How To Write a Great Research Paper

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Abstract

The most difficult part of writing a paper is often getting started, especially from a blank slate. Since writing should be a *part of* research, rather than the result, cnsistent writing is essential to conducting good research. In order to get you started writing, we've populated this template not only with section headings, but helpful tidbits from Simon Peyton Jomes' fantastic talk on writing research papers. The full talk can (and *should*) be viewed at https://www.youtube.com/watch?v=g3dkRsTqdDA&t=1618s.

0 General Advice

- Writing is a way of conducting research, rather than the result of research

- Narrative Flow

  - Here is a problem
  - It's an interesting problem
  - It's an unsolved problem
  - Here is my idea
  - My idea works
  - How my idea compares to other people's ideas

1 Introduction

1. Describe the problem

   - Provide an example
   - If it's just a general observation, people won't be interested enough to read it
   - Molehills not mountains

2. State your contribution

   - List them
   - Contributions should be refutable
   - Rather than outlining sections, contributions should forward-reference sections
   - Reader: "Wow, if they can do that, that's really cool." [reads on]

3. ...that's it!

2 My Idea

- (At the beginning, at least) Readers do not have the same intuition that the writer has developed

- First, convey/explain the intuition

  - Readers will carry that with them
  - Use examples, not a general case

3 The Details

- Do not recapitulate your personal journey

- Do not spend an inordinate amount of time telling why a prior solution does not work

- Show examples of the problem and examples of your solution

- How can I explain this so that the stupidest reviewer will understand it?

4 Related Work

- Should be later in the paper

- Can create a barrier in an early section

- Can be referenced in prior parts of the paper

- Credit other people's work; state what they did; explain your improvement

- Praising others' contributions does not diminish your own contributions

– It's a good thing to motivate readers to read the same papers that inspired your own work