



How to Write **Good** Papers

-- V2.0

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Outline

- Philosophy (道)
- Methodology (法)
- Techniques (术)
- Tricks (技)
- Conclusions



Philosophy (道)

- Have correct understandings on paper writing
 - 正心、诚意



Why Write Papers?

- Incorrect answers:
 - I have to graduate/promote
 - My boss asked me to write
 -



Why Write Papers?

- Correct answers:
 - Claim your credit on new findings
 - Critical for your academic career
 - Help refine your thought

I hear and I forget;
I see and I memorize;
I **write** and I **understand**.
 - Documentation
 - Guard against forgetting
 - Informative for other people (save your time to explain repeatedly)
 - Necessary in many other cases (such as patent filing)



When to Write Papers?

- Incorrect answers: I have to start because
 - I will graduate half a year later
 - the conference deadline is only a month away
 -



When to Write Papers?

- Correct answers: I can start because I
 - have passion with my invention/concept
 - am compelled to speak and write
 - have truly novel concept/algorithm/procedure/architecture
 - have vision or survey that provides value for the research community
 - have solid and sustainable results



Methodology (法)

- Have correct understandings on papers and reviewers
 - 知己知彼，百战不殆



What Makes a Good Paper?

- Good content:
 - Right subject matter
 - Well-defined problem
 - Complete related work
 - Clear contributions
 - Reliable and reproducible results
- Good writing skills:
 - Good organization and logical flow
 - Clear explanation and strong argument
 - Good illustration and intuitive notation
 - Smooth and error-free English (including punctuations!)



What are Papers About?

- What
 - What problem are you solving?
 - What background is the problem?
 - What insight do you have on your problem?
 - What contributions have you made?
 - What are the novelties?
 - What are the advantages and limitations of your method?
- How
 - How do you solve the problem?
 - How does your method differ from related work?
 - How did you do the experiments?



What are Papers About?

- But even more importantly: **Why**
 - Why is your problem important?
 - Why is your contribution significant?
 - Why is your method novel?
 - *Why have to solve in your way?*
 - Why did you setup experiments in that way?
 - Why is your result better/seemly inferior to the state of the arts?

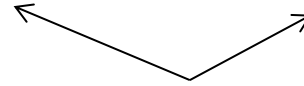


What are Papers About?

What & How + **Why** = Paper

文 + **论** = **论**文

Critical



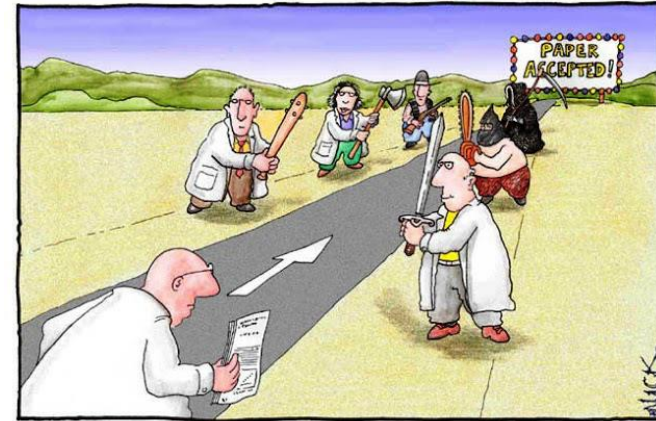


Misconceptions

- The more ideas, the better
 - One problem, one solution in a conference paper
 - One problem, more complete solutions in a journal paper
- The bigger claim and selling, the better
 - Neither over-claim nor under-claim
- The more complex, the better
 - Keep it simple, perhaps stupid
- The more authoritative, the better
 - Be modest and avoid excessive use of own references

About Reviewers

- Reviewers reject your paper unless you convince him/her
- Reviewers are volunteers
 - Do not assume that the reviewer is an expert of your problem
- Reviewers are busy
 - Make your paper easy to read and follow
- Reviewers are potential competitors
 - Often chosen from authors of references
 - Respect related work and the reviewer





Misconceptions

- Reviewers will carefully read my paper
 - A reviewer often has a pile of papers to review
 - A reviewer typically makes up his/her mind after 5-minute browsing

title/author → abstract → conclusions → references → introduction, then spends < 1h to justify (moving to main body of the paper)
- Your action:
 - make your points EARLY
 - bring up your results QUICK
 - highlight your contributions FAST
 - make your paper EASY to read, CLEAR to follow, and GOOD to learn



Rules of Thumbs

- Save reviewers' time
- Impress and convince reviewers
- Write your paper for entry-level students



Techniques (术)

- Have correct understand functions of paper components
 - 落到实处



Components of a paper

- Title
- Abstract
- Introduction
- Previous work
- Body
- Experimental results
- Conclusions/ discussions/ future work
- References
- Appendices



Title

- Purpose: summarize your paper in less than a sentence
 - Usually after the whole paper completes
- Do:
 - be short
 - be easily memorizable and comprehensible
- Don't:
 - be ambiguous and misleading



Abstract

- Purpose: Give overall picture, entice readers
- Do:
 - be brief but informative
 - give relevant high-level descriptions
 - highlight your contributions
 - indicate why your work is new and better
- Don't:
 - paste from introduction or conclusions
 - give details



Introduction

- Purpose: motivate and justify your work
- Do provide:
 - background of your problem
 - why your work is important
 - highlight your contributions (**use bullets!**), but neither over-claim nor under-claim
 - complete related work and distinction from similar work
 - technical sketches
- Optional:
 - Roadmap of your paper
 - Illustration of your ideas/logics



