How to Write High Quality Papers

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Main references:

1. Elsevier, How to write a world-class paper?
2. Yaochu Jin. How to publish high quality paper. Presented at USTC, Oct. 2010

Outline

- Enjoy performing creative research

- Enjoy publishing your research results
- To publish or not to publish…
- Tips for preparing a manuscript
- Revisions and response to reviewers
- Ethical issues

- Enjoy getting your papers cited

- No pains, no fun

Enjoy Performing Creative Research

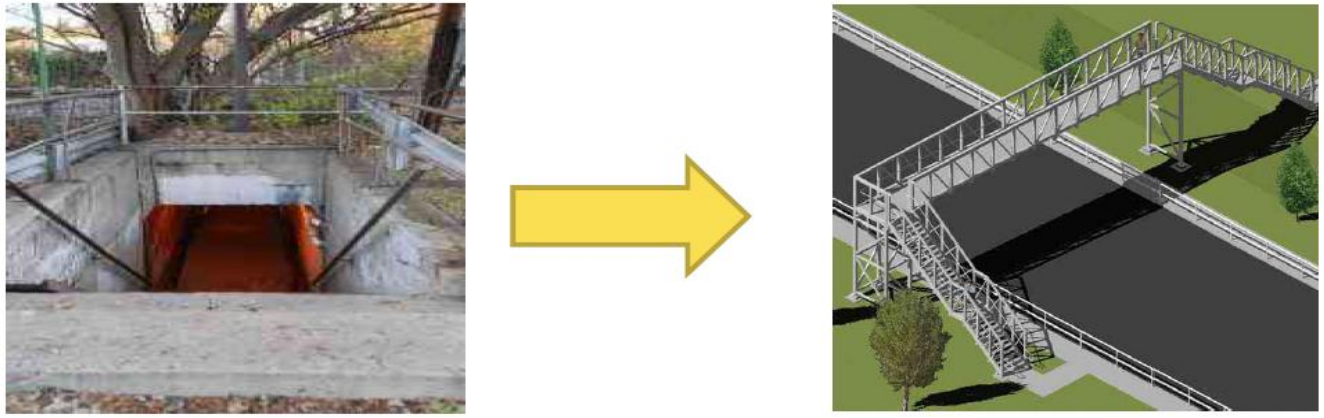
- Working on topics that are of your interest and most suited for you
  - Theory-driven
  - Application-driven

- Creative and logic thinking
  - Analogy thinking (between two completely different systems)
  - Reverse thinking
  - Alternative thinking

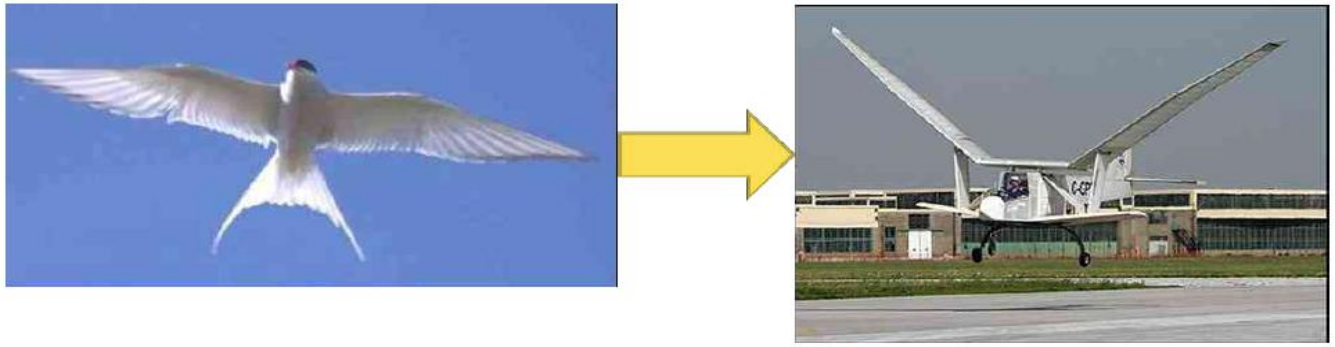
- Think big, start small
  - Think like a physicist
  - Implement like an engineer

Learning without thinking leads to confusion, thinking without learning ends in danger-confucius

Creative Thinking



Reverse thinking



Analogy thinking

Creative Thinking

Cell		Robot
Concentration of protein 1, type G	→	x-position
Concentration of protein 2, type G	→	y-position
Concentration of protein 1, type P	→	Velocity in x-coordinate
Concentration of protein 2, type P	→	Velocity in y-coordinate
Diffusion of protein type G	→	Local robot-robot interaction based on distance
Morphogen gradient	→	Target shape

