LATEX THESIS TEMPLATE: AN UNOFFICIAL VERSION

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LaTeX Thesis Template: An Unofficial Version

Abstract

Author Name

This abstract presents a dummy content block intended to simulate a real thesis abstract. It spans multiple paragraphs and includes enough text to overflow onto the second page. The purpose of this demonstration is to observe how LaTeX handles hanging indents and vertical spacing, especially in custom environments such as keywords.

Keywords: LaTeX formatting, thesis template, abstract layout, hanging indent, vertical spacing, custom environments.

Acknowledgment

I would like to express my sincere gratitude to everyone who has supported me throughout this journey.

First and foremost, I am deeply thankful to my advisor, Dr. Jane Smith, for her invaluable guidance, constructive feedback, and constant encouragement. Her mentorship has been instrumental in shaping both the direction of this research and my development as a researcher.

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Special thanks to my friends and colleagues, whose humor, advice, and moral support helped me maintain perspective during stressful times.

Lastly, I owe my deepest appreciation to my family for their unwavering belief in me. Their love and patience provided the foundation that carried me through the ups and downs of graduate life.

This work would not have been possible without all of you.

<div align="right">

Author Name
10 October 2023

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Contents

Contents (Cont.)

List of Tables

List of Figures

List of Abbreviations

EEG	Electroencephalogram
MI	Motor Imagery
CNN	Convolutional Neural Network
H_2O	Water
DBU	1,8-Diazabicyclo [5.4.0]-7-Undecene

Chapter 1

Introduction

1.1 Motivation

This section describes the research motivation that forms the foundation of the thesis.

1.2 Contributions

This thesis makes the following key contributions:

- We introduce a novel experimental paradigm that addresses key limitations in the current research.
- We propose a novel algorithm that enhances learning performance across multiple tasks.

1.3 Outline

This thesis is organized into the following chapters:

Chapter 1 Introduction: Introduces the research motivation, key contributions, and provides an overview of the thesis structure.

Chapter 2 How to Use This Template: Provides practical guidance on how to work with and customize the VISTEC LaTeX thesis template for efficient thesis writing.

Chapter 3 Template Usage Examples: Demonstrates how to format and organize content in LaTeX through examples of paragraphs, sections, equations, algorithms, tables, figures, citations, and footnotes.

Chapter 4 Investigation: Describes the investigation, expanding upon the results

and analysis from the previous study to validate the proposed approaches.

Chapter 5 Conclusion: Summarizes the major findings, discusses their implications, and suggests future research directions.

Appendix A Proofs Supporting Investigation: Presents supplementary materials, including detailed proofs, additional results, and extended discussions that support the main chapters.

Chapter 2

How to Use This Template

2.1 Overview

This chapter provides guidance on how to effectively use and customize the VIS-TEC LaTeX thesis template. It explains the general structure, key files, and recommended practices to help users quickly adapt the template for their own thesis writing.

2.2 Directory Structure

The template is organized into clearly separated folders and files to simplify management:

- `main.tex` — The main file to compile your thesis.
- `thesisinfo.tex` — Define your title, author information, advisor, and committee.
- `contents/` — Contains all chapter, appendix, and special section files.
- `figures/` — Store all figures, images, and plots used in the thesis.
- `tables/` — Store external table files if needed.
- `bibliography.bib` — Your BibTeX bibliography database.

2.3 Editing Thesis Metadata

Edit `thesisinfo.tex` to set your thesis title, author name, student ID, academic year, advisor, committee members, and program information. These metadata fields automatically populate the title page, approval page, and other formal sections.

2.4 Adding Content to Chapters

Each main chapter (e.g., Introduction, Background, Investigations, Conclusion) should be placed under `contents/` and included using `\include{}` in `main.tex`. You can create additional chapter files following the provided structure, and organize sections, figures, tables, algorithms, and citations inside them.

2.5 Inserting Figures, Tables, and Equations

Use standard LaTeX environments to insert figures, tables, and equations. Examples are provided in `contents/chapter2.tex`. Figures and tables should include proper captions, labels, and cross-references using `\autoref{}` to maintain consistency.

2.6 Citing References

Manage your references in `bibliography.bib` using BibTeX format. Cite references in your chapters using `\cite{}` for in-text citations and `\fullcite{}` when listing complete citations. The Vancouver bibliography style is automatically applied.

