Research Papers Writing

Author: Jose 胡冠洲 @ ShanghaiTech

Important Points

Common Fallacies

1. Research First?
   - × Idea → Do Research → Write a Paper.
   - ✓ Idea → Write a Paper FIRST → Do Research → Reinforce the Paper.

2. Need Fantastic Idea?
   - × You need to have a Fantastic Idea before you can write a Paper.
   - ✓ Write down and give a Talk about ANY Idea.

3. Write to Impress?
   - × We write Papers mainly to impress others and gain recognition.
   - ✓ Good Papers and Talks are a fundamental part of Research Excellence.

Goal

GOAL: Papers communicate Ideas, infect the mind of your reader with your Idea.

Paper Contents

Abstract

< 4 Sentences > - About the Key Idea.

1. State the Problem
2. Why the Problem is interesting
3. What your Solution achieves
4. What follows from your Solution

It should:

- Be simple, just ONE "Ping"
- Be 100% explicit: "The main idea of this paper is ..."
- About exactly ONE Idea, otherwise write many papers

Usually write the Abstract last.

Introduction

< 1 Page > - About Problem background & you Contributions.

1. Describe the Problem
2. State your Contributions

It should:

- Be short, no more than ONE page
- Make a clear List of your Contributions
- Use Forward References: "We ... (see Section 4.1)"

Problem Details

< 1 Page > - About Problem Details.
My Idea

1. FIRST, convey your Idea with Whiteboard Intuitions
2. THEN, present the Details

It should:

- NOT contain your personal journey of discovery
- Choose the most direct route to the idea
- Use Examples and Figures
- Use visual tricks (Visio, ProcessOn, ...).

Solution Details

1. Check each Claim in the Introduction
2. Give Evidences to every Claim (which should have Forward Reference towards this Section)
   - Analysis & Comparison
   - Theorems
   - Measurements
   - Case Studies

It should:

- Provide Evidence for EVERY Idea from yourself

Related Work

1. Give sincere & warm Credit to others

It should:

- NOT make others' work look bad
- NOT pretend it’s your Idea if it’s actually not

Conclusion

- Be brief.

Future Work

1. Refer to the weakness of your work
2. Encourage other researchers to continue working on
3. Issues that you plan to address

Use Grammarly to check grammar mistakes.