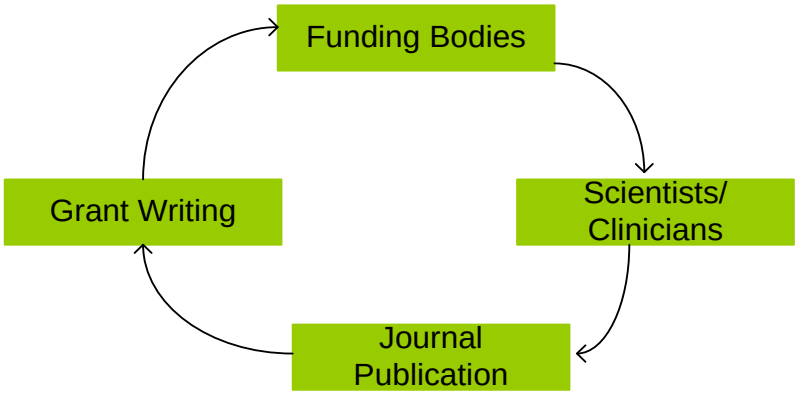
Analogy thinking

Enjoying Publishing

- Why publish?

  - Scientists publish to share with the research community findings that advance knowledge and understanding

  -Publish or Perish?



Should I Publish This?

Wanted

- Originality
- Significant advances in field
- Appropriate methods and conclusions
- Readability
- Studies that meet ethical standards

Not Wanted

- Duplications
- Reports of no scientific interest
- Work out of date
- Inappropriate methods or conclusions
- Studies with insufficient data

Should I Publish This?

- Have your done something new and interesting?
- Have you checked the latest results in the field?
- Have the findings been verified?
- Have the appropriate controls been performed?
- Do your findings tell a nice story or is the story incomplete?
- Is the work directly related to a current hot topic?
- Have you provided solutions to any difficult problems?

Preparation-Manuscript Type

- Manuscript Type
  - Full articles/ original articles
  - Letters/rapid communications/short communications
  - Review papers/Perspectives

- Self-evaluate your work: is it sufficient for a full article? Or are your results so thrilling that they need to be revealed as soon as possible?

- Ask your supervisor and colleagues for advice on manuscript type. Sometimes outsiders may see things more clearly than you.

Preparation-Which Journal

- **Check**
  -Aims and scope (check journal websites and recent articles)
  -Types of articles
  - Audience
  - Current hot topics (go through recent abstracts)

- **Consulting the guide for authors will save your time and editor's**
  - Ensure that you use the correct
    - Layout
    - Page limit
    - Abbreviations and spellings (British vs. American)
    - Reference format
    - Number/type of figures and tables

Do not gamble by scattering your manuscript to many journals even if you are not sure to which journal to submit your paper.

Preparing your Manuscript

- Title
- Authors
- Abstract
- Keywords

→ Be accurate and informative for effective indexing and searching

- Main text
  - -Introduction
- -Methods
- -Results
- -Discussions (Conclusions)

→ Each has a distinct function

- Acknowledgements
- References
- Supplementary material

Preparing Your Manuscript

- Abstract
- Introduction: **(1)** Why---motivation

  (1.1) General interesting

  (1.2) Existing work----limitations: 1.2.3/problems: 1.2.3

Existing work is extracted from background or literature survey

(2) What are we going to do/Goals/Objectives (present tense)

please use top-down model not low-up model

Use one sentence to summarize the overall goal, then specify objectives/research questions: 1.2.3

Each objective address each limitations/problems

Preparing Your Manuscript

*interesting area → many people do → limitations → address them

No conclusions in this part.

- Background/Literature Survey/Related Work

  This part is the detailed description of existing work.

- Method (present tense)

  * pure methodology. Use top-down way.
  * give a overall figure first, then describe each module.
  * subsections
  * Linking sentence

Results and Discussions

- Key features of each test functions
- Parameter settings
- Results → analysis → observation (it is lower level than conclusion)

Conclusions **(Past tense):** the primary goal was achieved…..
the work shows /suggests/indicate that …..
future work
no overclaim

Abstract: why important (omit)
what is about
how
results
important conclusions

Preparing Your Manuscript

- **Title**---A good title should contain the fewest possible words that adequately describe the contents of a paper
  - **Do**
    - Convey main findings of research
    - Be specific
    - Be concise
    - Be complete
    - Attract readers
  - Don’t
    - Use unnecessary jargon
    - Use uncommon abbreviations
    - Use ambiguous terms

Preparing Your Manuscript

- Abstract type

---Indicative (descriptive) abstracts outline the topics covered in a piece of writing so the reader can decide whether or not to read on. Often used in review articles and conference reports.

