

Your Awesome Thesis Title Here

Name Surname



McGill

The Department of Electrical and Computer Engineering
McGill University
Montreal, Quebec, Canada

A thesis submitted to McGill University in partial
fulfillment of the requirements of the degree of
Doctor of Philosophy

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Contents

Abstract	vi
Abrégé	vii
Acknowledgements	viii
1 Introduction	1
1.1 Thesis Research Goal	1
1.2 Thesis Contribution	1
1.3 Thesis Structure	1
1.4 Publications and Contributions of Collaborators	2
2 Background Material and Literature Review	4
3 Name a chapter	6
3.1 McGill Guidelines	7
3.1.1 Script and Page Format	7
3.1.2 Pagination	7
3.1.3 Footnotes, references and appendices	7
3.1.4 Additional materials	8
3.2 Summary	8
4 Name a thesis	9
4.1 Summary	10
5 Some name	12
5.1 Summary	13

6	Conclusions and Future Work	14
6.1	Concisions	14
6.1.1	Name a chapter	14
6.1.2	Name a thesis	15
6.1.3	Some name	15
6.2	Future Work	15
6.2.1	Name a chapter	15
6.2.2	Name a thesis	15
6.2.3	Some name	15
A	Appendix	17
B	Thesis Format notes	18
B.1	Script and Page Format	18
B.2	Pagination	18
B.3	Footnotes, references and appendices	18
B.4	Figures, illustrations, photographs and digital images	19
B.5	Additional materials	19
B.6	Official Thesis Structure	19

List of Figures

3.1	Short figure name for the list of figures	7
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List of Tables

List of Acronyms

MLP	Multi-Layer Perceptron
GNN	Graph Neural Network

Abstract

Disclaimer: All the following instructions are accurate as of July 2025. It is recommended to consult Official McGill Guidelines.

Abstracts in English and French are mandatory and must be text only, i.e. no images, special characters (apart from the West European character set excluding the “Œ” and “œ”), chemical or mathematical formulae, or special formatting (e.g., lists, tables).

Abstracts have a maximum limit of 4000 characters.

The McGill Logo

In order to use McGill Logo on the title page, you have to ask for permission. The instruction here: <https://www.mcgill.ca/visual-identity/application-use-university-logo-demande-dutil>

Abrégé

La même chose en français.

Acknowledgements

Among other acknowledgements, the student is required to declare the extent to which assistance (paid or unpaid) has been given by members of staff, fellow students, research assistants, technicians, or others in the collection of materials and data, the design and construction of apparatus, the performance of experiments, the analysis of data, and the preparation of the thesis (including editorial help).

In addition, it is appropriate to recognize the supervision and advice given by the thesis supervisor(s) and advisors.

Chapter 1

Introduction

An introduction should clearly state the rationale and objectives of the research.

This is a good place to put a rationale of research.

Here and further, it is recommended to give each chapter a meaningful label. That makes it easier to identify later what chapter to reference. For example, the label of this chapter is `\label{chapter:introduction}`

1.1 Thesis Research Goal

The principal objective of this thesis is ...

1.2 Thesis Contribution

A doctoral thesis must clearly state the elements of the thesis that are considered original scholarship and distinct contributions to knowledge.

To make it clear, it has to be stated per chapter. Make a paragraph introducing what is special about a particular chapter and how its content is original knowledge.

1.3 Thesis Structure

This section makes a very brief overview of the thesis chapters, except the current one. The McGill guidelines don't explicitly require this part. However, it is a common practice in engineering field to add it. The reviewers are likely to expect it.

It may be filled as following:

This section describes the organizational structure of the thesis and presents a short overview of each chapter.

Chapter 2 - Background Material and Literature Review presents a comprehensive literature review and coverage of background material required for this thesis.

...

Chapter 6 summarizes the main contributions of this thesis and discusses the main results. In addition, it identifies potential future research directions, including several strategies for improving the methodologies developed in this thesis.

1.4 Publications and Contributions of Collaborators

The McGill guidelines are very clear that there should be an explicit declaration of Authors' Contribution.

