How to write a paper

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How to write a good paper

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How to write a good enough paper

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Why me?

• I’m not sure

• Many other researchers who consistently get their papers published

• Peter van Beek, Pascal van Hentenryck, ...

• Often win best paper awards
Why me?

• My papers get rejected too!

• “This should be sent to a journal”

• “Very good work, but I’m not sure why Alan Bundy hasn’t written this?”

• Anonymous review: “Clearly the author fails to understands Walsh’s previous work on this topic”
1st Lesson

• Don’t lose heart

• Even if you do everything right, reviewing is imperfect

• Good papers will be rejected

• But try to learn from your knock-backs!
Why you?

- Academic career
- Publish or perish
- Have an impact
- Communicate your results
- Many have not had the impact they deserve for being bad writers
- Writing is fun!
Outline

• How to get your paper rejected
  • There are many traps even experienced researchers make
  • Myself very much included
• Hints about how to write a paper
  • Writing is a craft not a science!
How to be rejected

• Submit over-length

• **Blind man**: send in 7 pages even though the instructions clearly say 5

• Once they see quality of work, they’ll be pleased you sent in more material
How to be rejected

- Submit over-length

- **Diplomatic immunity**: put extra 2 pages in appendix

- Appendices clearly don’t count

- Similarly, bibliography doesn’t count
How to be rejected

• Submit over-length

• \textbf{LaTeX hacker}:
  • change from 11 to 9 point font
  • squeeze inter-line space
  • ...

• No one will ever notice
How to be rejected

• Submit late
  • Deadlines are meant for everyone else
  • Review schedules have plenty of slack
• Your paper is worth the wait!
How to be rejected

• You don’t have room for space wasters like:
  • Motivation, Background, Related work
• Why do review forms always have these on them anyway?
How to be rejected

- Annoy reader/reviewer
- Proof is trivial, when it isn’t
- Prove the trivial
- Fail to cite their work
- Only cite yourself
How to be rejected

• Annoy reader/reviewer

• Don’t bother to spell check

  • What do computers know about spelling anyway?

• Use all the old cliches

  • “There has been a lot of interest recently in global constraints.”
How to be rejected

• Annoy reader/reviewer
  • Be pompous, boring, ...
    • This is science not literature guys, who said it should be fun?
  • Be overly formal
    • Theorems and formulas add weight
How to be rejected

- Annoy reader/reviewer
  - Make them really work
    - After all, these are difficult concepts and it took you some time ...
  - Ignore reviews
    - Just keep sending paper in, eventually it will be accepted
How to write a paper

- Hints about how to write
  - Preparation
  - Writing itself
- Ethics
Preparation

• Read, read, read!
  • To learn how to write, read a lot
  • I spend over 20% of my time reading
  • 1 day/week in library
Read, Read, Read

- Related literature
- So you can cite it
- So you don’t re-invent wheels
- So you know what others think are important research questions
Read, Read, Read

• Other conference/journal papers where you intend to publish
  • So you learn the “house” style
  • So you can place your work within the bigger picture
  • So you learn how to ask good questions
• Any sort of literature
  • Magazines, novels, biographies, ...

• Writing is a skill, learn from others
  • I read approx one novel/week as a way of trying to learn how to write
  • And I have the luxury of writing in my own language!
Review, Review, Review

- Review as much as you can
  - So you see good/bad writing
  - So you see the newest results (but see ethics)
  - So you ask yourself good questions
    - What is the contribution here? What are the weaknesses? ...
Write, Write, Write

• The best preparation to writing is to write
• Writing gets easier the more you do it
• Writing is easier if you’ve drafted much of what you already need
• Writing is the best way to organize your thoughts
• Writing is a good way to record what you have done
Writing

- Work out the timetable
- Rushed papers frequently rejected
- Late papers are *almost* always rejected
- If you always write to deadlines, writing will seem more painful than it is
Writing

• Work out the message

• You should be able to convey this in one sentence

• “We propose a new global constraint, provide a filtering algorithm and show it useful on some standard benchmarks”
Writing

