LaTeX Thesis Template of The University of Waterloo

by

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Author's Declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

Abstract

This is a short brochure on how to write your thesis by using this LaTeX template. It's easy, efficient and straightforward. What you need to do, no matter you are familiar with LaTeX or not, is to have a try.

Acknowledgements

This work would not be done without the numerous excellent on-line resources. Many thanks to those who ever contributed or will contribute their knowledge to the open source community.

Dedication (included if necessary)

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A Brief Guide

1.1 What is LaTeX

LaTeX (pronounced "Lah-tech" or "Lay-tech") is a macro package created by Leslie Lamport based on TeX. As a document preparation system for high-quality typesetting in almost any forms of publishing, LaTeX is not the name of a particular editing program, but refers to the encoding or tagging conventions that are used in LaTeX documents (Wikipedia, 2014; LaTeX, 2014).

1.2 Why use LaTeX?

There are a lot of good reasons why you need to use LaTeX, the most significant one is the following:

- Allows you to clearly separate the content from the format of your document.
- Let you concentrate on your ideas, not visual appearance!

You can concentrate purely on the structure and contents of your document, not superficial layout issues. You don't need to manually adjust fonts, text sizes, line heights, or text flow for readability, as LaTeX takes care of them automatically. (Wikibook, 2014)

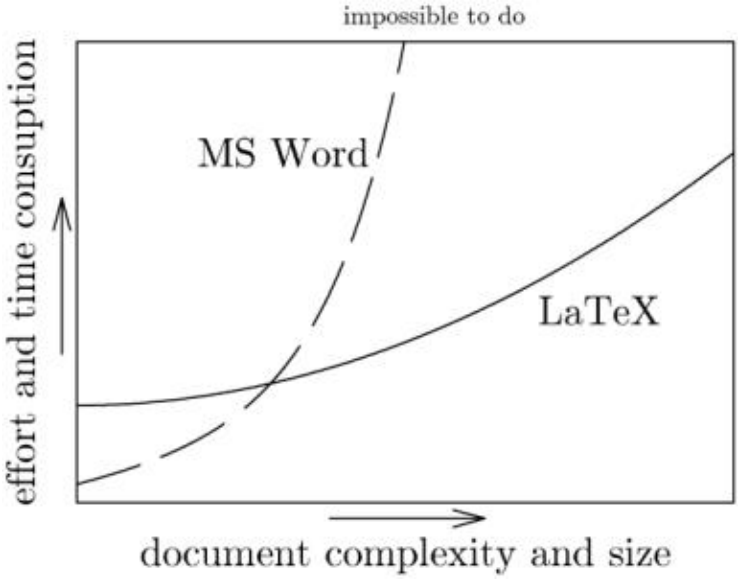

Figure 1.1: Comparison between Microsoft Word and LaTeX [From Google Images]

1.3 How to use?

1.3.1 Installation

LaTeX is based on open-source code, so it is available on most computing platforms as free software.

- Linux: TeXLive distribution.
- MacOS, Mactex or TeXLive.
- Windows, MikTeX or TeXLive.

Note: the best resource that can be used to learn LaTeX is "LaTeX Wikibook", which is available on-line.

1.3.2 Give a try

After downloading this template and installing a LaTeXdistribution. It's time to have a try:

- Linux: run Compile.sh
- MacOS: can I borrow your Mac and write a script...
- Windows: run Compile.bat

Note: It's recommended to use the provided scripts to compile your LaTeX files. It will automatically search and include files without explicitly specifying relative paths. If you do not use them for compilation, you need to specify the relative path in each "`\input{ }`" command, or the LaTeX will complain that it can not find some files.

1.3.3 Include math

LaTeX realization of Equation 1.1 is something like this:

```
\begin{equationa}\label{eq:N-S_equation}
    \frac{\partial (\rho\mathbf{v})}{\partial t} +
    \nabla \cdot (\rho \mathbf{v} \mathbf{v}) =
    -\nabla p + \nabla \cdot\mathbf{T} + \mathbf{f}.
\end{equation}
```

$$\frac{\partial(\rho\mathbf{v})}{\partial t} + \nabla \cdot (\rho\mathbf{v}\mathbf{v}) = -\nabla p + \nabla \cdot \mathbf{T} + \mathbf{f}. \tag{1.1}$$

1.3.4 Include Graphics

Note: inluding figures may seem to be scary by looking at the codes. However, the fact is that you only need to modify the names in each part, rests are simply copy and paste! These codes are all available in the file "Useful Commands.txt".