--Informative abstracts summarize the article based on the article structure, but without section headings.

---structured abstracts follow headings required by the journal. Often used in medical journals.

Preparing Your Manuscript

- The quality of an abstract will strongly influence the editor's decision

----cites no references

----use the abstract to "sell" your article

Preparing Your Manuscript

- Figures and tables (DO)

---Use figures and tables to summarize data

---Show the results of statistical analysis

---- Compare “like with like”

----Labels, legends and numbering should be legible

----Messages of figures should be understandable without tuning to the text.

- Figures and tables (DON’T)

---Duplicate data among tables, figures and text

----Use graphics to illustrate data that can easily be summarized with text

Preparing Your Manuscript

- **Acknowledgement**

– Acknowledged anyone who helped you with this work (with an explicit reason) and ask their permission

– Acknowledge sources of funding, including any grant or reference numbers

- **References**
  – Ensure that the references are correct and complete
  – Use the required style
  – Avoid citing articles published only in the local language
  – Avoid excessive self-citation and journal self-citation

- **Appendices and / or supplementary materials**

– Move detailed proofs to appendices

– Include background method and data in a supplementary document

Preparing Your Manuscript

- **Abbreviations**

---- Define non-standard abbreviations on first use in both the abstract and the main text

---- Don't abbreviate terms used only once or twice in the entire manuscript – spell these out in full

- **Acronyms**: capitals not required in the definition unless

--- a proper noun or start of a sentence

ubiquitin proteasome system (UPS)

NOT

Ubiquitin Proteasome System (UPS)

Preparing Your Manuscript

- **Use short sentences**

- **Use consistent verb tense**: “Before tumors were microdissected, epithelial cells are…”

- **Use consistent plural / singular**

- **Use “,” “which” correctly**

--- “Data were normalized to the internal reference housekeeping gene actin, which showed…”

----”Data were …, revealing that…

- **Consistent style** (American or British English)

Preparing Your Manuscript

- Integers less than 10 should be spelled out, e.g., “3 methods” should “three methods”

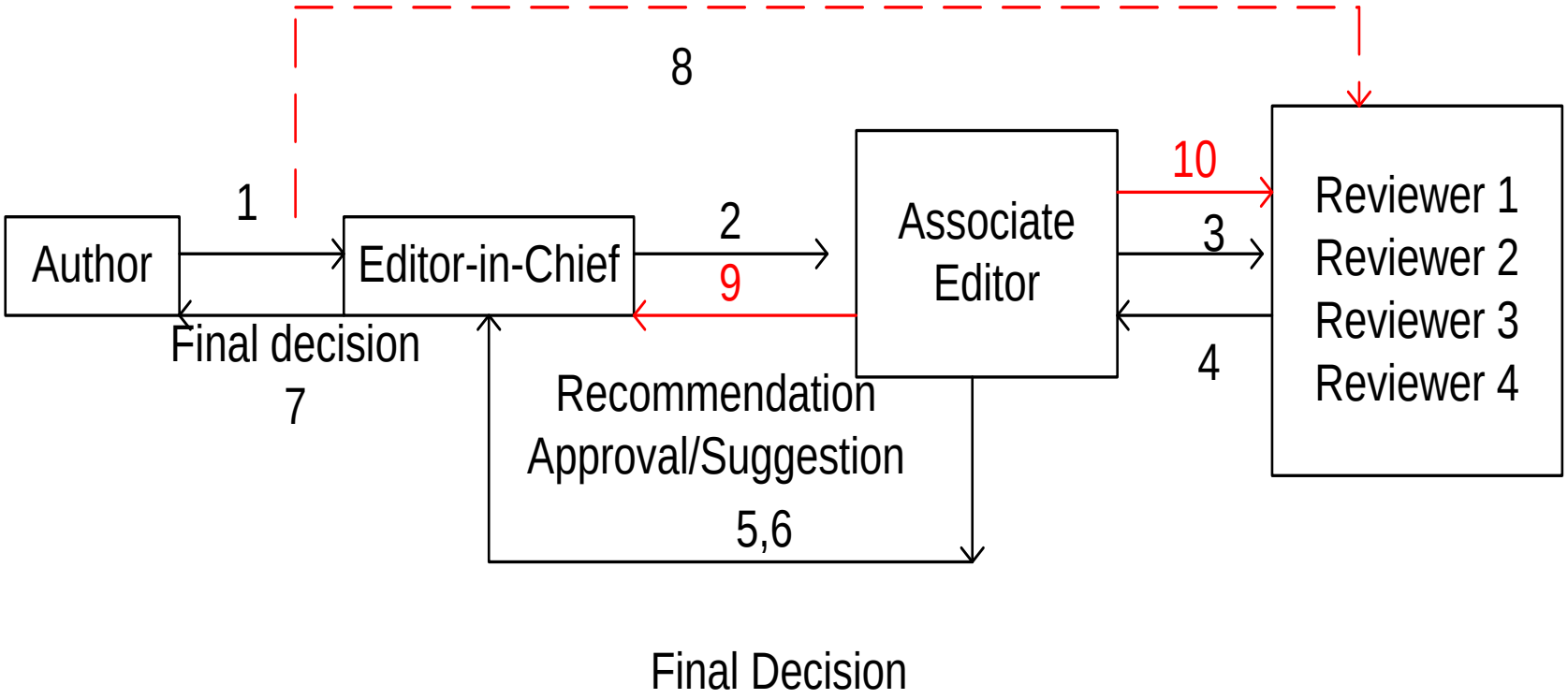
- “existing works” should “existing work”