2.7 How to Use LaTeX

If you are new to LaTeX, it is recommended to start with basic tutorials to understand fundamental concepts such as document structure, commands, environments, and referencing. A good starting point is the Overleaf online guide available at:

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

The Overleaf Learn platform provides comprehensive, beginner-friendly resources covering topics from basic document setup to advanced formatting and bibliography management. Familiarity with these concepts will significantly improve your ability to customize and work efficiently with this thesis template.

2.8   Compiling the Thesis

Use `pdfLaTeX` as the compiler. A typical compilation sequence includes:

- First, run `pdflatex main.tex` to generate auxiliary files.

- Then, run `bibtex main` to generate the bibliography.

- Finally, run `pdflatex main.tex` twice to resolve cross-references.

Alternatively, tools like `latexmk` or IDEs like Overleaf, TeXShop, and VS Code with LaTeX Workshop can automate this process.

2.9   Notes and Recommendations

- Regularly back up your files.
- Keep figures and tables in separate folders to maintain a clean project.
- Use consistent citation and figure labeling conventions.
- Compile often to catch errors early.

Chapter 3

Template Usage Examples

3.1 Heading

This is a paragraph under the main section. It introduces the overall content of the section in a general manner.

3.1.1 Sub-heading

This is a subparagraph under the first subsection. It provides additional detail or clarification related to the subsection's topic.

3.1.1.1 Second-level Sub-heading

This is a subsubparagraph under the second-level subheading. It is typically used for listing or elaborating fine-grained points.

1) This is the first item in the enumerated list.
2) This is the second item in the enumerated list.
3) This is the third item in the enumerated list.

3.2 Equation

As an illustration of LaTeX's mathematics formatting, Equation 3.1 is the definition of *Rényi entropy* and Equation 3.2 is the total loss function:

$$H_\alpha(X) = \frac{1}{1-\alpha} \log \left(\sum_{x \in \mathcal{X}} P[X = x]^\alpha \right). \tag{3.1}$$

$$\mathcal{L}_{\text{total}} = \frac{1}{N} \sum_{i=1}^{N} \{w_i \mathcal{L}_i\}. \tag{3.2}$$

3.3 Algorithm

This is an example of Algorithm 3.1.

Algorithm 3.1 An algorithm with caption.

Require: $n \geq 0$
Ensure: $y = x^n$
 1: $y \leftarrow 1$
 2: $X \leftarrow x$
 3: $N \leftarrow n$
 4: **while** $N \neq 0$ **do**
 5:     **if** N is even **then**
 6:         $X \leftarrow X \times X$
 7:         $N \leftarrow \frac{N}{2}$ ▷ This is a comment
 8:     **else if** N is odd **then**
 9:         $y \leftarrow y \times X$
10:         $N \leftarrow N - 1$
11:     **end if**
12: **end while**

3.4 Table

LATEX table generators, such as TablesGenerator.com[1], can help you easily create well-formatted tables. Here, Table 3.1 is an example of a table generated using the tool.

Table 3.1 Classification performance. An asterisk (*) indicates values that are significantly different from the others ($p < 0.05$).

Comparison Model	Subject-independent	
	Accuracy $\pm$ SD	F1-score $\pm$ SD
FBCSP-SVM	64.96 ± 12.70	65.25 ± 15.14
Deep Convnet	68.33 ± 15.33	70.20 ± 15.18
EEGNet-8,2	68.84 ± 13.87	70.39 ± 14.30
Spectral-Spatial CNN	68.27 ± 13.56	65.86 ± 17.37
MIN2Net	$\mathbf{72.03 \pm 14.04}^*$	$\mathbf{72.62 \pm 14.14}^*$

