



Publications II: Technical Writing: Structure

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Writing

- If you haven't written it, you haven't done it.
- If you write it, but no one reads it, you still haven't done it.
- If you write it up and it is read but not understood you still haven't done it.



It Is a Marketing Thingy!

Marketing



Convince others
to read your work!

then

Your goal: infect the
mind of your reader
with your idea, like a virus!!

A Good Style for Scientific Writing

- Precise
- Clear
- Brief

... and in that order

Remember ...

- Start writing when you start doing research
- So, you must have a research notebook/journal
- You will extract your paper from this journal



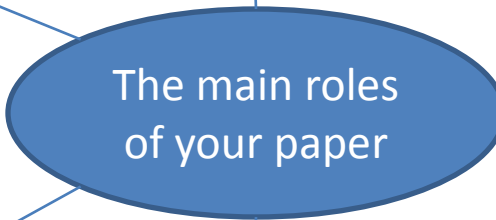
Start here!



Attract the reader

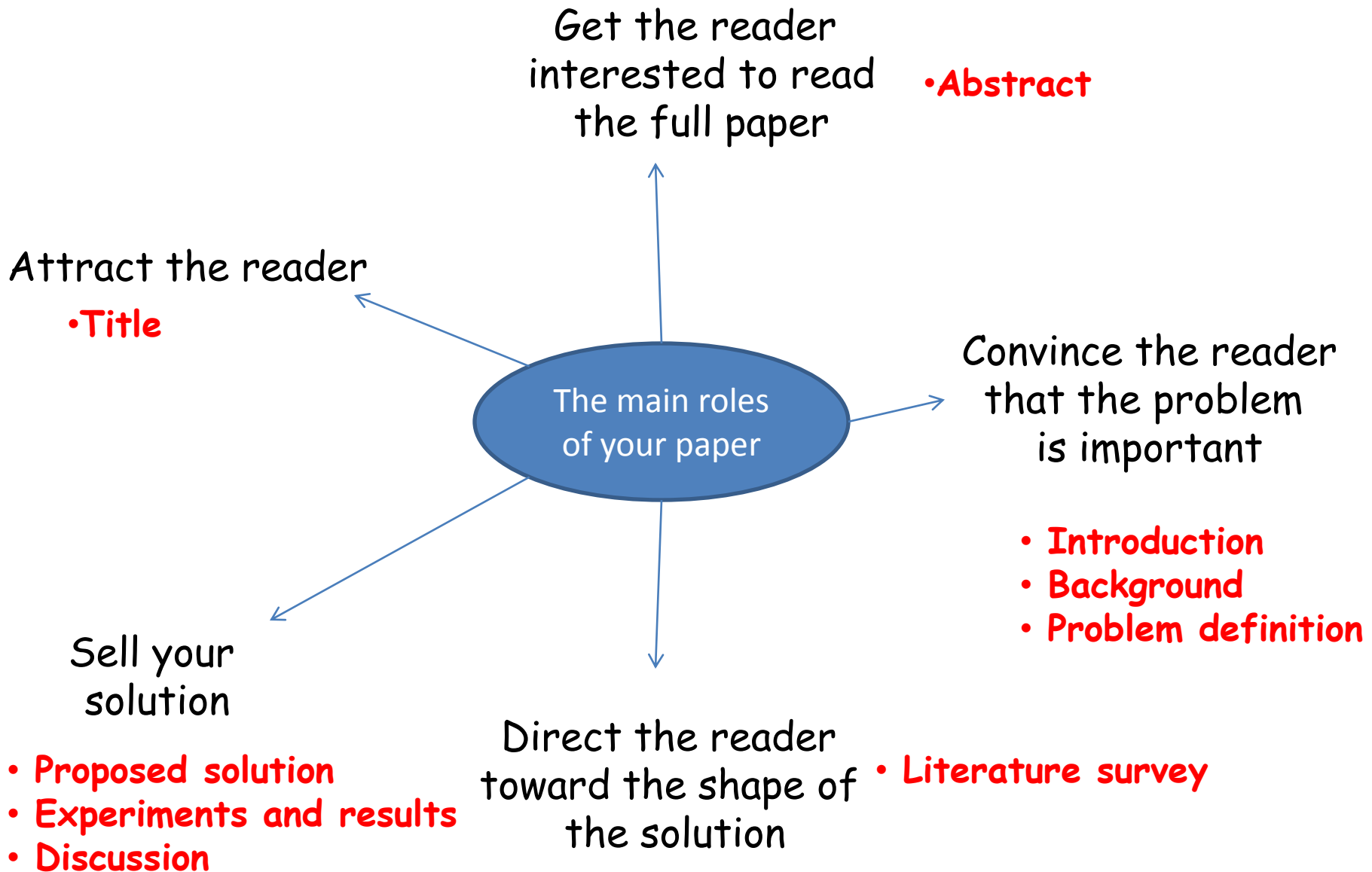
Get the reader interested to read the full paper

