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Tips on Writing Papers

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Some Obvious Recommendations

- Make sure you have something to say
- Try to make the paper interesting
- Tailor the paper to the expected audience
- Organize, organize, and organize

Kinds of Papers

- Technical report
- Research paper
- Position paper
- Survey
- Proposal

Who Should Coauthor the Paper?

- Choose coauthors who:
  - Are good writers
  - Are the major participants in the work
  - Will bring attention to the paper

- The coauthors should not include anyone who did not participate in the work
  - Examples: Laboratory directors and supervisors

How Should the Coauthors be Ordered?

- Two main approaches:
  - Order of importance
    (Common in science and engineering)
  - Alphabetical order
    (Common in computer science and mathematics)

- The relative contributions of the coauthors can be described in the text

- People who made minor contributions to the paper can be mentioned in an acknowledgments section

Components of a Paper

- Title page
- Abstract
- Introduction
- MAIN BODY
- Conclusion
- Acknowledgments
- Footnotes or endnotes (optional)
- References
- Appendices (optional)

Abstract

- Microversion of the paper
- One short, self-contained paragraph is best
- Should be very widely understandable

Introduction

- State the purpose of the paper
- Describe the background for the paper
- Explain what knowledge will be assumed

Conclusion

- Different possible forms:
  - Summary
  - Set of conclusions
  - Set of recommendations

- Use the paper as a springboard

References

- Be careful to reference the work of others
- List references alphabetically
- Avoid inaccessible and unpublished references
- Examine all the references you list

Components of a Proposal

- Title
- Objective
  - What you want to do
- Approach
  - How you will do it
- Impact
  - What benefits you expect will result
- Budget

Some General Recommendations

- Be concise
- Be conservative in approach and format
- Make the final product look attractive
- Use good English appropriate for your audience

Text

- Use a standard font for the main text
  - Use other fonts sparingly
  - Avoid using colored text
- A typical line should contain 10–15 words
- Use italics instead of underlining

Linguistic Distinctions

Be careful when distinguishing between:

- Expressions and their values

  `356` (string) vs. 356 (number)

- Expressions with and without syntactic variables

  `x` $<$ `2` (simple expression) vs. $A < B$ (schema)

- Inputted text and effect

  `(17 + 31)` vs. $\rightarrow$ 48

- Unisymbol variables and multisymbol variables

  `val` (name) vs. val (3 variables)

Writing Approaches

- Incremental development
  - Write pieces of the paper as the work is being done
- Successive refinement
  - First write an outline
  - Then expand the outline into a full paper
- Spiral approach
  - Write sections in the order $1, 2, 1, 2, 3, 1, 2, 3, 4, \ldots$
- Seed approach
  - First write the most important or best understood part of the paper
  - Then expand this part into a full paper

Final Tip

- Choose a simple, proven format for your paper
- Put your creative energy into the content of your paper