pushing and promoting your work; but DO ask the authors to cite papers that are relevant, which could be yours or others'. Treat your own papers like any third-party papers.
  - Proofread and spell-check your reviews.

Guidelines (cont.)

- **Different papers require different levels of evaluation**
  - Potentially transformative idea: basic proof-of-concept.
  - Established problem, plausible idea: benchmark results.
  - Weird, overly complex, implausible, and/or seemingly incremental: extraordinary results (which need to be scrutinized carefully).
  - Position piece or theory paper: no experiments.

The expectations of reviewers

Be constructive to the authors

It is necessary to be critical, but avoid offending the authors

Instead, suggest how they could make the paper better

Be friendly to your buddy reviewers and ACs

People could take diverse views on the same paper

Agree to disagree – the discussions do not force consensus

Focus the discussions on the technical side and do not take it personally

Be on time, responsible, and responsive

Any delay will impose additional workload to your colleagues

Your ACs are there to help you

If you need any help in the process, your ACs are there to help you

- Suspicious ethical/mischief concerns should be raised to ACs and PCs (but please proceed with reviewing as usual; PCs will take care of policy-related issues)
- Avoid policing the paper directly on such issues

ACs know your names!

- They will recognize and help build your reputation if you do good reviews.
- They will not have a good impression of you if you submit sloppy or late reviews.

ACs nominate reviewers for the Outstanding Reviewers Award

- Outstanding reviewers are more likely to get invited to serve as ACs in the future

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01

Process

02

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03

Dos & Don'ts

04

Ethics

What should be included in the review?

A concise summary of the paper	What problem is addressed in the paper? Is it a new problem? If so, why does it matter? If not, why does it still matter? What is the key to the solution? What is the main contribution? Do the experiments sufficiently support the claims?
A clear statement of strengths and weaknesses	What are the key contributions and why do they matter? What aspects of the paper most need improvement?
A comprehensive check of potential fundamental flaws in the paper	Are the assumptions and theories (mathematically) sound? Are the experiments scientifically sound and valid? Is the problem addressed trivial? Did the paper miss **important** prior work? Has it been done before? If yes, where?

[Developed from: Reviewer Slides for ICCV'19]

What should be avoided in the review? Common Mistakes

Arrogance, ignorance, and inaccuracy	• Be responsible!
Pure opinions	• Be grounded!
Novelty fallacy	• Be knowledge-driven!
Blank assertions	• Be substantial!
Policy entrepreneurism	• Be sensible!
Intellectual laziness	• Be active!

[Developed from: Reviewer Slides for CVPR'21]

Arrogance, ignorance, and inaccuracy

Arrogance	Ignorance	Inaccuracy	Safe behavior

• **Script**
  • Authors: We did A by means of B
  • Reviewer: The only way to do A is through C (i.e., my way or highway) … …
• **Error**: you should know or check
	• **Script**
	  • Authors: All A are B
	  • Reviewer: I do not think all A are B
	• **Error**: you should know or check
		• **Script**
		  • Authors: A is a ring, not a field
		  • Reviewer: All rings are field
		• **Error**: They are NOT ……
			• Do not provide an opinion on things you do not know about

[Developed from: Reviewer Slides for CVPR'21]

Pure Opinions

Script 1	• Reviewer: This is not good enough for ICCV 2023 • Why?
Script 2	• Reviewer: CNN is not that interesting? • Why?
Script 3	• Reviewer: Adversarial losses guarantees distribution matches • No theoretic proof indeed!
Error	• These remarks are pure opinions and not grounded
Safe behavior	• Check if you grounded your statement with a "because … …"

[Developed from: Reviewer Slides for CVPR'21]

Novelty Fallacy

Script 1
- Reviewer: This should not be accepted because it is not novel
  - Why? By whom and where has this been published before?

Script 2
- Reviewer: this should be accepted because it is novel
  - Why? Provide additional justification.

Error
- Many important things are not that novel
  - Small but clever adjustment to SOTA
- Many novel things are not that important **AND** many really silly things are novel

Safe behavior
- Focus on whether the paper presented well-grounded knowledge advancement

[Developed from: Reviewer Slides for CVPR'21]

Blank assertions

Script 1	• Reviewer: This has been done before • By whom? Where? Why?
Script 2	• Reviewer: Intrinsic images are not longer important • Really? To whom? Why?
Script 3	• Reviewer: Experiments on unpublished datasets are not scientific • Really? Why?
Script 4	• Reviewer: Authors are ignorant/careless/incompetent… • Be humble, nobody is perfect.
Script 5	• Reviewer: If the authors were smart enough, they would…. • Be humble, nobody is perfect.
Error	• Making ungrounded statements • Comment about authors instead of focusing on the paper content
Safe behavior	• Provide evidence to support your assertions • Confine the discussion on the technical content of the paper, not on the authors

[Developed from: Reviewer Slides for CVPR'21]

Policy entrepreneurism

Script 1	• Reviewer: You must publish your dataset! • No such policy!
Script 2	• Reviewer: You must beat SOTA! • No such policy!
Script 3	• Reviewer: You must have a theorem! • No such policy!
Script 4	• Reviewer: You must beat arXiv papers! • No such policy!
Error	• You imposed your own policies which are 1) not part of the official review policy and 2) against scientific review principles.
Safe behavior	• Make sure you follow common principles in scientific review. • Most importantly, focus on whether the paper produced significant knowledge advancement.