- “don’t” should “do not”

- Avoid repeating, e.g.,
  - “The performance of the proposed algorithm is better than that (not “the performance”) of the NSGA-II”
  - “ … repeat again …” should “…repeat …”;
  - “in addition, … also” should “in addition”

Review Process

Accept, minor/major revisions/re-submission



Revise Your Manuscript

Do

-----Respond to all points; even if you disagree with a reviewer, provide a polite, scientifically solid rebuttal rather than ignore their comments

---- Provide page and line numbers when referring to revisions made in the manuscript

----Perform additional calculations, computations, or experiments if required; these usually serve to make the final paper stronger

----State specifically what changes you have

- made to address the reviewers' comments,
- mentioning the page and line numbers
- where changes have been made

Revise Your Manuscript

Don't

- Take it personally!

- Repeat the same response over and over; if a similar comment is made by multiple people explain your position once and refer back to your earlier response in responses to other reviewers or the editor

- Resubmit the paper elsewhere without significant revisions addressing the reasons for rejection and checking the new Guide for Authors

Common Reviewers' Complaints

- Minor new contributions, unjustified motivation
- Obscure presentation
- Missing relevant references
- Unfair comparisons
  - Parameter setting unjustified
  - Different constraints
  - Compared algorithms outdated
- Results not reproducible
- Results unconvincing
  - Lack of statistic significance
  - Benchmarks / test problems are untypical or insufficient

Ethical Issues-Multiple Submissions

- You should not send your manuscripts to a second journal UNTIL you receive the final decision from the first journal

- Re-publication of a paper in another language is acceptable, provided that there is full and prominent disclosure of its original source at the time of submission

- At the time of submission, authors should disclose details of related papers, even if in a different language, and similar papers in press

Ethical Issues-Plagiarism

- Unacceptable paraphrasing, even with correct citation, is considered plagiarism

What Gets Your Paper Accepted

- Attention to details
- Check and double check your work
- Consider the reviews
- English must be as good as possible
- Presentation is important
- Take your time with revision
- Acknowledge those who have helped you
- New, original and previously unpublished
- Critically evaluate your own manuscript
- Ethical rules must be obeyed

– Nigel John Cook, Editor-in-Chief, Ore Geology Reviews

Enjoy Getting Your Paper Cited

- Why publish if nobody cites your work?
  – 80% of published paper have never read by audience other than authors and reviewers
  – It is part of fun to see your paper cited

- … but how to get your papers cited?
  – publish in a journal with high an impact factor
  – build up your reputation

Tips: papers get easily cited if the author has good reputation

a paper that does not exist was cited more than 200 times: first self-cited by mistake in a paper whose author is a very well known scientist.

No Pains, No Fun

- Essential:
- Performance – do excellent research
- Practice
  - Start as a student and support your students
  - Submit papers first to conferences
  - Let your colleagues review your work first
- Persistence – be tolerant of
  - a paper being rejected
  - a grant proposal being not funded
  - a proactive request being neglected
- and … never give up!

Many Thanks for Your Attention!