Structure of Technical Report
EEE212

Francis Ting

Xi'an Jiaotong-Liverpool University

Email: *toting@xjtlu.edu.cn*
Room: EE324

March 22, 2015

Overview

Table of Contents

Prelude

- The aim of this presentation is to outline the standard structure of a lab report
- Each component in the structure is explained in detail
- It also considers issues with number, citing, and referencing.
- Will describe how to write a technical report

Table of Contents

Components of Technical Report

A technical report consists of the following components, which are essential in almost every technical report:

1. Abstract
2. Introduction
3. Methodology
4. Result and Discussion
5. Conclusion
6. Bibliography

1. Abstract

- Is a summary of the work being accomplished, that acts as a book's cover to attract readers
- Emphasize on the contributions and results obtained
- A conclusion on the work with emphasis on the achievement
- Should be short and concise, with no referencing and numbering
- Keep abstract to only one paragraph

2. Introduction

- Should include a chronological order of previous works by citing relevant and important publication
- In scientific research, the four main sources of research articles are:
  1. Google Scholar: `http:www.scholar.google.com`
  2. IEEExplore: `http:ieeexplore.ieee.org`
  3. Springerlink `http:www.link.springer.com`
  4. ScienceDirect `http:www.sciencedirect.com`
- Large portion of citations are found under this component, approximately 80%
- The last paragraph should describe each section included in the writing

3. Methodology

- Describes the process in obtaining the results
- Include the problem formulation and the description of the tool (hardware and software) involved in the experiment
- Should include figure whenever necessary to illustrate relevant process
- The best part for mathematical equation
- Includes flow chart to describe the flow of a process
- Pseudocode is another good alternative, especially to describe the flow of an algorithm

4. Result and Discussion

- The most important part in scientific writing
- It includes data analysis to extract significant information
- Appropriate choice of graphical presentations, such as bar chart, line chart, pie chart, etc. are crucial to present the results clearly
- In many cases, results comparison is crucial to justify and support the proposed methodology
- Results usually are better in terms of either speed, simplicity, efficiency, cost, etc.

5. Conclusions

- Concludes and highlights the main contribution(s) from the work accomplished
- Restating the main points and highlighting the achievements obtained
- The writing should be different from the one abstract; no overlapping of writing
- Recommendation for future works

6. Bibliography

- This is a list of references to all the publications cited in the paper
- References are downloadable from:
  1. Google Scholar (best)
  2. Scopus
  3. Web of Science

  In LaTeX, the best references manager is BibDesk, available from `www.sourceforge.com`
- In Engineering field, three major formats: IEEE, Springer, and Elsevier

Table of Contents

Last Words

- In scientific writing, there are six essential components
- Each component should be treated fairly and carefully for the best outcome
- Special attention should be given the abstract, which acts as the door to either read / reject your paper
- Technical report involves mastering of many skills (language, writing, LaTeX, referencing, finding resources, etc.) in producing a high quality work

The End