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:
- 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