• Work out the message

• You should be able to convey this in one sentence

  • “We identify an important class of symmetry, and show how to break it”

• Write to the message!
Writing

• Distribute the work
  • Play to your strengths
  • If you have a native speaker, have them write intro/conclusion ...
• Write to length
  • Brutally cut papers are frequently rejected
Writing

• Structure paper before you write it

• I write template for paper with sections and subsection headings first

  • Intro, Background, Theoretical results, Empirical results, Related work, Conclusions
Writing

- Start where you are most happy
- Often write from the middle outwards
  - Theoretical results, Experiments, ..., Conclusions, Introduction, Abstract
Writing

• Rule of Three

• Say everything 3 times!
  • Introduce idea (introduction)
  • Develop idea (body of paper)
  • Summarize result (conclusions)

• But don’t copy verbatim the same text!
Title

• Make it meaningful and brief
• Don’t make a joke
• Remember someone reading reference needs to be able to work out likely contents
• Good: the TSP phase transition
• Bad: Easy Problems are sometimes Hard
Abstract

• Executive summary
  • Try for one sentence or so on:
    • Motivation
    • Method
    • Key result
    • Conclusions
Introduction

• What is the problem?
• Why is it interesting?
• What are your contributions?
• What is the outline of what you will show?
Introduction

• Lure the reader in with a good *first* sentence

  • Bad: There has been a lot of work recently on phase transition behaviour...

  • Good: Global constraints are central to the success of constraint programming...
Background

• Often need to set scene
  • Define formalism
• Get reader up to speed
• Identify research problem
Body of Paper

• Derive theoretical results
• Propose new algorithm
• Describe system engineered
• ...

Results

- Bullet proof paper
- Theoretical results
  - Experiments only provide a limited view
- Experimental results
  - Theory doesn’t show if results are useful in practice
Related work

• Has many purposes
• You give proper credit to prior work
• You are not re-inventing the wheel
• You can compare what you do with what has been done before
Conclusions

• Remind reader of what you have done

• Place work in wider context

  • “What general lessons might be learnt from this study?”

• Flag all the exciting open research directions
Acknowledgements

• Thank all who have helped you
  • Provided code, data sets, ...

• Thank financial sponsors
Writing

• Keep it simple!
  • Active, not passive
  • Present, not past or future
  • Long words
  • Short sentences
Writing

• Avoid temptation to include every result you have
  • Paper needs to be coherent
  • Paper needs to be understandable
  • Many papers are rejected for having too many results!
Ethics of Writing

• Authorship
• Citation
• Submission
• Publication
Authorship

• Who should be an author?
  • Anyone who has made a significant contribution
  • May not have written any text!
  • Always err on the side of caution
Authorship

• Who should be an author?
  • Ask!
  • You’ll be surprised how often people refuse
  • You can be sure they’ll not work with you again if they feel they should be
Authorship

• Should my advisor be an author?
  • In first few years of thesis, probably yes
  • ..
  • Once you graduate, you should (be able to) write papers on your own
  • Again, ask!
Citation

• Cite all relevant work
  • Reviews always ask about Related Work
  • You’ll want them to cite you
  • It’s central to the scientific method
  • We stand on the shoulders of others
Do I cite myself for a blind review?

- Yes! You must credit all previous work
- Either cite [Author, 2004]
- Or write “As Walsh has shown previously [Walsh 2004] ...”
Submission

• Can I submit to multiple conferences?
  • What’s the deal with the disclaimer (”This paper is not under review ..”)?

• Can I submit to a journal immediately?
  • No hard and fast rules
  • My rule, once reviews are back and paper is effectively in press ...
Publication

• Can I publish my conference paper as it is in a journal?

• Probably not, even though conference is not archival

• Most journals ask you to extend conference paper substantially

  • Proofs, more experiments, ...
Final words

• It takes time to learn how to write
• Don’t be put off if at first your have papers rejected
• All of us have papers rejected
• Spend time learning how to write
• It will be worth the investment