Convince the reader that the problem is important



Sell your solution

Direct the reader toward the shape of the solution



- Title
- Abstract
- Introduction
- Problem Definition
- Survey (and background)
- Proposed Solution (your idea!)
- Experimental Setup
- Results and Discussion
- Conclusions (and Future Work)

Keep in Mind

- Make certain that the reader is in no doubt what the **idea** is. Be 100% explicit:
 - “The main idea of this paper is....”
 - “The contribution of this paper is ...”
- Many papers contain good ideas, but do not say explicitly what they are.
- Your paper should have just one “WOW”: one clear, sharp idea
 - You may not know exactly what the ping is when you start writing; but you must know when you finish
 - If you have lots of ideas, write lots of papers

A paper gives
the reader a
re-usable insight(s)

I wish I
knew how
to solve
that!

I see how
that works.
Ingenious!



The Title!!

- The title is way more important than you think!
- Main jobs of the title:
 - Capture the reader's attention
 - Prepare the reader for the idea



The Title!!

- DO:
 - Present in clear concise manner
- Don't:
 - Use jargon
 - Use very informal title
 - Use very general title
- Be careful with:
 - Buzzwords

The abstract

- Many people like to write the abstract last
- Convince the reader to continue reading the paper
- 1-2 paragraphs at most
 1. State the problem
 2. Say why it's an interesting problem
 3. Say what your solution achieves (with few words about the results)
 4. Say what follows from your solution

The introduction (~1 page)

1. Describe the problem
 2. Makes claims about your finding(s)
 3. State your **contributions**
- ...and that is all

State your contributions

- The list of contributions drives the entire paper: the paper substantiates the claims you have made
- Reader thinks “gosh, if they can really deliver this, that’s be exciting; I’d better read on”

State your contributions

The contributions of this paper are fourfold. First, we motivate our solution by demonstrating the importance of a globalized placement scheme. Second, we present a method to categorize cache block behavior into one of four categories. Third, we present one potential design exploiting this categorization. Finally, we demonstrate the performance of the proposed design. For the SPEC CPU benchmark suite, the scheme enhances overall system performance (IPC) by an average of 12% over a traditional LRU scheme, reducing traffic between the L1 and L2 caches by an average of 20% while using a table as small as 3KB.

- Do not leave the reader to guess what your contributions are!
- You can use a bulleted list.

Contributions should be refutable

NO!	YES!
<p>We describe the global cache replacement. It is really cool.</p>	<p>We showed that the global cache replacement achieves an average of 30% performance increase over traditional one with 2% increase in cost.</p>
<p>We study its properties</p>	<p>We prove that the type system is sound, and that the miss rate decreased by 35%</p>
<p>We have used the system in practice</p>	<p>We have built a full-system simulator where we included the new system.</p>

PLEASE: No “rest of this paper is...”

- Not:

“The rest of this paper is structured as follows. Section 2 introduces the problem. Section 3 ... Finally, Section 8 concludes”.

- Instead, **use forward references from the narrative in the introduction.**

The introduction (including the contributions) should survey the whole paper, and therefore forward reference every important part.

Background

- The reader may not have enough background to understand your idea or the literature survey
- Background info must be a short tutorial
- Do not include everything about the subject → just what is needed for the reader to understand the rest of the paper

I feel stupid

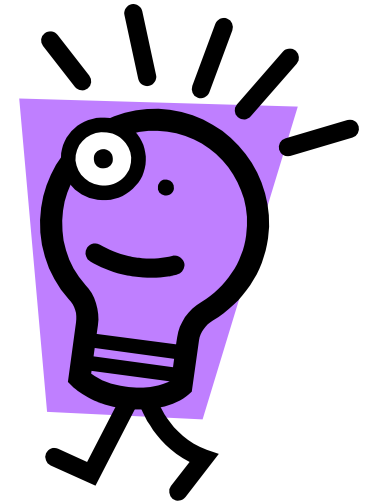
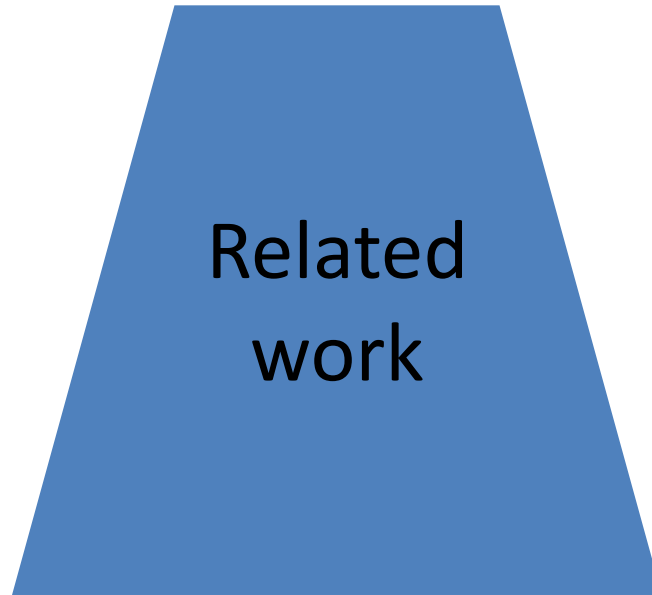


I feel tired

Related work!