Previous work

- Purpose: present the related work to justify your novelty
 - Could be an independent section or a part of introduction
- Do be:
 - relevant
 - comprehensive
 - respectful to those authors (bigger than bigger is truly bigger, 比逼格更有逼格才是真正有逼格)
- Don't:
 - hide related work that you know
 - overly self-cite
 - harshly criticize the work by others



Body

- Purpose: explain the technical details
 - Be reproducible
- Do be:
 - logical
 - simple yet clear
 - complete
 - relevant
- Use:
 - block diagrams, table, pseudo-codes, illustrations, figures, and examples



Experiments

- Purpose: validate your claims
- Do:
 - provide the complete details of experiments
 - be fair and complete when compared with other algorithms
 - pay attention to the visibility (color, contrast, labels, font size, and line style) of the results
 - describe tables and figures in text
 - interpret the results (what, how, and why)
- Use:
 - table and figures (blowups) to present the results



Conclusions / Discussions / Future Work

- Purpose: last chance to impress the readers; show the limitations, the effects of assumptions, alternative techniques, or possible extensions; attract the reader to follow your work
- Do:
 - highlight your contributions again
 - be concise and informative
 - be honest and pertinent



References

- Purpose: present the materials to back up your paper
- Do:
 - be complete and relevant
 - cite all the references and comment on those closely related papers in Introduction, Previous Work, or Body
 - frequently refer to the related papers
- Don't
 - hide competitive papers



Appendix

- Purpose: present the details that may hinder reading flow if presented in Body
- Do:
 - pay attention to the self-consistency and the level of details



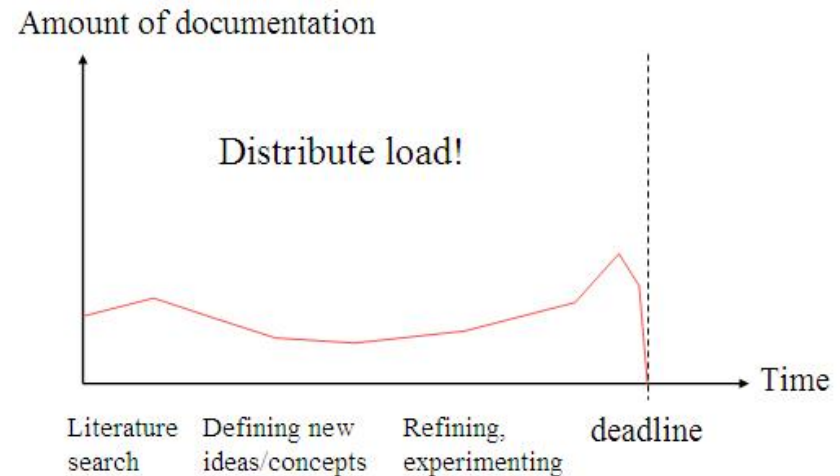
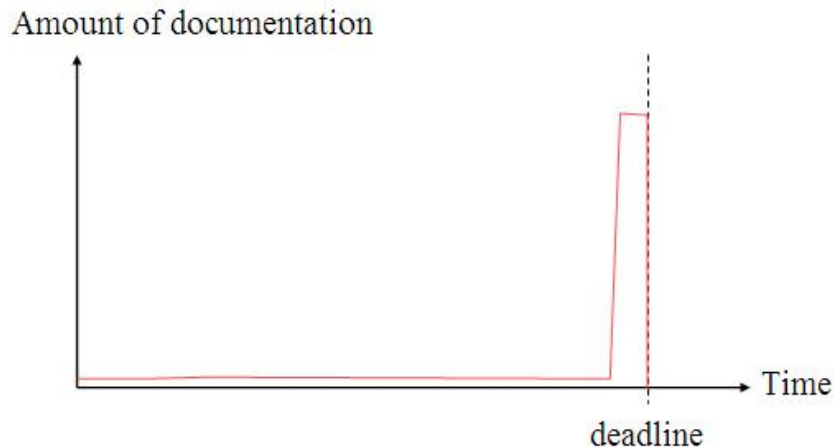
Tricks (技)

- Have correct methods to ensure writing quality
 - 付诸实践



Manage Paper Writing Process

- Frequent documentation
- Distribute writing time





Tips for Good English

- **Never** write Chinese version first and then translate to English
- Use only those words and phrases you are familiar with but avoid using repeated words and phrases
- One paragraph, one main point
- Avoid casual writing
- Avoid extreme words, e.g., “absolutely”, “no doubt”
- Avoid long, convoluted sentences
- Have connecting statements between sections and paragraphs
- Make correct transitions and conjunctions
- Proofread carefully, including punctuations



Recommendations

- **Never** think of relying on others
- Use good papers as samples (mark the good words, sentences and transitions)
- Record your mistakes and eliminate them
- Keep the revision history by others and record why
- Use spelling check tools before final submission
- Reviewing papers helps



Details to Pay Attention

- [Check List before Handing in Your Paper](http://www.cis.pku.edu.cn/faculty/vision/zlin/Check%20List%20before%20Handing%20in%20Your%20Paper.htm)

<http://www.cis.pku.edu.cn/faculty/vision/zlin/Check%20List%20before%20Handing%20in%20Your%20Paper.htm>



Take Home Messages

- Writing refines your thought and improves your understanding
- Write only when you are ready
- Good paper = good content + good English
- Think of **WHY**
 - You have to argue!
- Reviewers are busy and also your potential competitors
 - Try to save their time and respect them!
- Make your paper logical, simple, and complete
 - Understandable for entry-level students
- Frequent documentation, distribute your writing time
- **Don't** rely on others
 - Cherish the opportunity that others revise for you!



References

- Sing Bing Kang, A Perspective on Doing Effective Research
- Ya-Qin Zhang, How to Publish a (Good) Paper?
- Ashley Chang, English Writing



Thanks!

- Q&A