[Developed from: Reviewer Slides for CVPR'21]

Intellectual laziness

Script 1	• Reviewer: Does not beat SOTA so it must be rejected! • Does the paper present sufficient knowledge advancement?
Script 2	• Reviewer: Beat SOTA so it must be accepted! • Does the paper present sufficient knowledge advancement?
Script 3	• Reviewer: Theorem V looks wrong • It is either wrong or correct. You can not be unsure.
Script 4	• Reviewer: There is this error hence it should be rejected • Is the error making the main knowledge advancement invalid?
Error	• Overemphasize certain factors instead of giving a comprehensive assessment
Safe behavior	• Make sure you follow common principles in scientific review. • Most importantly, focus on whether the paper produced significant knowledge advancement.

[Developed from: Reviewer Slides for CVPR'21]

Examples of reviews

- The following examples are from ICLR, which published reviews in the public domain

- For ICLR, the review is written as a single narrative, rather than broken into sections but the same criteria apply

- Here we consider the **quality of the form**, rather than the accuracy of the content, of the review.

Review quality: Good. Though missing a summary of contribution, the review clearly explains why the paper should be accepted

(Note: this was a late-added review, which may account for brevity)

Rating: 9: Top 15% of accepted papers, strong accept

Review: First off, this paper was a delight to read. The authors develop an (actually) novel scheme for representing spherical data from the ground up, and test it on three wildly different empirical tasks: Spherical MNIST, 3D-object recognition, and atomization energies from molecular geometries. They achieve near state-of-the-art performance against other special-purpose networks that aren't nearly as general as their new framework. The paper was also exceptionally clear and well written.

The only con (which is more a suggestion than anything)--it would be nice if the authors compared the training time/# of parameters of their model versus the closest competitors for the latter two empirical examples. This can sometimes be an apples-to-oranges comparison, but it's nice to fully contextualize the comparative advantage of this new scheme over others. That is, does it perform as well and train just as fast? Does it need fewer parameters? etc.

I strongly endorse acceptance.

+ Clearly explains why the paper should be accepted – Does not contain many details about the contribution or why it is novel, so relies on the AC trusting the reviewer's judgment on these points

Note: though the proposed method does not achieve the best results (according to the review), the paper is highly valued for proposing a more general framework. Achieving best results is not necessary to validate the key idea (e.g., generality by testing with diverse datasets, or including an ablation study that isolates the impact of the key idea).

+ Indicates that the reviewer tried to think of weaknesses but could not come up with anything that should negatively impact the paper rating
+ Constructive feedback for the authors

https://openreview.net/forum?id=Hkbd5xZRb

Review Quality: OK but not great. Makes general factors in decision clear and provides detailed feedback to authors, but does not provide adequate explanation for strengths and weaknesses

Rating: 8: Top 50% of accepted papers, clear accept

The paper proposes a framework for constructing spherical convolutional networks (ConvNets) based on a novel synthesis of several existing concepts. The goal is to detect patterns in spherical signals irrespective of how they are rotated on the sphere. The key is to make the convolutional architecture rotation equivariant.

Pros:
+ novel/original proposal justified both theoretically and empirically
+ well written, easy to follow
+ limited evaluation on a classification and regression task is suggestive of the proposed approach's potential
+ efficient implementation

Cons:
- related work, in particular the first paragraph, should compare and contrast with the closest extant work rather than merely list them
- evaluation is limited; granted this is the nature of the target domain

Presentation:
* While the paper is generally written well, the paper appears to conflate the definition of the convolutional and correlation operators? This point should be clarified in a revised manuscript.
* In Section 5 (Experiments), there are several references to S^2CNN. This naming of the proposed approach should be made clear earlier in the manuscript. As an aside, this appears a little confusing since convolution is performed first on S^2 and then SO(3).

Evaluation:
* What are the timings of the forward/backward pass and space considerations for the Spherical ConvNets presented in the evaluation section? Please provide specific numbers for the various tasks presented.
* How many layers (parameters) are used in the baselines in Table 2? If indeed there are much less parameters used in the proposed approach, this would strengthen the argument for the approach. On the other hand, was there an attempt to add additional layers to the proposed approach for the shape recognition experiment in Sec. 5.3 to improve performance?