- Contributions of the student to each chapter must be explicitly stated.
- Contributions of any coauthors to each chapter must be explicitly stated.

This section should present all research projects that are making the thesis and clarify the contribution of all participants. It could be done in a free form. For example, you may write in phrases like *(supervisor name) provided significant assistance in the writing and editing of the manuscript* , or *I implemented experiments for...*, or *(co-author name) proposed the idea of...* . If a research project is published, it must be cited. If it is not published, you may indicate that it is submitted to a conference or unpublished. Here is the general template below.

The material presented in this thesis has been published in the various venues ... (indicate conferences and journals) ...

Chapter 3:

- MyName MySurname, OtherName OtherSurname, and AnotherName AnotherSurname. Example paper title for the sake of example. In *Proc. Some Conf. Smt.* (SCS), 2025. [MySurname et al., 2025].

(supervisor name) introduced me to...

...

Chapter 2

Background Material and Literature Review

The comprehensive review of the literature must sufficiently demonstrate the student's knowledge of and expertise in their research areas and should be broad enough to apply to each research question in the thesis.

The review of the literature can include various types of content, such as:

- A review providing an introduction to the general domain. It should be suitable for reader who is relatively less familiar with the research topic (e.g., an internal/external member of an oral defence committee with adjacent but not direct expertise) an introduction to the general domain.
- An explanation of the rationale for subsequent studies. For example, the literature underlying the research questions must be sufficiently discussed.
- A review of fundamental theories underlying the subsequently presented work, or to explain why certain approaches were not taken in the study(ies) presented.

The literature review must be in line with disciplinary expectations.

The McGill guidelines state that the literature review can be incorporated in the Introduction chapter, addressed in a standalone chapter, or distributed across multiple chapters. This template makes it a separate chapter. Note that if some background content is important for a particular chapter, you should copy its definition instead of referencing it here. Nobody wants to turn dozens of pages.

It is recommended to start this chapter with a very brief overview of the content. See example below.

This chapter covers the key background material and presents the literature review for the main topics addressed in this thesis. Section 2.1 introduces the fundamentals ...

...

It should be emphasized that this section includes the latest advances within the relevant fields, incorporating studies that have been published following the publication of the research materials presented in this thesis.

Chapter 3

A way to name a chapter

In the thesis, the body chapters should encompass sections on: Methodology and Research findings. In general, a chapter follows the structure of a research paper, which includes introduction, methodology, experiments, and summary.

Each chapter should start with an **introductory text** that makes a connection between this chapter and the overall topic of the thesis. Typically, it is done by describing a problem within the thesis topic. In addition to that, an introductory text briefly describes the direction of solution to the presented problem that is later outlined in Methodology part of the chapter. It is recommended to make connections with the previous chapters

Each chapter must include a comprehensive scholarly discussion of all the findings”:

- The discussion of findings must be in line with disciplinary expectations.
- A comprehensive discussion is expected to be a minimum of 10 pages for doctoral students and 5 pages for Master’s students.
- It pertains to the entirety of a thesis and provides a summary of study themes, limitations, and future directions.
- In a manuscript-based thesis, the discussion should encompass all chapters.
- This section can address issues not sufficiently covered in preceding chapters or papers.
- This section can elaborate on practical/applied aspects of published findings.

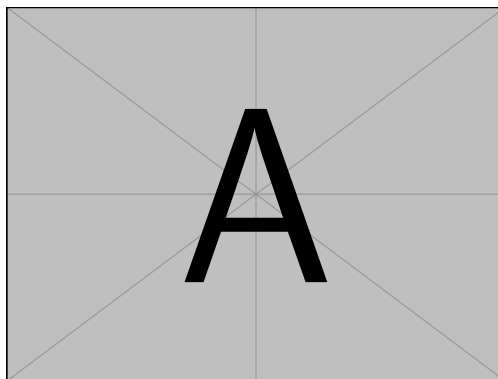


Figure 3.1: Full caption of this figure that includes all the details and can be very long. Figures, tables, graphs, etc., should be positioned according to the publication conventions of the discipline. Charts, graphs, maps, and tables that are larger than the standard page should be avoided unless absolutely necessary. Overlays must be meticulously positioned in the text. Where graphs, illustrations, photographs, etc. fill an entire page, these pages can be numbered in sequence or left unnumbered. Legends or captions accompanying such full-page graphics must be presented on a separate page.

