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Writing Tips for a System Paper

Guidelines for System Research Topics

1. Explain why this topic is important and whether it addresses a fundamental issue.
2. Discuss the fundamental nature of the problem (問題的根本性) being solved, and whether it addresses an important underlying problem.
3. Evaluate whether this research can lead to significant future developments or generate substantial impact.
4. Examine whether the proposed method demonstrates novelty or innovation.
5. Consider whether there are **potential receivers** in the future, and whether there is a possibility for practical deployment or productization.

Guidelines for System Research Topics (Cont.)

6. A research topic should be considered from the strategic view across a series of studies (重視一系列研究的策略觀點或戰略視角), particularly in terms of fundamental **research impact**, **industrial impact**, and **societal impact**.
7. For each topic or series of topics, it is important to emphasize its long-term impact, its fundamental nature, and whether it addresses a long-term important issue.
8. Consider whether the research is generalizable and capable of tackling other problem settings. (e.g., aging in ext2 can be generalized to others)
9. Identify the scientific foundation of the research that can last longer.
10. Understanding the general principles behind the work is more valuable.

Overall Guidelines - A paper is the artwork of a researcher

- **1. You are writing for the reader (not for yourself)**
  - Understand your reader and be aware that readers are busy.
- **2. Think and write in top-down**
  - Give the high level first and then go into the low level.
  - Give an overview first, set the context and then go into components and details.
- **3. Be direct**
  - Be explicit about the key insights, key problems, key ideas, key goals.
  - Do not hide them. Tell them again and again.
- **4. Use simple sentences, make them short and clear.**
  - Simple sentences will also lead to fewer errors in w riting/grammar.

Overall Guidelines - A paper is the artwork of a researcher

- **5. Use simple word**
  - Small words (less syllable, more common, and easier to understand) are better than big.
  - The verb is the most important word in the sentence.
- **6. Use simple present tense**
  - A paper lives on timeless. Simple present is the right tense for everything in the paper unless it is absolutely necessary.
- **7. Use singular**
  - Explaining concepts is easier when done in singular than in plural.
  - E.g., “Computers are electronic devices that aid the lives of humans" is harder to read than "A computer is an electronic device that aids human life."

Overall Guidelines - A paper is the artwork of a researcher

- **8. Be methodical**
  - Organizes things in logical groups.
    - "This system has three advantages. First, ... Sec ond, ... Third, ..." is much better than the following: "This system is good at ... Als o, it is good at ... Moreover, it is extremely good at ...“
  - Prioritizes important things.
  - Follows a structure for each (similar) paragraph.
- **9. Be consistent**
  - Consistency is critical. Use consistent names and terms.
  - It is okay to use the same word again in the same paragraph.
- **10. Nitpick on everything**
  - Every single word is important. You win or lose a reader with a sin gle word, sometimes.
  - If the reader/reviewer read the title, abstract and introduction, and they are not convinced by the end, the paper is unlikely to get accepted.

Overall Guidelines - A paper is the artwork of a researcher

- **11. Use active tense**
  - The reader can focus easily this way and follow who is doing what exactly.
  - Passive tense hides the subject or makes things convoluted.
- **12. Make the first impression**
  - Be serious on everything, not only writing.
  - The figures, tables, algorithms and their placement are important for first impression.
  - People usually scroll the entire paper before getting into it.
- **13. Spelling mistake is not acceptable!**

Paper Structure

- **Abstract**
  - The problem you are solving needs to be clear from the beginning → Why it is important needs to be clear right afterward → Then, your goal in the paper → the key ideas you develop to solve the problem → the mechanisms (at a high level) → the key experimental results.
- **Introduction**
  - Introduction is the Same as abstract except it is extended with more background and contributions.
    - Clarify why this problem is important and challenging. This usually include necessary background and related work to tell the reader why the existing studies cannot solve the problem and the progress they made to deal with your problem.
    - Clearly define your goal in the paper
    - The key ideas you develop to solve the problem (in more detail than the abstract).
    - The mechanisms (at a high level, but again in more detail than the abstract).
    - The key experimental results (with thorough descriptions of the comparison points)

Paper Structure

- **Background**
  - Give enough and necessary background to ensure the paper is understandable to someone who doe s not know the area.
  - Background is to guide the reader into your thought, not to teach them.
  - If you start writing the background first, make sure to revise it after finish the following section (to check if all necessary background is provided)
  - **Figure** is always needed in this section for better understanding.
- **Motivation**
  - Show observation (if needed) and/or motivational experiment and arguments, motivating the problem in a deeper way and the approach.
  - Reiterate the goal and the challenge at the end.

