Master's Thesis

Title of Thesis Title of Thesis Title of Thesis Title of Thesis Title of Thesis Title of Thesis Title of Thesis

Gildong Hong

Department of OOO

Graduate School

Korea University

February 2023

Doctoral Dissertation

Title of Dissertation Title of Dissertation Title of Dissertation Title of Dissertation Title of Dissertation

Gildong Hong

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Title of Thesis Title of Thesis Title of Thesis Title of Thesis Title of Thesis

by
Gildong Hong

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under the supervision of Professor Chulsu Kim

A thesis submitted in partial fulfillment of
the requirements for the degree of
Master of Arts (or Science)

Department of OOO

Graduate School

Korea University

October 2022

Title of Dissertation Title of Dissertation Title of Dissertation Title of Dissertation

by
Gildong Hong

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under the supervision of Professor Chulsu Kim

A dissertation submitted in partial fulfillment of
the requirements for the degree of
Doctor of Philosophy

Department of OOO

Graduate School

Korea University

October 2022

The thesis of Gildong Hong has been approved
by the thesis committee in partial fulfillment
of the requirements for the degree of
Master of Arts (or Science)

December 2022

Committee Chair: Name

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The dissertation of Gildong Hong has been approved
by the dissertation committee in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy

December 2022

Committee Chair: Name

Committee Member: Name

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Title

by Gildong Hong

Department of OOOO

under the supervision of Professor Chulsu Kim

Abstract

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Keywords: Keyword, Keyword, Keyword, Keyword, Keyword, Keyword

국문 제목

홍 길 동

O O 학 과

지 도 교 수: 김 철 수

국문 초록

The Korean abstract should follow the English abstract. 영어 논문의 경우에도 한글 초록이 작성되어야 합니다.

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중심어 : 중심어, 중심어, 중심어, 중심어, 중심어, 중심어

You can dedicate your thesis/dissertation
to someone you know either personally or professionally.
It is customary to place the dedication text
in the center of the page without a title heading.
If you do not need this page, delete it.

Preface

The text of the preface begins here.

If the thesis/dissertation contains the results of work conducted in collaboration with other people, or if the thesis/dissertation contains previously published content, a preface must be included. The preface may include the following. However, it is also possible to include the contents of the preface in the introduction of the main body.

① a description of the results that were obtained in collaboration with others, indicating the nature and proportion of the contribution of others and in general terms the portions of the work which the student claims as original

② a description of contents that have been published or submitted for publication and the contributions of all authors involved in any multi-authored publications included in the thesis/dissertation

③ your brief personal background, academic motivation, thesis/dissertation target group, acknowledgments, etc. can be included

Example

- `https://www.grad.ubc.ca/sites/default/files/doc/page/thesis_sample_prefaces.pdf`
- `https://www.phase-trans.msm.cam.ac.uk/2002/thomas/chapter1.pdf`

Acknowledgment

The text of the acknowledgments begins here.

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List of Tables

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Nomenclature

M	original mass matrix
K	original stiffness matrix

Subscripts

b	interface boundary
d	dominant

Abbreviation

CMS	Component Mode Synthesis

Chapter 1. Introduction

The following formatting information is intended to illustrate several acceptable ways of preparing a thesis or dissertation for your convenience. The first paragraph of every chapter, section or subsection is, by default, set to be non-indented.

The first level heading is styled using chapter. Chapter 1 is styled with `\chapter{Introduction}`. You can put `\label{chap:intro}` to refer to this chapter.

1.1 Second Level Heading

The second level subheading is styled using section. Section 1.1 is styled with `\section{Second Level` Sections will appear in the Table of Contents, automatically.

1.1.1 Third Level Heading

The above third level subheading is styled using subsection. Subsection 1.1.1 is styled with `\subsection{Third Level Heading}`. Subsections will appear in the Table of Contents, automatically.

For more information about headings, refer to `https://www.overleaf.com/learn/latex/Headers_and_footers`

This template isn' t the only way to list titles, subheadings, numbering, etc. It' s just one example that may work for you and it is not mandatory or even recommended.

1.2 Referencing headings

Suppose that you want to refer to the first section. The first section (of the first chapter) was labeled with `\label{sec:section}`. You can refer to the section by typing `\ref{sec:section}` : Section 1.1

Suppose that you want to refer to the first subsection. The first subsection (of the first section of the first chapter) was labeled with `\label{subs:subsection}`. You can refer to the subsection by typing `\ref{subs:subsection}` : Subsection 1.1.1

For more information about labeling and referencing, refer to the followings.

- `https://en.wikibooks.org/wiki/LaTeX/Labels_and_Cross-referencing`
- `https://www.overleaf.com/learn/latex/Cross_referencing_sections%2C_equations_and_floats`

Chapter 2. Format

2.1 Paper Size and Margins

The paper sizee of the thesis/dissertation shall be B5. For the first three preliminary pages (including the cover page, title page, and signature page) before the abstract, all margins (top, bottom, left, and right) shall be at least 3 cm. From the abstract on, the top and bottom margins shall be at least 3cm, and the left and right margins shall be at least 2 cm (Table 2.1).