Minor Points:
- some references are missing their source, e.g., Maslen 1998 and Kostolec, Rockmore, 2007, and Ravanbakhsh, et al. 2016.
…. *[abridged minor points due to lack of space in this slide]*
- Figure 5, caption: "The red dot correcpond to" --> "The red dot corresponds to"

Final remarks:
Based on the novelty of the approach, and the sufficient evaluation, I recommend the paper be accepted.

+ Highlights key ideas and contributions.
- The summary should also include one sentence on experimental setup
- Summary should include one sentence on significance of the contribution

+ Itemizes strengths and weaknesses
- Does not provide enough detail. E.g., what is original about the paper? How is the evaluation limited?

+ Includes clarifications questions and constructive feedback for authors
+ Makes it clear that "Minor Points" are not an important factor in decision

+ Identifies key positive factors in rating
- Would have been better to say why the weaknesses are given less weight

https://openreview.net/forum?id=Hkbd5xZRb

Review quality: Bad. The review lists only weaknesses and requests for clarification, omitting a summary and justification for decision. Thus, it is unclear to author or AC which of these points are the primary basis for the rating.

Rating: 4: Ok but not good enough - rejection

Review: 1. The idea of multi-level binarization is not new. The author may have a check at Section "Multiple binarizations" in [a] and Section 3.1 in [b]. The author should also have a discussion on these works.

2. For the second contribution, the authors claim "Temperature Adjustment" significantly improves the convergence speed. This argument is not well supported by the experiments.

    I prefer to see two plots: one for Binarynet and one for the proposed method. In these plot, testing accuracy v.s. the number of epoch (or time) should be shown. The total number of epochs in Table 2 does not tell anything.

3. Confusing in Table 2. In ResBinNet, why 1-, 2- and 3- level have the same size? Should more bits required by using higher level?

4. While the performance of the 1-bit system is not good, we can get very good results with 2 bits [a, c]. So, please also include [c] in the experimental comparison.

5. The proposed method can be trained end-to-end. However, a comparison with [b], which is a post-processing method, is still needed (see Question 1).

6. Could the authors also validate their proposed method on ImageNet? It is better to include GoogleNet and ResNet as well.

7. Could the authors make tables and figures in the experiment section large? It is hard to read in current size.

Reference

[a] How to Train a Compact Binary Neural Network with High Accuracy. AAAI 2017
[b] Network Sketching: Exploiting Binary Structure in Deep CNNs. CVPR 2017
[c] Trained Ternary Quantization. ICLR 2017

https://openreview.net/forum?id=SJtfOEn6-&noteId=HkG6r4Kgf

+ Cites papers that make the idea "not new"
– Does not say how these methods relate, so it is not clear if they are very similar techniques

– Because it is not tested by experiments, or that the convergence speed is not different?

- The remaining points may help authors improve the paper, but it is not clear if they are a significant factor in the rating to reject

Big problems:
- AC can't make good use of the review without reading the paper, due to lack of summary/justification.
- No strengths listed, which may indicate that reviewer is just looking for reasons to reject.
- Author and AC don't know which of the listed points are important for reject rating.

Tutorial Goals: To Understand

01

Process

02

Guideline

03

Dos & Don'ts

04

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Avoid conflicts of interest

Contact the Program Chairs if you suspect you may be conflicted with one of the authors

Refer to Author Guidelines for detailed definition of conflicts

Protect the authors' ideas

Do not show submissions to anyone else, including colleagues or students, unless you have asked them to write a review, or to help with your review.

Do not use ideas from submissions you review to develop your own ideas.

After the review process, destroy all copies of papers and supplementary material and erase any code you may have written to evaluate the ideas in the papers.

Large Language Model (LLM) Ethics for Reviewers

A reviewer may not use online chatbots such as ChatGPT for confidentiality

- Online chatbots such as ChatGPT collect conversations to improve models.
- People might ask chatbots for research ideas.
- Therefore, submission contents should not be passed to online chatbots.
- We require you (a reviewer) to confirm that you have not used online chatbots to prepare a review.

Large Language Model (LLM) Ethics for Reviewers

"Offline" Large Language Models (LLM) may not breach confidentiality but bring in review quality challenges.

- We require every reviewer to provide comments that _faithfully represent the reviewer's original opinions_ on the papers being reviewed.
- It is unethical to resort to Large Language Models (even offline) to automatically generate reviewing comments that do not originate from the reviewer's own opinions.
- We require you (a reviewer) to confirm that each review reflects your original opinions and no parts were generated by an automatic system.

Additional Information

CVPR 2020 Tutorial: How to Write a Good Review

https://sites.google.com/view/making-reviews-great-again/