

How to Read and Present a Scientific Paper

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Part I:

Reading a Scientific Paper

Motivations

Why to Read Scientific Papers?

[Academic World]

I read papers because of:

- The Content:

Looking for new **ideas** or new **proof techniques** to write a new paper

- The Topic:

What are the new **directions** in my field or learning a new **topic**

- The Authors:

Looking for **valuable colleagues** to work with or **new comers**

Motivations

Why to Read Scientific Papers?

[Company World]

I read papers because of:

- The Content:

I need the most **efficient algorithm** or **new techniques** for my product

- The Topic:

Can I get a **new product** out of these crazy scientists work?

- The Authors:

Who are the **valuable persons** to hire or collaborate with?

Motivations

What should I learn?
I already know how to read English!

It is cryptic

(notations, math formulas, references to other papers, ...)

It is hidden

(where to find good papers?)

It is complex

(theorems, lemmas, proofs, experiments, ...)

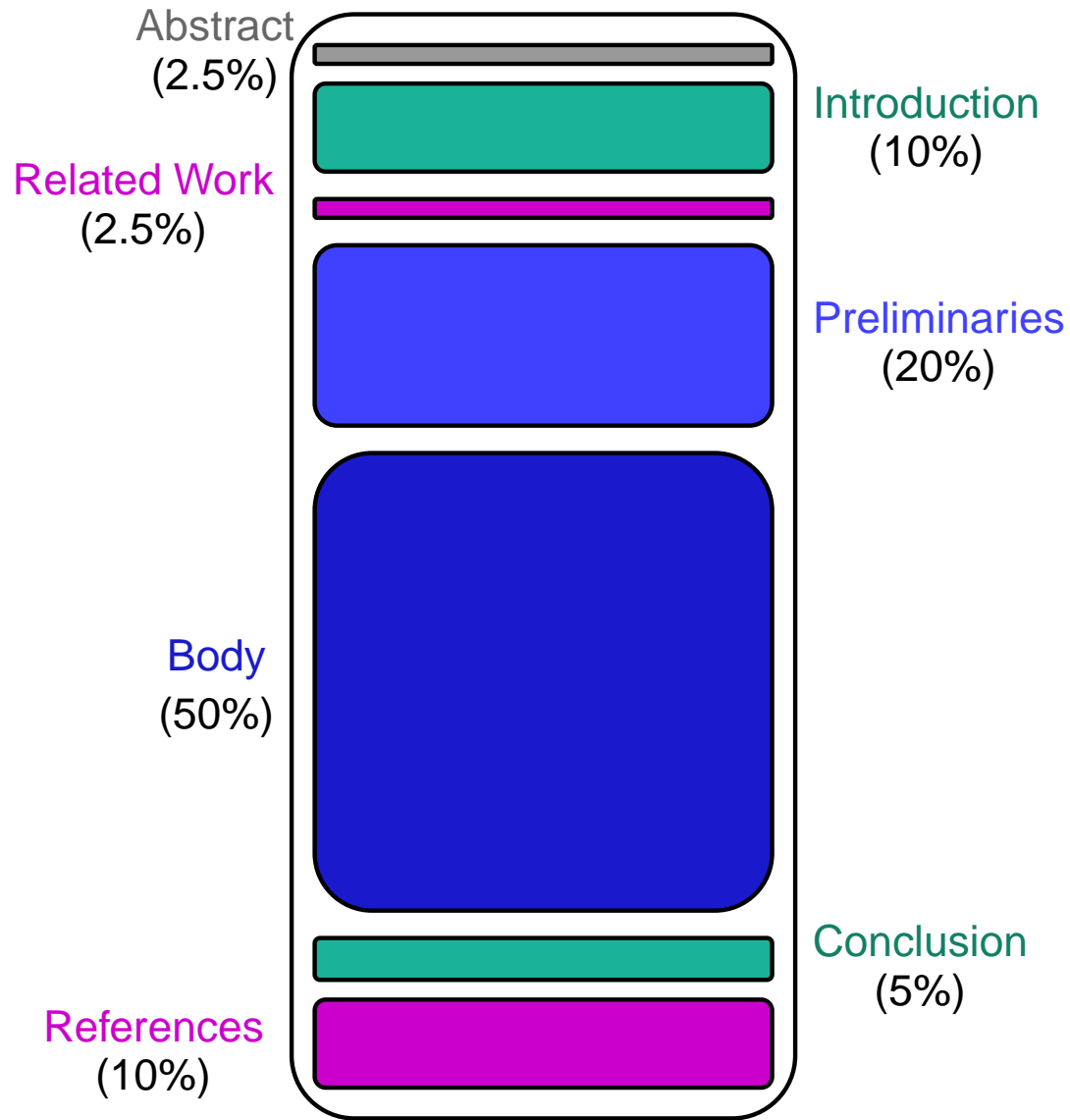
Plan

1. Taxonomy of Scientific Papers
2. Structure of Scientific Papers
3. First Read Through
4. In Depth Reading
5. Looking at References
6. Evaluating Scientific Papers

Taxonomy of Scientific Papers



Structure of Scientific Papers



First Read Through (Step 1)