The paper size and margins are governed by the geometry package. For more information, refer to the following

- `http://mirrors.ctan.org/macros/latex/contrib/geometry/geometry.pdf`
- `https://www.overleaf.com/learn/latex/Page_size_and_margins`

2.2 Fonts and Size

The default font size is set to 11pt. In LaTeXyou can use commands like `\normalsize`, `\large`, `\Large`, `\LARGE`, `\huge`, and so on, to specify the size of the font. We relate the above commands to 11pt, 14pt, 16pt, 18pt and 21pt, respectively, of the MS word template. Thus, there are slight differences in font size in MS word template and in

Table 2.1: Organizing and formatting thesis/dissertation

Order	**Note**	**Margin**	**Pagination**
Cover page		top, bottom, left & right at least 3 cm	None
Blank page			
Title page			
Signature page			
Abstract	both English & Korean		
Dedication page	optional	top & bottom at least 3cm	i, ii, iii, iv, $\cdots$
Preface	if necessary		
Acknowledgements	optional		
Table of contents			
List of tables	if there are tables or figures in the main body		
List of figures			
Nomenclature	optiona	left & right at least 2 cm	
Blank page			None
Main body			1, 2, 3, 4, $\cdots$
Reference			
Appendices	optional		
index	optional		

LaTeXtemplate. The below (Table 2.2) is the comparison table for the font size. [1]

Here is how we put tables and footnotes in LaTeX. To make a table, use the environment `tabular` and specify the columns. The above table has three center-aligned columns ;

```
\begin{tabular}{ccc} ... \end{tabular}
```

You can also use an advanced version of `tabular`, which are `taubularx`, `tabulary`, `tabu`, `multirow` or `booktabs` to manipulate the typeset of tables.

It is desirable to put the `tabular` environment inside the `table` environment. You can add a caption of the table by `\caption{...}`. The labeling `\label{...}` for future reference should be followed just after the caption. All the tables in the `table` environment will be included in the 'List of Tables'.

For more information about tables, refer to

[1] `https://tug.org/texinfohtml/latex2e.html#Font-sizes`

Table 2.2: Requirement for font size and the style used in this manuscript

	Size Requirements	LaTeXStyle
Thesis title	21	`\huge`
The school name (Graduate School, Korea University)	18	`\LARGE`
All other parts are 16 points (department, name, advisor, master's thesis, $\cdots$, submitted, $\cdots$ completed, etc.)	16	`\Large`
Year, month and day	14	`\large`
Main Text	10–12	`\normalsize`
Heading	None	
Figure caption	None	
Table caption	None	

`https://www.overleaf.com/learn/latex/Tables`

2.3 Figures and Equations

The font, size, alignment method, numbering method, etc. of table or figure titles can be modified, appropriately. For example, <Table 1> and <Figure 1> can also be used. Also, the style of the table (thickness and color of the border, etc.) can be modified. It is common to place figure titles below the figure and table titles above the table.

To include a figure file in the document, you can use `includegraphics` command, which requires `graphicx` package.

```
\includegraphics[width=.2\textwidth]{kumark.png}
```

You can specify the width or the height of the figure inside the square brackets and the file name (with or without the extension) inside the braces.

It is desirable to put the `includegraphics` command inside the `figure` environment. Again, the labeling needs to be followed just after the caption. All the tables in the `figure` environment will be included in the 'List of Figures'.

Figure 2.1: Korea University Global Symbol

For more information about figures, refer to the following

- `https://www.overleaf.com/learn/latex/Inserting_Images`
- `https://www.overleaf.com/learn/latex/How_to_Write_a_Thesis_in_LaTeX_(Part_3)%3A_Figures%2C_Subfigures_and_Tables`

You can type an equation with inline math mode like $E = mc^2$. Or you can type

$$E = mc^2$$

to express the equation in display math mode. The above equation is unnumbered. To number the equation automatically, you can use `equation` environment;

$$E = mc^2 \tag{2.1}$$

The number or the tag of the above equation reads 'the first equation of the chapter 2'. If you add one more equation, you can get the second equation of the chapter 2.

$$e^{i\theta} = \cos\theta + i\sin\theta. \tag{2.2}$$

You can also specify the tagging explicitly, using `\tag{...}`

$$E = mc^2 \tag{$*$}$$

To express a list of equations, you can use the `gather` environment, which just enumerates equations vertically. For example, suppose that you want to express a system of linear equations $x + y + z = 3$, $x - y + 2z = 1$, $x + 3z = 2$. Using `gather` environment, you get

$$x + y + z = 3 \tag{2.3}$$

$$x - y + 2z = 1 \tag{2.4}$$

$$x + 3z = 2. \tag{2.5}$$

If you want to unnumber the equations, use `gather*` environment;

$$x + y + z = 3$$

$$x - y + 2z = 1$$

$$x + 3z = 2.$$

Note that the above system is not well aligned. To align the equations horizontally, with respect to the equality sign, you can use `align` (or `align*`) environment

$$\begin{aligned} x + y + z &= 3 \\ x - y + 2z &= 1 \\ x + 3z &= 2. \end{aligned}$$

