

Seminar: Recreational Computer Science

2. How to write a (Seminar) Paper

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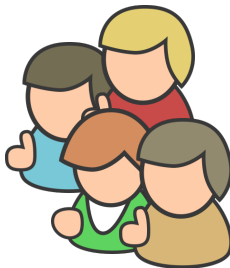
Getting started

Aim



You

Practice reading and
writing scientific reports



Other seminar participants

- Who is the audience?
- What do they already know?
- What should they learn?

Getting Material

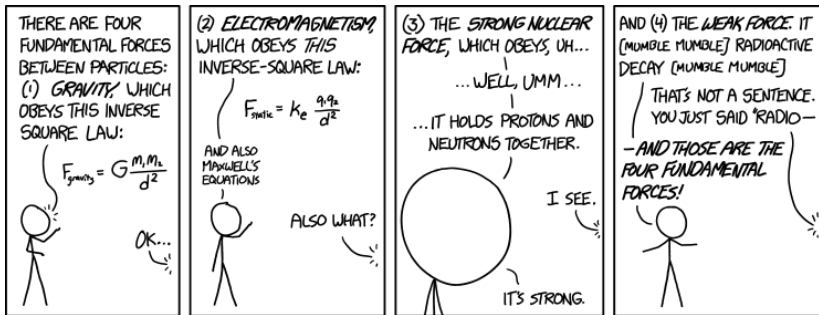
Finding material

- references in the material you already have
- <https://scholar.google.com>
- reference section in wikipedia articles
- library
- ask advisor for help

Article only available for money?

- homepages of the authors
- university subscription
- library

Understand the Material



www.xkcd.com

- do not ignore complicated details
- speak with your advisor if you need help

Structure

A Typical Structure

- abstract
- introduction
- background
- main parts
- related work
- conclusion
- references

Abstract I

Sorting Algorithms

Hans Meier

Seminar on Algorithms and Data Structures
University of Basel
HS 20XX

Abstract

A *sorting algorithm* orders the elements of a list according to a given total order relation. We explain three different such algorithms, namely *merge sort*, *heap sort* and *quick sort* and analyse their time and space complexity. An empirical evaluation illustrates in which scenarios these algorithms have their strengths and weaknesses.

1 Introduction

Abstract II

- very brief description of what is in the paper
- should help potential readers to decide whether the paper is relevant to them
- contains no references
- in \LaTeX : `\begin{abstract}... \end{abstract}`

Introduction

- setting
- high-level description of the topic
- motivation why the topic is interesting
- structure of the paper

Introduction

- setting
- high-level description of the topic
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We start by introducing the SAS⁺ planning formalism and our new framework, which is based on *operator-counting constraints*. Afterwards, we present a wide range of such constraints and explain how they can be used to express existing heuristics. We then prove some theoretical results on interesting connections between the heuristics and end with an experimental study and conclusions.

[Pommerening et al., ICAPS 2014]

Background

- introduces basic terminology and notation
- builds the fundament for the main parts
- often general, well-known definitions or work by others
- papers must be self-contained, here is the place to achieve this
- section title not necessarily “background”
e.g. Pommerening et al. [ICAPS 2014]

Main Parts

- core of the paper
- sub-structure depends very much on topic

Related Work

- brief description of other approaches to the same problem
- focus on core ideas
- sometimes also directly after introduction

Conclusion

- wraps up the paper
- short summary of main findings
- should not repeat the abstract or introduction
- often closes with open questions or an outlook to future work

References

- list of used literature
- should be complete and consistent
 - do not write “Proceedings of the Xth Conference on Blabla” for one conference and “Proc. ACRONYM 2000” for another
 - or even worse: the same conference
- use bibtex, biblatex, . . .
- read the messages of these tools
 - warnings for incomplete entries

Citation

Citation

- “Meier and Huber (2013) have shown. . .”
- “For the n^2 -puzzle, finding the shortest solution is NP-complete (Ratner and Warmuth 1986).”
- **Theorem 1** (Murphy’s law, Sack 1952).
Anything that can possibly go wrong, does.

- **not** “(Meier and Huber 2013) have shown. . .”
- **not** “In (Meier and Huber 2013) . . .”

Bibtex

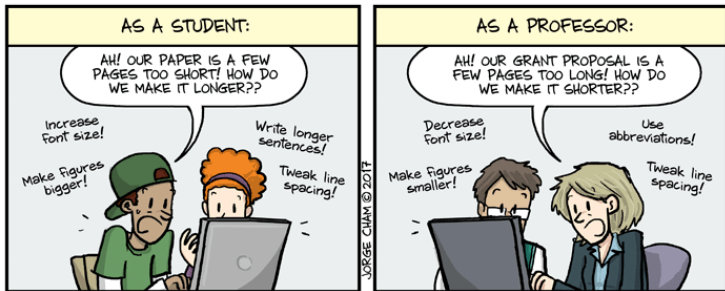
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  year =        "1994",  
  volume =      "270",  
  issue =       "5",  
  pages =       "118--120"  
}
```

(Demo)

Common problems

How to Fill the Paper?

PAGE LIMITS



- add explanations
- add examples

Common Issues




- Usage of terms before their introduction
- Only translation of original text
- Colloquial or imprecise language

Questions



Questions?

References

-  Pommerening, F., Röger, G., Helmert, M., and Bonet, B. (2014).
LP-based heuristics for cost-optimal planning.
In *Proc. ICAPS 2014*, pages 226–234.
-  Ratner, D. and Warmuth, M. (1986).
Finding a shortest solution for the $n \times n$ extension of the
15-puzzle is intractable.
In *Proc. AAAI 1986*, pages 168–172.
-  Sack, J. (1952).
The Butcher: The Ascent of Yerupaja epigraph.
Rinehart & Co, inc.