1. Read:

- Abstract
- Introduction
- Related Work
- Conclusion
- References (Only the one pointed in one of the previous sections)

2. Reply to the following questions:

- **For which community is the paper written?** [Introduction, Related Work]
- **What contributions are in this paper (according to the authors)?**
[Abstract, Introduction, Conclusion]
- **What possible consequences can the contributions have?**
(direct applications, new techniques, new fields, . . .) [Introduction]

First Read Through (Step 2)

1. Read:

- **Preliminaries** (Identify the notations or analysis methods)
- **Body** (**Warning !** Do **NOT** read the proofs or experiment settings)

2. Reply to the following questions:

- **If I assume the proofs correct or the experimental setting and the analysis method relevant, does the authors meet the list of contribution?**
[Preliminaries, Body]
- **Yes:** Go to “In Depth Reading”
- **No:** Try again or ask for advice by your supervisor

In Depth Reading

1. Read:

- **Body** (Everything)
- **References** (Quick glance to external theorems/experiments)

2. Last Tips:

- **A proof/experiment is too technical, I do not understand it!**
 - Is it relevant to understand it?
 - Yes: Try harder or contact your advisor
 - No: Skip it
- **I found an error !**
 - Are you sure?
 - Double check
 - Triple check
 - Ask your advisor
 - Are the contributions of the paper still valid?
 - Yes: Then, it is not so important
 - No: Write a paper!

Looking at References

A paper is just one link in a chain !
Don't stop once you have read it, it's only the beginning !

Looking at references allows you to:

- Discover the community around it
- Understand the context
- Put the paper in perspective
- Link it with other fields/topics

Evaluating Scientific Papers

Ok, I have:

- Read the paper,
- Understood it,
- Browsed the references.

What's next?

- List the strength/weakness of the paper (be critical!)
- Define the contributions of the paper (look at the papers quoting it)
- Put the paper in perspective (impact on the community)
- **Make your own opinion!** (very important)

Summary: How to Read a Paper?

1. First Read Through

(Abstract, Introduction, Related Work, Conclusion, References)

Extract the context and the intended contributions

2. In Depth Reading

(Preliminaries, Body, References)

Grab the details

3. Looking at References

(References, Citeseer)

Make the link with other papers, look at the real impact

4. Evaluate the Paper

(Everything)

Make your own opinion

5. Start to Prepare your Presentation

Part II:

Presenting a Scientific Paper

Plan

1. Before You Start
2. Organize your Ideas
 - Introduction
 - Preliminaries
 - Body
 - Technicalities
 - Conclusion
3. Slides
4. Speaking
5. The Show
6. Last Tips

Before You Start

- **Know your Topic**

(Be sure you have understood the paper)

- **Know Your Audience**

(Your talk must take the audience into account)

- **Know Your Goals**

(What are the expectations of the audience?)

- **Know Your Limits**

(how much time will be needed?)

Organize Your Ideas (1/3)

- **Identify the Key Ideas**

(Make sure that all the key ideas of the paper are in your talk)

- **Do not Go into too Many Details**

(Ignore the superfluous and focus on the essentials, **use examples!**)

- **Use A Top-Down Approach**

(starting wide, finishing narrow)

- **Structure Your Talk**

(Introduction, Preliminaries, Body, Technicalities, Conclusion)

Organize Your Ideas (2/3)

Introduction

- Define the Problem
- Motivate the Audience
- Discuss Earlier/Posterior Work (briefly)
- Emphasize the Contribution of the Paper
- Provide a Road-map

Preliminaries

- Introduce Terminology and Notations or the Setting of the Experiment (but only the absolutely necessary ones)
- If Needed, Redefine the Problem more Technically

Organize Your Ideas (3/3)

Body

- List Major Results
- Explain the Meaning of the Results
- Give some Examples

Technicalities

- Either Sketch the proof of an important result or Present some experimental results

Conclusion

- Remind the Main Results
- Explain Your Opinions on the Paper
- Indicate that Your Talk is Over

Slides

- **Use them: computerized, printed or handwritten slides**
- **The Simpler, the Better!**
(do not put the whole sentences you want to say on slides)
- **Use Colors!**
(but don't **exaggerate** !)
- **Use Pictures**
(one picture is worth thousands of words)
- **One Slide = 1–3 minutes (average)**
(think about timing)

Speaking

- **Speak Slowly, Steadily and Loud**

(do not speak mentally, something to drink, avoid bubbles)

- **Find the Right Words**

(prepare some full sentences to say during the talk)

- **Transitions are the Keys**

(prepare transition between slides)

- **Improvisation is Needed**

(whatever you do, you will have to improvise)

- **Humour is OK but not Recommended**

(do not try to be funny!)

The Show

- **Do not be monotonous**

(try to make your voice vary slightly)

- **Make the Audience Participate**

(depends on the type of talk)

- **Maintain Eye Contact**

(don't show them your back)

- **Control Your Position**

(don't hide the slides)

- **Control Your Timing**

(do not forget the time)

- **I made a Mitsake... The Show Must Go On**

Last Tips

Practice!

Practice !

Practice !

Practice !

Practice !