---
[1]https://www.tablesgenerator.com/

3.5 Figure

Here are examples of figures in a thesis: Figure 3.1 illustrates a standard image inclusion, while Figure 3.2 shows a chemical reaction diagram generated with `chemfig`.
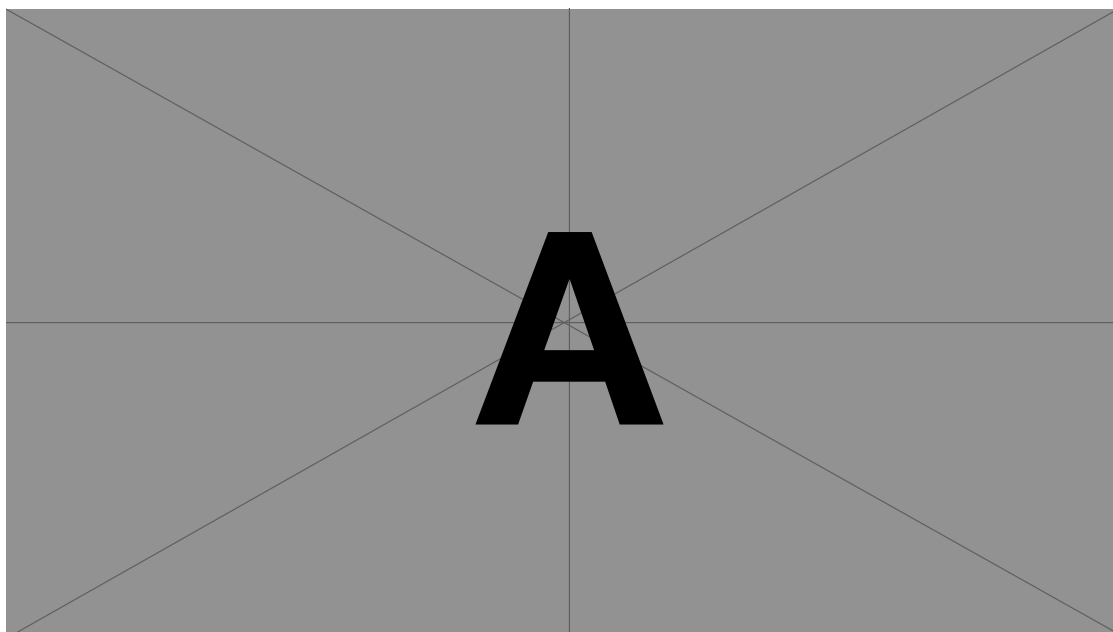

Figure 3.1 This is a long figure caption example for an image. This figure demonstrates how to include a standard image (e.g., PDF, PNG, JPG) into your document. Captions longer than one line should be aligned left and indented after the first line.
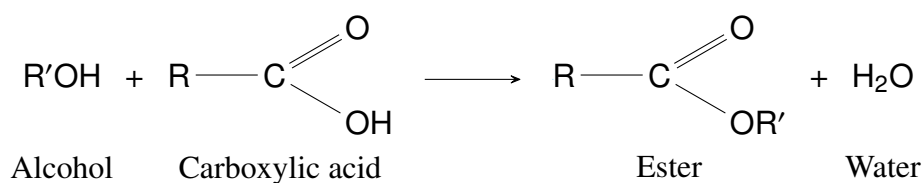

Figure 3.2 An esterification reaction illustrated using the `chemfig` package.

3.6 Citation

This is an example of how to cite previous work, such as [1], or multiple sources like [2–4]. Ensure that the corresponding BibTeX entries are added to the `bibliography.bib` file before citing.

Below is an example BibTeX entry:

```
@ARTICLE{dummy2022example,
    author  = {Doe, John and Smith, Jane and Roe, Richard},
    journal = {Journal of Example Studies},
    title   = {A Dummy Title for Demonstration Purposes},
    year    = {2022},
    volume  = {42},
    number  = {1},
    pages   = {1--10}
}
```

3.7 Footnote

I'm writing to test the \footnotemark and \footnotetext commands. You can insert a footnote marker using the \footnotemark[2] command and later typeset the footnote text by writing \footnotetext{Example footnote.}.

Let's do one more to see the result[3], which I'll comment on within the footnote.

---

[2]Example footnote.
[3]Specifically, I'd write comments in this one.

Chapter 4

Investigation

4.1   Overview of the Investigation

This section provides an overview of the investigation conducted in this study, including the research methodology, experimental setup, and analysis approach used to validate the proposed methods.

Chapter 5

Conclusion

This chapter concludes the thesis by summarizing the key findings, discussing their implications, and outlining potential future directions for research in the field.

References

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2. Author A and Author B. **A Dummy Book Title for Example Use**. Fictional Press, 1979.
3. Author F, Author B, and Baz A. Simulated Study on EEG Activity in Hypothetical Conditions. **Journal of Experimental Interfaces** 2020;55(8):8888–99.
4. Author O, Author B, and Author G. Sample Article on Deep Learning for EEG. **Journal of Artificial Neuroscience** 2017;12(4):321–40.

Appendix A

Proofs Supporting Investigation

A.1   Proof of Lemma

This section presents the detailed proof of the lemma introduced in Chapter 4. The proof follows standard mathematical derivation steps and verifies the correctness of the stated result.

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Author O, Author B, and Author G. Sample Article on Deep Learning for EEG. **Journal of Artificial Neuroscience** 2017;12(4):321–40.

Author R, Author O, and Author B. **A Sample Conference Paper on Face Recognition**. In: Proceedings of the International Conference on Vision Research. 2015:101–10.