Figure 1.2 is an example for including a single figure.

```
\begin{figure}[!htbp]
    \centering
    \includegraphics[width=\MyFactor\textwidth]{ITC_Q_Criteria}
    \caption{An Example for including a single figure}
    \label{fig:ITC_Q_Criteria}
\end{figure}
```

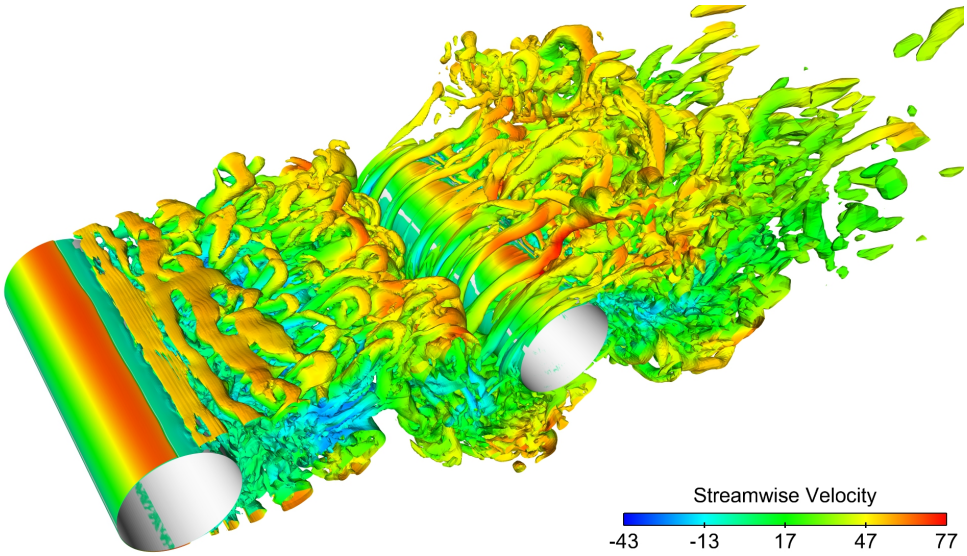

Figure 1.2: Example for including a single graph

Figure 1.3 is an example for including multiple figuress.

```
\begin{figure}[!htbp]
    \centering
    \begin{subfigure}[b]{\MySubFactor\textwidth}
        \includegraphics[width=\textwidth]{HC_OASPL_A}
        \caption{}
        \label{fig:HC_OASPL_A}
    \end{subfigure}%
    ~% add a small space
    \begin{subfigure}[b]{\MySubFactor\textwidth}
        \includegraphics[width=\textwidth]{HC_OASPL_B}
        \caption{}
        \label{fig:HC_OASPL_B}
    \end{subfigure}%
    \\% change line
    \begin{subfigure}[b]{\MySubFactor\textwidth}
        \includegraphics[width=\textwidth]{HC_OASPL_C}
        \caption{}
        \label{fig:HC_OASPL_C}
    \end{subfigure}%
    ~% add a small space
```

```
    \begin{subfigure}[b]{\MySubFactor\textwidth}
        \includegraphics[width=\textwidth]{HC_OASPL_D}
        \caption{}
        \label{fig:HC_OASPL_D}
    \end{subfigure}%
    \caption{An Example for including multiple figures}
    \label{fig:HC_OASPL}
\end{figure}
```

