How to Write Research Papers

For CSSP Lab Members Only

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What Reviewers Want?

- Enough Paper Survey
  - Especially important papers can’t be missed

- Innovation
  - What are the major differences from the others?
  - What are your advantage of your work?

- Technical Sound
  - No errors in your approaches

- Fair Comparisons

- Good English Writing
The Structure of a Research Paper

- Abstract
- Introduction ← ★
- Motivation/Problem Formulation
- Proposed Approaches
- Experimental Results ← ★
- Conclusions
- Acknowledgement
- Reference ← ★
Abstract

- Point out the value/contribution of your work
- Summary of your work
- Summary of the issues you solved by your approaches
- Summary of the experimental results
Introduction

- Motivation of the research
- Paper survey
  - Point out the research trend
  - Summarize their work and softly point out their “weakness” for the research issue
- Approaches of your work
  - Indicate what the innovation of your approaches is
Introduction

Advantages and/or contribution of your work

- **For simulation only**, figure out the advantages compared with the others
- **For real work with platform**, say TAIWAN iTS-1, emphasize your data is for real-time and/or on-line purpose.
- **For real design with our algorithms**, enhance your test results which are better than others and the work has been realized or implemented. The others’ work has to be implemented by you!

Paper Organization
Problem Formulation

- Write down the main addressed issues of this motivation by mathematical equations, flowcharts, or algorithms, …
- List the work by mathematical equations, flowcharts, or algorithms, … done by others
- What’s your new point? ← innovation?
Proposed Approaches

- Be patient to write your algorithms or equations and write them clear.
  - Do NOT think the reviewers should recognize what you have done if you don’t tell them the values of your work!
- It MUST be technically sounded. No technical errors can be allowed here.
- Use figures, tables, and/or flowcharts to point out your idea.
Experimental Results

- When you finally run out the simulation data or real results, you **MUST** figure them out **CLEARLY** for reviewers and readers.
  - You can’t think reviewers will well know what you have done.
  - You have to tell reviewers clearly what your values are.

- Comparison is definitely necessary for evaluation of your work.
  - It **MUST** be fairly compared.
  - **Rewrite** the algorithms of the work you want to compare for well comparison.
Experimental Results

- Because of the language sick, we, nonnative English writers, often omit the important idea or can’t point our values out clearly.
  - Write down everything you want to say first.
  - Cross out the overlapping.
  - Enhance the contribution or value. Rewrite it or write more clear.
  - Ask for my help when you have difficulties.
Conclusions

- Summarize what issues have been solved by your approach.
- Summarize your contribution and experimental results.
- Future work if possible
Acknowledgement

- No publication compensation can gain without this part.

- This work was supported by National Science Council under Grand no. NSC XX-XXXX-E-XXX-XXX, e.g. NSC 95-2752-E-009-012-PAE.

- The authors would like to give deep thanks to Prof. XXX for his/her/their valuable suggestion for this research work.
Reference

- Check the information for Authors for Writing Style
- Do not cite a too old reference unless it is a Bible paper!
- Order it by last name or by the appearance in the paper
- Cite your own published work
Reference

Write it as the standard IEEE format

- **Journal Papers**

- **Conference Papers**

- **Books**
  - Authors, *Title*, Book Chapter or page range, Book name,  *Book dealer*, year.

- **Technical reports**
Frequent Errors in Writing a Paper

- The Fig. 1, the Table 1, the Eq. 1, the A denotes a matrix….
  - Fig.1, Table 1, Eq. 1, A denotes a matrix…

- In the section 1, the Page 1
  - In Section 1, Page 1

- Forget to use Article or plural number
  - Method can be applied to…
  - Revise to The method can be applied to…
Frequent Errors in Writing a Paper

- Passive voice can be used to enhance the statement
  - We found that the approach is less… ← \( \times \)
  - It is observed that the approach is less… ← Better

- Avoid using the first person.
  - I used the approach to solve… ← \( \times \)
  - We used the approach to solve… ← \( \times \)
  - The approach can be used to solve… ← Better
Frequent Errors in Writing a Paper

- Use a synonym for the same meaning in the near sentences
  - The system uses…We use… ← ✗
  - The system uses…We apply… ← Better
  - Propose, present, provide; work, approach, method…

- Use “address”, “observe”, “yield/obtain” to replace “discuss”, “see/find”, “generate”, respectively.

- Using vowel pronunciation not vowel character to determine an or a
  - an FGPA, an mn matrix.
  - a useful approach, an updated equation.
Frequent Errors in Writing a Paper

- Too many verbs in a sentence or too complicate statements within one sentence.
  - Simple sentences are encouraged.
  - Split your statements into two or more sentences.

- Chinese English MUST be avoided.
  - Use passive voice.
  - Note writing style instead of contents when you read a paper.
Before you submit your work to me for review, You MUST

- Check if there are red marks in your Word file. If yes, it is supposed you have typos in your work. Clean these out.
- Check if there are green marks in your Word file. If yes, it is supposed you have apparent grammar errors. Clear these out as possible as you can.
- Read your paper AGAIN to see whether any common errors mentioned in this hint exist.
CheckList

- Is Abstract enough to address your work?
- Has Introduction enough survey? Does Introduction contain your advantage or contribution?
- Do you address the problems to be solved clear?
- Does computer variables, not Math. Variables, show up in your paper?
- Do you point out your values or contribution clear?
- Do you make well comparisons?
- Is Reference enough or too old?