3.1 McGill Guidelines

3.1.1 Script and Page Format

A conventional font, size 12-point, 12 characters per inch must be used. Line spacing must be double or 1.5. Left and right hand margins should be 1 inch.

3.1.2 Pagination

Positioning of page numbers is optional. Pages with figures or illustrations may be numbered in sequence or left unnumbered. The chosen procedure must be used consistently throughout the thesis. Pagination must be carefully checked for correct sequence and completeness.

3.1.3 Footnotes, references and appendices

These should conform to a scholarly style appropriate to the discipline. Footnotes may be placed at the bottom of the page or as endnotes at the end of each chapter. Consistency of formatting for footnotes and references is required throughout the thesis. **Note:** Handbooks

such as the MLA or APA handbook may be consulted for formatting styles. These are available at the Reference desk of the McLennan Library.

3.1.4 Additional materials

Slides, tapes, etc. are to be avoided if possible and can be included only if the student authorizes the reproduction of the thesis without them.

3.2 Summary

This **summary section** briefly summarizes the content presented in the chapter in one-two paragraphs. It should cover Methodology and Research findings.

Chapter 4

How to name a thesis without attracting attention of mental specialists

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Chapter 5

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5.1 Summary

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Chapter 6

Conclusions and Future Work

6.1 Concisions

This section should clearly state how the objectives of the research were met and discuss implications of findings.

Reiterate the main research goal here in a very brief manner. It can be done by rephrasing the corresponding paragraphs from the introduction Chapter 1.

It is recommended to clarify how the main research goal of the thesis was met by each chapter. Use the text below and describe the detailed conclusion in individual subsections.

Chapter 2 provides the necessary background material and presents a detailed literature review related to these research areas. The main novel contributions of this thesis are presented in Chapters 3, 4, and 5. The key aspects of the proposed methodologies and results are summarized in the following sections.

6.1.1 Name a chapter

Chapter 3 investigates ...

The chapter introduces ...

6.1.2 Name a thesis

6.1.3 Some name

6.2 Future Work

Discuss ways to extend methodologies of each chapter. It can be done by analyzing findings and assumption. You can format it per chapter with a template below.

The research presented in this thesis can be improved and extended in several ways. The following sections list some potential future research directions.

6.2.1 Name a chapter

The experiments of Chapter 3 show ...

Thus, we can extend the research ...

Another direction of research aims at ...

6.2.2 Name a thesis

6.2.3 Some name

Bibliography

MyName MySurname, OtherName OtherSurname, and AnotherName AnotherSurname. Example paper title for the sake of example. In *Proc. Some Conf. Smt.*, 2025.

Appendix A

Appendix

Appendices should conform to a scholarly style appropriate to the discipline.

Note: Handbooks such as the MLA or APA handbook may be consulted for formatting styles. These are available at the Reference desk of the McLennan Library.

Appendix B

Thesis Format notes

The following description is taken from the official format guide <https://www.mcgill.ca/gps/thesis/thesis-guidelines/preparation> and valid as of July 2025. You may delete this appendix.

B.1 Script and Page Format

A conventional font, size 12-point, 12 characters per inch must be used. Line spacing must be double or 1.5. Left and right hand margins should be 1 inch.

B.2 Pagination

Positioning of page numbers is optional. Pages with figures or illustrations may be numbered in sequence or left unnumbered. The chosen procedure must be used consistently throughout the thesis. Pagination must be carefully checked for correct sequence and completeness.

