What to Remember while Writing Scientific Papers

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Authors & readers

- Papers are written for readers, not for yourself!
- Pretend to be a reader when writing
  - different styles to read your paper
    - looking at your abstract only
    - reading your introduction as well
    - jumping to your conclusion
    - reading every topic sentence
    - browsing your figures or tables
Authors & reviewers

- Pretend to be a reviewer when writing
  - different objectives to read your paper
    - looking for open problems
      - issues to be addressed
      - new areas to explore
    - checking if the work has been done
      - solid results presented
      - conclusion justified
  - identifying similar works
    - enough references?
    - any place leading to “incomplete”, “not well written”

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General Format

- Title
- Authors and their affiliations
- Abstract
- Introduction (start of enumeration)
- ...
- Conclusion (end of enumeration)
- References
Title & abstract

☐ Pick a meaningful/good **title**
  - be informative, error-free!
  - neither too general, nor too narrow
  - Also, find a GOOD name for your work!

☐ Write your **abstract** at least twice, may be more than 5 times
  - make a concise paragraph summary of your work
  - before starting your paper
    - an abstract can setup your tune/theme
  - after completion of your paper
    - refine your abstract

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Introduction

☐ Objectives of an introduction
  - let readers understand the rational behind the work
  - make readers appreciate your objectives/contributions

☐ Major components of an introduction
  - describe the importance of the study
  - present approaches to be used
  - state your specific objectives
  - very briefly describe the experimental design and how it accomplished the stated objectives
Related works

- Where?
  - After Introduction
  - In Introduction
  - Before Conclusion

- What in related works?
  - Most related first
  - Less related first

What in the middle?

- Define problems, terms and metrics
- Solutions and algorithms
- Explanation of algorithms
- Examples
- Experimental results
- Analysis of results
Discussion

- Provide an interpretation of your results
  - if your results differ from your expectations
    explain why that may have happened
  - if your results agree
    describe the theory/mechanism that the evidence supported
- Support your conclusion by using evidence from your experiment
- Clearly describe/restate the significance of findings
- Suggest future directions/new avenues of research

Proofread!

- Proofread by yourself
  - To eliminate
    - incomplete sentences
    - redundant phrases
    - misspellings
  - To check
    - terms need to be defined
    - terms defined, but never used
    - names of people
    - section numbers and cross-references
- Pay attention on red and green underlines in Word
Proofread!

☐ Proofread by someone else
- To help to identify
  - terms or metrics not well defined
  - sentences hard to understand
  - results/statements not well justified
  - irrelevant information
  - anything that sounds awkward
  - any place that is not objective (subjective)

Proofread!

☐ common errors
- Fix ‘s
  - Wind tunnel’s result -> the result from wind tunnel
- Doesn’t -> does not
- Can not -> cannot
- Which vs. that
- Don’t be emotional
  - very good results
  - dramatic success
- Define before using a term
Proofread!

- Make it simple, **avoid long sentences.**
  no longer than 2 lines!

- Consider from the vision of data collection
  → Consider data collection
- Cancel the benefits of infrastructure cost saving
  → Cost saving

![Proofread!](image1)

Remember...

- Don’t write “Chinese English”
  - translating from Chinese to English word by word
- Don’t write anything that you didn’t see before
  - even if it is grammatically correct

![Remember...](image2)
References

☐ The rule of citation
  ■ wherever you refer to any work published
  ○ avoid copying an entire sentence
  ○ try to restate them by your understanding
  ■ whenever you use a figure/picture

☐ The order of bibliography
  ■ by the alphabetic order of the last name of the first author
  ■ by the order of citation

  Cannot be mixed!

References

☐ The format of bibliography, Be consistent
  ■ Last-name, first-name
  ■ First-name last-name
  ■ Pick one style: Min-You Wu, or M.Y. Wu

  ■ The title of publication, such as IEEE Transactions on ...
    ○ then every publication must follow the same font.
  ■ Keep the same format for vol., no., pages for each item
  ■ Better to include the month, the year, and the location of the conference
  ■ Avoid URL references whenever possible
References

☑ Quotation
  - always include any punctuation mark inside of quotation:
    “......”, “......”

☑ Conference or journal names should be spelled out
  - WCNC??? = News for Charlotte, North Carolina?
  - IEEE Wireless Communications and Networking Conference
  - JPDC???
  - Infocom ?? OK, “IEEE INFOCOM 2008” sounds better

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Writing samples

☑ Reference consistence
    - *IEEE Transactions on Intelligent Transportation Systems,*
    - vol, no, pp.
  - L. Zou, et al. Arterial speed studies with taxi equipped with global positioning receivers as probe vehicle, WCNM, 2005
    - *International Conference on Wireless Communications, Networking, and Mobile Computing (WCNM)*
    - September 2005, Wuhan, China.
The sensor used is set with a long sampling interval because of the low communication cost and avoidance of network congestion.

- Logical!

The sensor was set with a long sampling interval to reduce communication costs and network congestion.

Second, LBA and VBA are simple and baseline algorithm which can serve as guideline for deploying such an application, how to improve and design a more sophisticated algorithm for traffic monitoring based on such data basis is our future work.

- A long sentence to be rewritten!

Next, either LBA or VBA is considered to be a baseline algorithm. Our future work is to design an advanced yet effective algorithm for traffic monitoring.
Writing samples

- We carried out an in-depth study to investigate the phenomenon that different cases result in different performance and SD. Several factors account for the different performances of our algorithms on different links.

- Who can understand what you are trying to say!

Summary

- The quality of a scientific paper depends on
  - Technical content
  - Presentation skill
  - Writing capability

- Learning how to write is an endless process