Your reader



Your idea

Related Work

- Can be before the idea presentation or after the results and discussion
- Depends on whether your idea:
 - Complements what others have done
 - Do a better thing (or refute) what others have done

Related work



To make my work look good, I have to make other people's work look bad

Credit is not like money

Giving credit to others does not diminish the credit you get from your paper

- Be generous to the competition. “In his inspiring paper [Foo98] Foogle shows.... We develop his foundation in the following ways...”
- **Acknowledge weaknesses in your approach**

Credit is not like money

Failing to give credit to others can
kill your paper

If you imply that an idea is yours, and the referee knows it is not, then either

- You don't know that it's an old idea (bad)
- You do know, but are pretending it's yours (very bad)

Presenting the idea

- Explain it as if you were speaking to someone using a whiteboard
- **Conveying the intuition is primary**, not secondary
- Once your reader has the intuition, he/she can follow the details (but not vice versa)
- Even if the reader skips the details, she still takes away something valuable

Putting the reader first

- **Do not** tell your personal journey of discovery. This route may be of interest to you, but that is not interesting to the reader.

Do not make your paper a cure to insomnia!

- Instead, choose the most direct route to the idea.

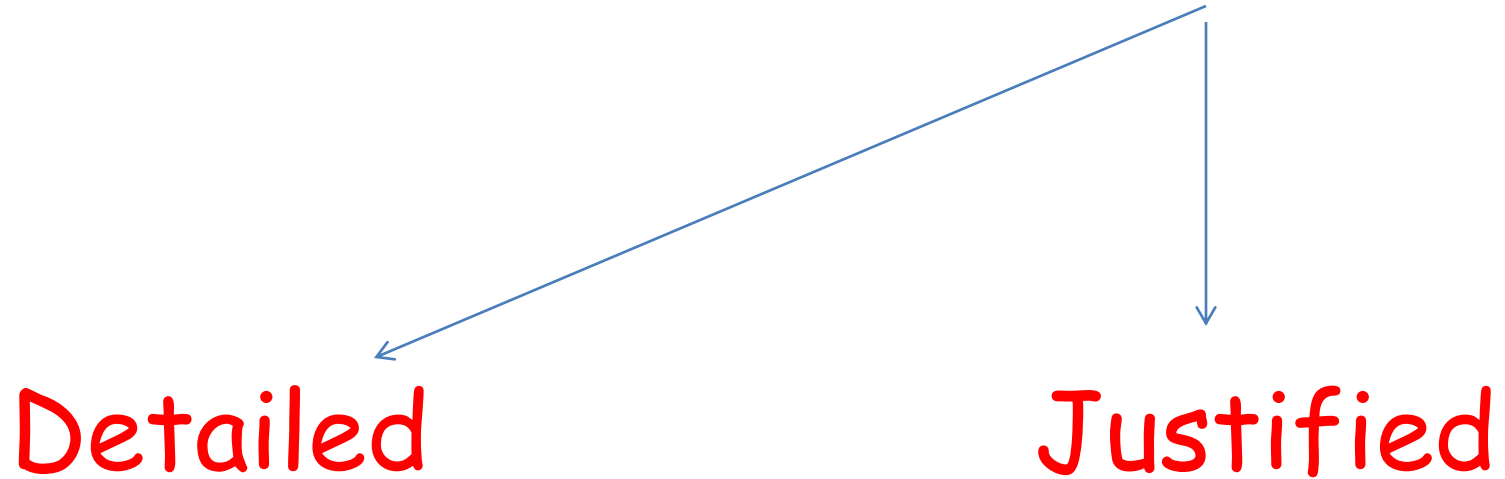
The major part of your paper

Introduce the problem, and your idea, using

EXAMPLES

and only then present the general case

The details of your solution



Detailed

Justified

Experiments – Discussion

- Are very much field dependent
- Give all the details that allow people to **reproduce** your experiments
- Please avoid: “as we can see from Figure 6, x is increasing with y ” (bad)
- Instead “Figure 6 tells that(and then state why x is increasing with y , under which conditions, and what can we get from this)

Conclusions and future work

- Be brief
- Give the insights
- Show that this is not the end

How to Avoid Plagiarism



What is plagiarism?

- Plagiarism comes from the Latin word *plagiarius*, which means **kidnapper** 😊 (Menager-Beeley & Paulos, 2006).
- Plagiarism can occur when **copying, summarizing, paraphrasing, or citing** common knowledge (Roig, n.d)., facts, ideas, and/or words **without giving credit**
- You cannot copy/past more than 1-2 sentences
- If you want to use a figure/picture from somewhere else:
 - Get permission first
 - Give credit

Conclusions

- Technical writing is a acquired skill
- It may be hard but very rewarding
- Keep training!!

