Paper Organization

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Organization – Title and Author

- Papers begin with their title and information about authors including name, affiliation, and address.
- Use the same style for your name on all your papers, so that they are indexed together. Include a durable email address or Web address.
- Another element is a collection of search terms, keywords, or key phrases—additional terminology that can be used to describe the topic of the paper.

Abstract

- An abstract is typically a single paragraph of about 50–200 words.
- The function of an abstract is to allow readers to judge whether or not the paper is of relevance to them.
- It should therefore be a concise summary of the **paper's aims, scope, and conclusions**.
- There is no space for unnecessary text; an abstract should be kept to as few words as possible while remaining clear and informative.
- **Irrelevancies**, such as minor details or a description of **the structure of the paper**, are usually inappropriate, as are **acronyms, mathematics, abbreviations, or citations**.

Abstract Organization

- 1. A general statement introducing the broad research area of the particular topic being investigated.
- 2. An explanation of the specific problem (difficulty, obstacle, challenge) to be solved.
- 3. A review of existing or standard solutions to this problem and their limitations.
- 4. An outline of the proposed new solution.
- 5. A summary of how the solution was evaluated and what the outcomes of the evaluation were.

Introduction

- An introduction can be regarded as an expanded version of the abstract.
- It should **describe the paper's topic, the problem being studied, references to key papers, the approach to the solution, the scope and limitations of the solution, and the outcomes**.
- It should include motivation: the introduction should explain why the problem is interesting, what the relevant scientific issues are, why the approach taken is a good one, and why the outcomes are significant.

Introduction

- The introduction should show that the paper is worth reading and it should allow the reader to understand your perspective, so that the reader and you can proceed on a basis of common understanding.
- The introduction can discuss the importance or ramifications of the conclusions but should include only a brief summary of the supporting evidence, which the interested reader can find in the body of the paper.
- Relevant literature can be cited in the introduction, but specialized terminology, complex mathematics, and in-depth discussion of the literature belong elsewhere.

Introduction

- A paper isn’t a story in which results are kept secret until a surprise ending.
- The introduction should clearly tell the reader what in the paper is new and what the outcomes are.
- There may still be a little suspense: revealing what the results are does not necessarily reveal how they were achieved. If, however, the existence of results is concealed until later on, the reader might assume there are no results and discard the paper as worthless

Introduction

- By the end of the introduction, the reader should understand the scope of the work, and of the problem.
- The reader should also understand the contribution, that is, what the *discovery* of the work is—the core idea that the referees or examiners need to appreciate as novel and important.
- This understanding requires that the reader appreciates what the properties of this contribution are, what makes it interesting and plausible, what method was used to investigate it, and why the method is appropriate

Literature Review

- literature review, or survey, is used to compare the new results to similar previously published results, to describe existing knowledge, and to explain how it is extended by the new results.
- A survey can also help a reader who is not expert in the field to understand the paper and may point to standard references such as texts or survey articles.
- In an ideal paper, the literature review is as interesting and thorough as the description of the paper's contribution.

- There is great value for the reader in a precise analysis of previous work that explains, for example, how existing methods differ from one another and what their respective strengths and weaknesses are.
- Such a review also creates a specific expectation of what the contribution of the paper should be—it shapes what the readers expect of your work, and thus shapes how they will respond to your ideas.
- It is where the reader learns why the problem is a challenge and also learns about the limitations of simple or previous solutions.

Body

- The body of a paper should present the results.
- This presentation should provide necessary background and terminology, explain the chain of reasoning that leads to the conclusions, provide the details of central proofs, summarize any experimental outcomes, and state in detail the conclusions outlined in the introduction.
- There should be careful definitions of the hypothesis and major concepts, even those that were described informally in the introduction.
- The structure should be evident in the section headings. Since the body can be long, narrative flow and a clear logical structure are essential.

Body

- In some disciplines, research papers have highly standardized structures. Editors may require, for example, that you use only the four headings Introduction–Methods– Results–Discussion
- In work combining two query resolution techniques, we had to determine how they would interact, based on a fresh evaluation of how they behaved independently. The final structure was, in effect, Introduction–Background–Methods–Results–Discussion– Methods–Results–Discussion.

Body

- Components of the body might include, among other things, background, previous work, proposed method, experimental design, analysis, results, and discussion.
- In a thesis, each chapter has structure, including an introduction and a summary or conclusions. This structure varies with the chapter's purpose.
- A background chapter may gather a variety of topics necessary to understanding of the contribution of the thesis, for example, whereas a chapter on a new algorithm may have a simple linear organization in which the parts of the algorithm are presented in turn.
- However, the introduction and summary should help to link the thesis together—and thus show how each chapter builds on previous chapters and how subsequent chapters make use of it.

Conclusion

- The conclusions section, or summary, is used to draw together the topics discussed in the paper. This section should include a concise statement of the paper's important results and an explanation of their significance.
- This is an appropriate place to state (or restate) any limitations of the work: shortcomings in the experiments, problems that the theory does not address, and so on.
- The conclusions are an appropriate place to look beyond the current context to other problems that were not addressed, to questions that were not answered, to variations that could be explored.

Bibliography

- A paper's bibliography, or its set of references, is a complete list of theses, papers, books, and reports cited in the text. No other items should be included.

Appendix

- Some papers have appendices giving detail of proofs or experimental results, and, where appropriate, material such as listings of computer programs.
- The purpose of an appendix is to hold bulky material that would otherwise interfere with the narrative flow of the paper, or material that even interested readers do not need to refer to.