`align` environment tags every equation of the system

$$x + y + z = 3 \tag{2.6}$$

$$x - y + 2z = 1 \tag{2.7}$$

$$x + 3z = 2. \tag{2.8}$$

If you want one tagging for the system, you can use the `aligned` environment and the `equation` environment, simultaneously ;

$$\begin{aligned} x + y + z &= 3 \\ x - y + 2z &= 1 \\ x + 3z &= 2. \end{aligned} \tag{2.9}$$

Finally, you can label and refer to an equation, by `\label{...}` and `\eqref{...}`. For example, you can say that 'The root of (2.9) is $x = 2$, $y = 1$, $z = 0$'. `gather` and `align` are the environments provided by the `amsmath` package. For more information to typeset the equation neatly, refer to `http://www.ams.org/arc/tex/amsmath/amsldoc.pdf`.

2.4 Quotation

If you want to cite from the bibliography, you can type, for example, `\cite{LSTM}` where `LSTM` is the name of the reference: [1]. Or you can cite the other reference here like this; [2].

For direct quotation, you can use either the `quote` environment or the `quotation` environment.

> "Learn from yesterday, live for today, hope for tomorrow. The important thing is not to stop questioning."

— Albert Einstein

"Learn from yesterday, live for today, hope for tomorrow. The important thing is not to stop questioning."

— Albert Einstein

2.5 Footnotes and Endnotes

Footnotes[2] can be included to provide additional information about the content. Footnotes should be placed at the bottom of the page separated from the text by a solid line and is referenced through a superscript number.

[2]The usage of footnotes is different or limited depending on the field of study. The usage of footnotes is recommended only when you' re sure how a footnote should be used in your field.

Chapter 3. Discussion

The discussion starts here.

If you want to make definitions and theorems in the paper, use the predefined (in the preamble) environments `definition` and `theorem` which are supported by the `amsthm` package.

You can either specify the name of the definition

Definition 1 (Right Triangles)**.** *A right triangle is a triangle in which one angle is a right angle.*

or not (don't specify the name of the definition)

Definition 2. *A right triangle is a triangle in which one angle is a right angle.*

Here are examples of theorems ;

Theorem 1 (Pythagorean theorem)**.** *Consider a right triangle where c is the length of the hypotenuse, and a and b are the lengths of the remaining two sides. Then*

$$a^2 + b^2 = c^2 \tag{3.1}$$

Theorem 2. *Consider a right triangle where c is the length of the hypotenuse, and a and b are the lengths of the remaining two sides. Then*

$$a^2 + b^2 = c^2 \tag{3.2}$$

For later use, we put indexings for a right traingle and the Pythagorean theorem here.

Sometimes you need to special font for mathematical use. For example, you may need symbols like $\mathbb{R}$, $\mathcal{T}$, $\mathscr{A}$ or $\mathfrak{M}$. Some symbols are typeseted without declaring any packages, while others need packages like amssymb or mathrsfs. For more information about typsetting mathematical expressions, refer to the followings ;

- `https://www.overleaf.com/learn/latex/Mathematical_expressions`
- `https://www.overleaf.com/learn/latex/Subscripts_and_superscripts`
- `https://www.overleaf.com/learn/latex/Brackets_and_Parentheses`
- `https://www.overleaf.com/learn/latex/Matrices`
- `https://www.overleaf.com/learn/latex/Integrals\%2C_sums_and_limits`
- `https://www.overleaf.com/learn/latex/Display_style_in_math_mode`
- `https://www.overleaf.com/learn/latex/Mathematical_fonts`

Chapter 4. Conclusion

The conclusion starts here.

Reference

[1] Hochreiter, Sepp, and Jürgen Schmidhuber. "Long short-term memory." Neural computation 9.8 (1997): 1735-1780.

[2] Hardy, Godfrey Harold. Course of pure mathematics. Courier Dover Publications, 2018.

References are a detailed list of sources that are cited in your thesis/dissertation. A bibliography is a detailed list of references cited in your thesis/dissertation plus background or other material you have read but have not actually cited.

References should be prepared in a consistent format using bibliographic management tools (Endnote, Mendeley, etc.) in the order of author name or citation according to your academic field.

Bibliographic management tools

- `https://library.korea.ac.kr/research/writing-guide/endnote/`
- `https://library.korea.ac.kr/research/writing-guide/mendeley/`

Appendix A. The first appendix

A text for appendix 1 starts here.

Appendix B. The second appendix

A text for appendix 2 starts here.

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