Paper Structure

- **Mechanism (Proposed Approach)**
  - Start with a high-level overview with a figure for the system architecture.
  - Describe the key components first and their goals in the overview.
  - Describe how they tie together. Give a roadmap of what is coming next and what the reader should expect in the result of the section.
  - Always use top-down to explain your approach.
    - Your goal, then main idea, then explain following to the figure. Last, if needed, detailed using equation and algorithm.
  - Avoid showing the implementation and parameters (in your experiment) in here. They are annoying and difficult to let the reader understand your idea.

Paper Structure

- **Implementation (Optional)**
  - Give a high-level overview first. Then delve into details.
  - Implementation is important (if space is available, especially writing a long-length paper) to guide the reader how t o reproduce your research.
- **Performance Evaluation**
  - (1) **Experiment Setup (Methodology)**
    - This should be simple, but thorough
  - (2) **Experiment Result**
    - In the results section where you can be extremely methodical in
      - i) describing the goal of the experiment,
      - ii) describing the experiment,
      - iii) describing the figure,
      - iv) drawing N key observations in descending order of importance,
      - v) drawing a major conclusion at the end ("We conclude that ...")

Paper Structure

- **Related Work (Optional)**
  - Background only tell the necessary background knowledge and information will be used in the following paper;
  - Related work cover (as completed as possible) the background knowledge of the research domain
- **Conclusion**
  - Reiterate what you have done in this paper, focusing on the key contributions, key results, and key conclusions.

Figure and Placement

- Place each figure right after it is referenced in the text.
- Every single figure should be self-explanatory.
- The reader should look at the figure and get the idea.
  - Things need to be labeled clearly, organized in a logical way.
- **Let figures tell the story**
  - Make figures large and easy to read and follow.
  - When the reader looks at a figure, they should simply get it and understand it, without any outside text.
  - The figures need to be intuitive and also easy to read.
  - The fonts need to be easy to read in figures (Suggestion: same size as text in paper)

Figure and Placement (Cont.)

- **Explain clearly everything on the caption and legend**
  - Principle: Every figure should provide some good basic understanding, without requiring the reader to read the text.
  - Ideally, a figure should be completely understandable on its own
- **Focus on explaining the figure first and giving the key observations next**

Everything Matters in Writing

- Research focuses on must-have and then good-to-have.
- For writing, everything matters.
  - Writing is an algorithm and an art at the same time.
  - It is important to treat every single paper as a delicate piece of artwork and optimize.
  - Every word matters. Every single figure matters.
  - Treat a paper as a caring artist treats their artwork: they optimize and perfect every piece of it.

Tips and Recaps

- Be serious on reference format, including author names, the consistency of conference names, and acronyms.
- Avoid unnecessary words.
- Always use present tense unless some other case is absolutely required.
- Consistency is critical. Use consistent names and terms.
- After writing. read the paper as if you know nothing and nitpicking on all that is written. A fresh set of eyes who can do this would be very valuable.


thank you
danke
謝謝
ngiyabonga
рахмат
teşekkür ederim
Баярлалаа
спасибо
gracias
dank je
tapadh leat
faafetai lava
vinaka
спасибі
blagodaram
misaotra
matondo
paldies
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mahalo
mersi
kia ora
barka
welalin
tack
spas
kiitos
dankie
nanni
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dankon
ačiū
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kam sah hamnida
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diolch
ευχαριστώ
তোমাকে ধন্যবাদ
감사합니다
xièxie
merci