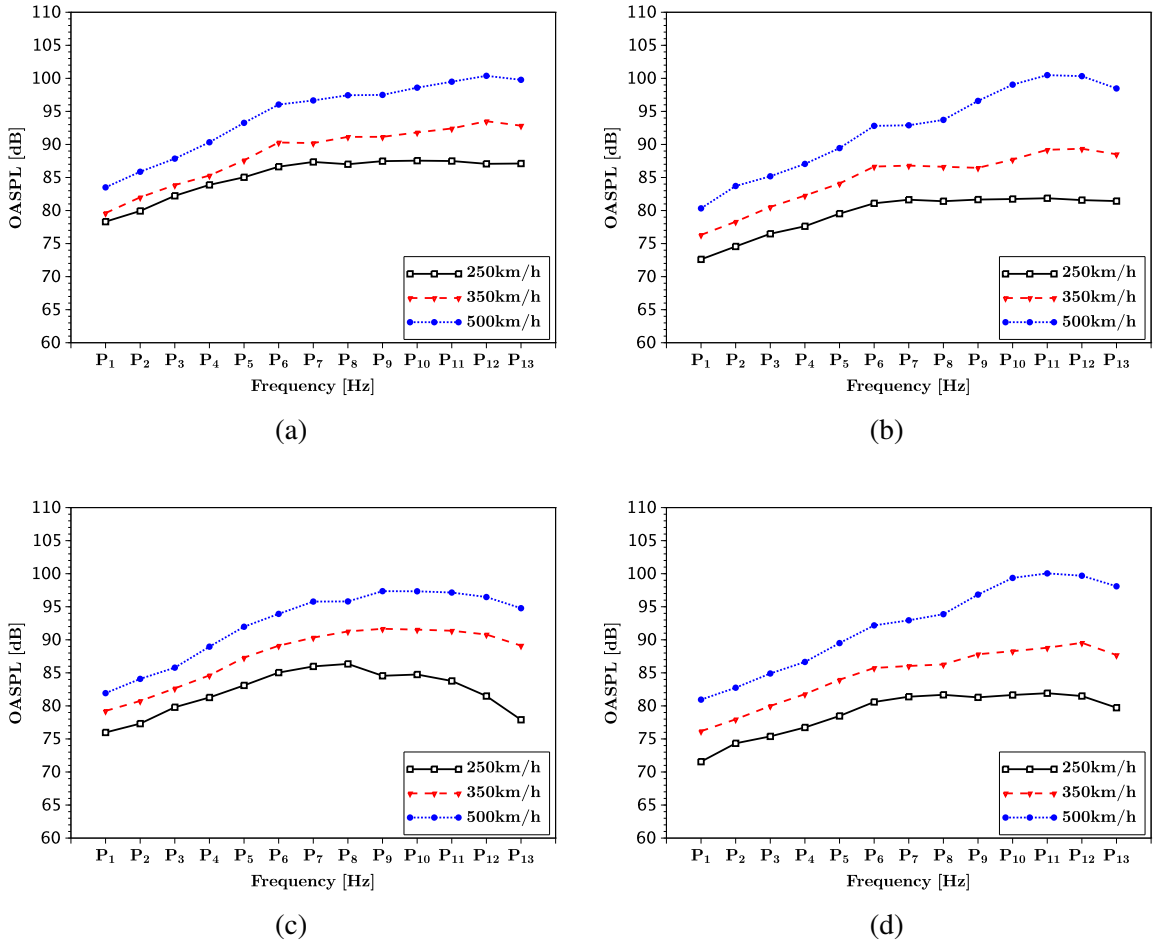

Figure 1.3: An Example for including multiple figures

1.3.5 Include a citation

Suppose you are going to cite an article named "Document Preparation System", the procedures are:

- Use Google Scholar search "Document Preparation System".
- Open "Cite" and choose "Import to Bibtex" under the target item.
- Copy the citation information of this article into the file "Myrefs.bib"
- Research dominant: cite this article by `\citep{lamport1986document}` like here (Lamport, 1986)
- Citation dominant: cite this article by `\citet{lamport1986document}` like here Lamport (1986)
- References list is generated automatically.

1.4 File Tree of Current Template

- Thesis.tex: main tex file, which acts like the main function in C++. No need to modify.
- Style: Store template configuration files, which act like subfunctions, No need to modify.
- Tmp: Store files generated by compilation.
- Biblio: Store information of references.
- Img: Store images.
- Tex: Store files for your content, this is the working directory.
  - Frontpages: content of front pages, like authorship, abstract, etc.
  - Prematter: content of nomenclature, etc.
  - Main_Content: index for chapters you want to include into your current content.
  - Chap_***: your content for each chapters.
  - Appendix: appendix.
  - Useful Commands: collection of useful commands.

APPENDICES

Appendix A

Other Imformation

References

Lamport, L. (1986). *Document Preparation System*. Addison-Wesley Reading, MA.

LaTeX (2014). Latex – a document preparation system. *http://www.latex-project.org/*.

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