How to write a paper

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Lecture Research A

Requirements for the course

Deadlines

- Submission of the full paper (first version): **December 10, 2013**
- Submission of the full paper (final version): **January 10, 2013**

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- Use LaTeX instead.

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Formal aspects

- Between 15 and 20 pages (including bibliography)
- 10pt font, simple line spacing (no special LaTeX options)
- Use LaTeX document class `\documentclass[a4paper]{article}`
- No special page-margin configurations

The reader

Central question: Who reads your paper and why?

- Purpose of the paper: you want to convey your idea/results to the reader.
- You want people to *want to read your paper*
- Papers will be reviewed (here: graded). Make reviewer (here: us) happy
  - Do not assume too much expert knowledge but do not start with Adam and Eve
  - Examples (or concrete numbers) help!
- Think about different groups of readers; who will read what?

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  - "Irrelevant" parts (for some group) should be skippable
- Also help people who will *not* read your paper
  - Make clear early what is and what *is not* in your paper

Paper organization

1. Title
2. Author names
3. Author affiliations and contact data
4. Abstract and keywords
5. Introduction
6. Main part
7. Results and Comparison
8. Conclusion
9. Bibliography
10. Appendices

The paper title

- As short as possible, as long as necessary
- The most important keywords should go in the title
- Make sure that people find your paper
  (title will show up in web search engines)
- "Advertisement" starts with the title (do not scare readers away)

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- Footnote behind author names points to acknowledgment of funding
- Please put the date somewhere
  - Makes it easier to cite paper correctly
  - Helps to find the newest version

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Purpose

- Tell the reader whether he should read the paper
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- Keywords: help to categorize paper; do not repeat the title

Don't

- Never lie about your results!
- Do not imply that you did things that you did not do
- Do not discuss potential problems with your work here

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- A subsection of the introduction *can* describe related work (other spot: "Results and Comparison")

The Introduction II

- Typical (but not necessary) end of the introduction: "Organization of the paper":

  "The remainder of the paper is organized as follows. Section 2 formalizes the problem. Section 3 describes our approach. Section 4 gives details of our implementation. We present result of our measurements and benchmarks in Section 5 and conclude the paper in Section 6."

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- Introduction is a good spot to give details of software availability (if it applies):

  > *" We place all software described in this paper into the public domain to maximize reusability of our results. The software is available online at* `http://mydomain.org/project/my_software/`*."*

The main part of your paper

- Very hard to give general rules how to write this part
- Some general comments:
  - Start with examples (concrete numbers), then generalize/formalize
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  - Do write: "A future challenge will be to also implement..."

Reproducibility

- Make sure that your results are independently reproducible!
- Provide all necessary information

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- Provide all necessary information
- Raw data required? Put it online (if possible) and provide a download link
- Did you write software? Put it online and provide a download link

Results and Comparison

- This is the other possible spot for describing related work
- Be honest about your results
- Give detailed results (e.g., include standard deviation or quartiles of measurements)
- Be fair in the comparison to related work

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Do write a conclusion

- if you want to point to interesting future work ("Conclusion and Outlook")
- if you really feel like you want to collect result of your paper again
- if you want to make various other readers/reviewers happy

The Bibliography

- List all papers that have been cited in the text (and only those!)
- Use computer-science style ([1], [2], etc., or [ACD+06], [AFG+09])
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See also http://cr.yp.to/bib/devil-cite.html

Using bibtex

- Create file `mycollection.bib` with your bibliography entries
- Inside your LaTeX document put

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\bibliographystyle{plain}
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- Translate your document with

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- More on bibtex: http://en.wikibooks.org/wiki/LaTeX/Bibliography_Management

Appendices

- Typical measure to address page limitations

  "Submitted papers must not have more than 15 pages excluding the bibliography and appendices"

- Reviewers are typically not required to read appendices
- Not very relevant for the paper in this course

Figures

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- Make sure that figures/pictures have high quality
- Use vector graphics rather than bitmap graphics
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- Make sure that figures/pictures have high quality
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- Use labels and captions for figures (and tables, code listings, etc.):

```
\begin{figure}
  \includegraphics{mypicture}
  \caption{Picture of something interesting}
  \label{fig:mypicture}
\end{figure}
```

- Reference your figure (or table, code listing, etc.):

```
Figure~\ref{fig:mypicture} depicts...
```

- Do not write "The following figure depicts ..." (figures may *float* in your document)

Writing style and techniques

- Use short sentences.
- Use simple English (do not show off with your extensive vocabulary)
- Use common notation ("a prime p", "indices i, j, k", etc.)

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- Use a spellchecker, e.g.

```
for i in ./*.tex;do aspell check $i;done
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  - Many papers are online
  - Sometimes you have to go to the library
  - Can also write e-mail to the authors

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  - Easy (simple) backup on some server

Summary

- Make the reader happy
- Examples are good
- Stick to deadlines
- Start early
- Do not plagiarize