

Top-10 tips for writing a paper



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1: Every paper tells a story

- what is the “elevator pitch” of your story?

elevator pitch = summary that is short enough
to give during an elevator ride

- the story is *not* what you did, but rather

- ❖ what you show, new ideas, new insights
- ❖ why interesting, important?

- why is the story of interest to others?

- ❖ universal truths, hot topic, surprises or unexpected results?

- **know your story!**

2. Write top down

- ❑ computer scientists (and most human beings) think this way!
- ❑ state broad themes/ideas first, then go into detail
 - ❖ context, context, context
- ❑ even when going into detail ... write top down!

3 Introduction: crucial, formulaic

- ❑ if reader not excited by intro, paper is lost
- ❑ recipe:
 - ❖ para. 1: motivation: broadly, what is problem area, why important?
 - ❖ para. 2: narrow down: what is problem you specifically consider
 - ❖ para. 3: “In the paper, we”: most crucial paragraph, tell your elevator pitch
 - ❖ para. 4: how different/better/relates to other work
 - ❖ para. 5: “The remainder of this paper is structured as follows”

4. Master the basics of organized writing

- ❑ paragraph = ordered set of topically-related sentences
- ❑ lead sentence
 - ❖ sets context for paragraph
 - ❖ might tie to previous paragraph
- ❑ sentences in paragraph should have logical narrative flow, relating to theme/topic
- ❑ don't mix tenses in descriptive text
- ❑ one sentence paragraph: warning!

5. Put yourself in place of the reader

□ less is more:

- ❖ “I would have sent you less if I had had time”
- ❖ *take the time to write less*

□ readers shouldn't have to work

- ❖ won't “dig” to get story, understand context, results
- ❖ need textual signposts to know where ‘story’ is going, context to know where they are

- good: “e.g., Having seen that ... let us next develop a model for Let Z be”
- bad: “Let Z be”

□ what does reader know/not know, want/not want?

- ❖ write for reader, not for yourself

6. Put yourself in place of the reader

- ❑ page upon page of dense text is *no fun* to read
 - ❖ avoid cramped feeling of tiny fonts, small margins
 - ❖ create openness with white space: figures, lists
- ❑ enough context/information for reader to understand what you write?
 - ❖ no one has as much background/content as you
 - ❖ no one can read your mind
 - ❖ all terms/notation defined?

7. No one (not even your mother) is as interested in this topic as you

- ❑ so you had better be (or appear) interested
- ❑ tell readers why they should be interested in your “story”
- ❑ don't overload reader with 40 graphs:
 - ❖ think about main points you want to convey with graphs
 - ❖ can't explore entire parameter space
- ❑ don't overload reader with pages of equations
 - ❖ put long derivations/proofs in appendix, provide sketch in body of paper

8. State the results carefully

- ❑ clearly state assumptions (see overstate/understate your results)
- ❑ experiment/simulation description: enough info to nearly recreate experiment/description
- ❑ simulation/measurements:
 - ❖ statistical properties of your results (e.g., confidence intervals)
- ❑ are results presented representative?
 - ❖ or just a corner case that makes the point you want to make

9. Don't overstate/understate your results

❑ overstatement mistake:

- ❖ “We show that X is prevalent in the Internet”
- ❖ “We show that X is better than Y”

when only actually shown for one/small/limited cases

❑ understatement mistake: fail to consider broader implications of your work

- ❖ if your result is small, interest will be small
- ❖ “rock the world”

10. Study the art of writing

- ❑ writing well gives you an “unfair advantage”
- ❑ *writing well matters in getting your work published in top venues*
- ❑ highly recommended:
 - ❖ *The Elements of Style*, W. Strunk, E.B. White, Macmillan Publishing, 1979
 - ❖ *Writing for Computer Science: The Art of Effective Communication*, Justin Sobel, Springer 1997.
- ❑ who do *you* think are the best writers in your area: *study their style*

11. Good writing takes times

- ❑ give yourself time to reflect, write, review, refine
- ❑ give others a chance to read/review and provide feedback
 - ❖ get a reader's point of view
 - ❖ find a good writer/editor to critique your writing
- ❑ starting a paper three days before the deadline, while results are still being generated, is a non-starter