B.3 Footnotes, references and appendices

These should conform to a scholarly style appropriate to the discipline. Footnotes may be placed at the bottom of the page or as endnotes at the end of each chapter. Consistency of formatting for footnotes and references is required throughout the thesis. **Note:** Handbooks such as the MLA or APA handbook may be consulted for formatting styles. These are available at the Reference desk of the McLennan Library.

B.4 Figures, illustrations, photographs and digital images

Figures, tables, graphs, etc., should be positioned according to the publication conventions of the discipline. Charts, graphs, maps, and tables that are larger than the standard page should be avoided unless absolutely necessary. Overlays must be meticulously positioned in the text. Where graphs, illustrations, photographs, etc. fill an entire page, these pages can be numbered in sequence or left unnumbered (see Pagination above). Legends or captions accompanying such full-page graphics must be presented on a separate page.

B.5 Additional materials

Slides, tapes, etc. are to be avoided if possible and can be included only if the student authorizes the reproduction of the thesis without them.

B.6 Official Thesis Structure

1. Title page

- The title of the thesis
- The student's name and Unit* followed by "McGill University, Montreal"
- The month and year the thesis was submitted
- The following statement: "A thesis submitted to McGill University in partial fulfillment of the requirements of the degree of...."
- The universal copyright notice "©" followed by the student's name and the year the thesis was submitted
- Students can request permission to add the official McGill logo to their thesis cover page by submitting this webform

2. A detailed **table of contents**

3. A brief **abstract** in both English and French

- Abstracts in English and French are mandatory and must be text only, i.e. no images, special characters (apart from the West European character set excluding the “Œ” and “œ”), chemical or mathematical formulae, or special formatting (e.g., lists, tables).
- Abstracts have a maximum limit of 4000 characters.

4. **Acknowledgements**

- Among other acknowledgements, the student is required to declare the extent to which assistance (paid or unpaid) has been given by members of staff, fellow students, research assistants, technicians, or others in the collection of materials and data, the design and construction of apparatus, the performance of experiments, the analysis of data, and the preparation of the thesis (including editorial help).
- In addition, it is appropriate to recognize the supervision and advice given by the thesis supervisor(s) and advisors.

5. **Contribution to original knowledge.** A doctoral thesis must clearly state the elements of the thesis that are considered original scholarship and distinct contributions to knowledge.

6. **Contribution of Authors**

- Contributions of the student to each chapter must be explicitly stated.
- Contributions of any coauthors to each chapter must be explicitly stated.

7. An **introduction.** Clearly state the rationale and objectives of the research.

8. A comprehensive **review of the relevant literature** The comprehensive review of the literature must sufficiently demonstrate the student’s knowledge of and expertise in their research areas and should be broad enough to apply to each research question in the thesis. The review of the literature can include various types of content, such as:

- A review providing an introduction to the general domain.
- An explanation of the rationale for subsequent studies.

- A review of fundamental theories underlying the work.
- The literature review must be in line with disciplinary expectations.

The review can be incorporated in the Introduction chapter, addressed in a standalone chapter, or distributed across multiple chapters.

9. **Body of the thesis**

- In a traditional thesis, the body of the thesis should encompass sections on:
 - Methodology
 - Research findings
- In a manuscript-based thesis:
 - Each chapter represents a full manuscript.
 - The chapter includes the full manuscript in its entirety.
 - Doctoral students must include text of minimum two manuscripts published, submitted or to be submitted for publication.
 - Master's students must include text of one or more manuscripts published, submitted or to be submitted for publication.
 - Between manuscripts, students must include a bridging text of 1-3 pages.

10. A **comprehensive scholarly discussion** of all the findings

- The discussion of findings must be in line with disciplinary expectations.
- A comprehensive discussion is expected to be a minimum of 10 pages for doctoral students and 5 pages for Master's students.
- It pertains to the entirety of a thesis and provides a summary of study themes, limitations, and future directions.
- In a manuscript-based thesis, the discussion should encompass all chapters.
- This section can address issues not sufficiently covered in preceding chapters or papers.
- This section can elaborate on practical/applied aspects of published findings.

11. A final **conclusion and summary**
12. A thorough **bibliography** or reference list