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YOUR DEGREE

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UNIVERSITI TUNKU ABDUL RAHMAN
MONTH YEAR

YOUR THESIS TITLE HERE

By

YOUR NAME HERE

A thesis submitted to the
Department of Your Department,
Your Faculty,
Universiti Tunku Abdul Rahman,
in partial fulfillment of the requirements for the degree of
Your Degree
Month Year

ABSTRACT

YOUR THESIS TITLE HERE

Your abstract content here. This should provide a comprehensive summary of your thesis, including the main contributions, methodologies, and findings.

ACKNOWLEDGEMENTS

I would like to express my sincere gratitude to my supervisors for their invaluable guidance, insightful advice, and continuous support throughout my research. I am also sincerely grateful to Universiti Tunku Abdul Rahman for providing the funding, resources, and opportunities that were essential in completing this study.

[Your additional acknowledgments content here. Express gratitude to collaborators, family, and anyone else who supported your research.]

Template Acknowledgement: This thesis was prepared using a template originally developed by Tan Jing Jie. The template is available at: <https://github.com/jingjie00/utartemplate>

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Date: 25 October 2025

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Date: 25 October 2025

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Date: 25 October 2025

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Date: 25 October 2025

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I understand that the University will upload softcopy of my thesis in pdf format into Institutional Repository Name, which may be made accessible to University community and public.

Your truly,

(YOUR NAME)

DECLARATION

I hereby declare that the dissertation is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at Universiti Tunku Abdul Rahman or other institutions.

(YOUR NAME)

Date: 25 October 2025

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CHAPTER 1

INTRODUCTION

1.1 Preface

Your content here. This section introduces the research topic and provides context for the study ([Author and Author, 2024](#)).

1.2 Research Background

Your content here

1.3 Problem Statement

Your content here

1. Problem statement item 1
2. Problem statement item 2
3. Problem statement item 3
4. Problem statement item 4
5. Problem statement item 5

1.4 Objectives

Your content here

1. Objective 1
2. Objective 2
3. Objective 3
4. Objective 4
5. Objective 5

1.5 Significance of Research

Your content here

1.6 Thesis Outline

Your content here

The **5 core research works (RWs)** presented in this thesis include:

RW1 Research Work 1 Title
(Chapter [3](#), Abbreviation)

RW2 Research Work 2 Title
(Chapter [4](#), Abbreviation)

RW3 Research Work 3 Title
(Chapter [5](#), Abbreviation)

RW4 Research Work 4 Title
(Chapter [6](#), Abbreviation)

RW5 Research Work 5 Title
(Chapter [7](#), Abbreviation)

1.7 Epilogue

Your content here

CHAPTER 2

LITERATURE REVIEW

2.1 Preface

Your content here. This section reviews relevant literature and theoretical frameworks ([Author, 2022](#); [Smith and Doe, 2020](#)).

2.2 Theoretical Framework

Your content here. The theoretical framework is based on established models [Jones \(2021\)](#).

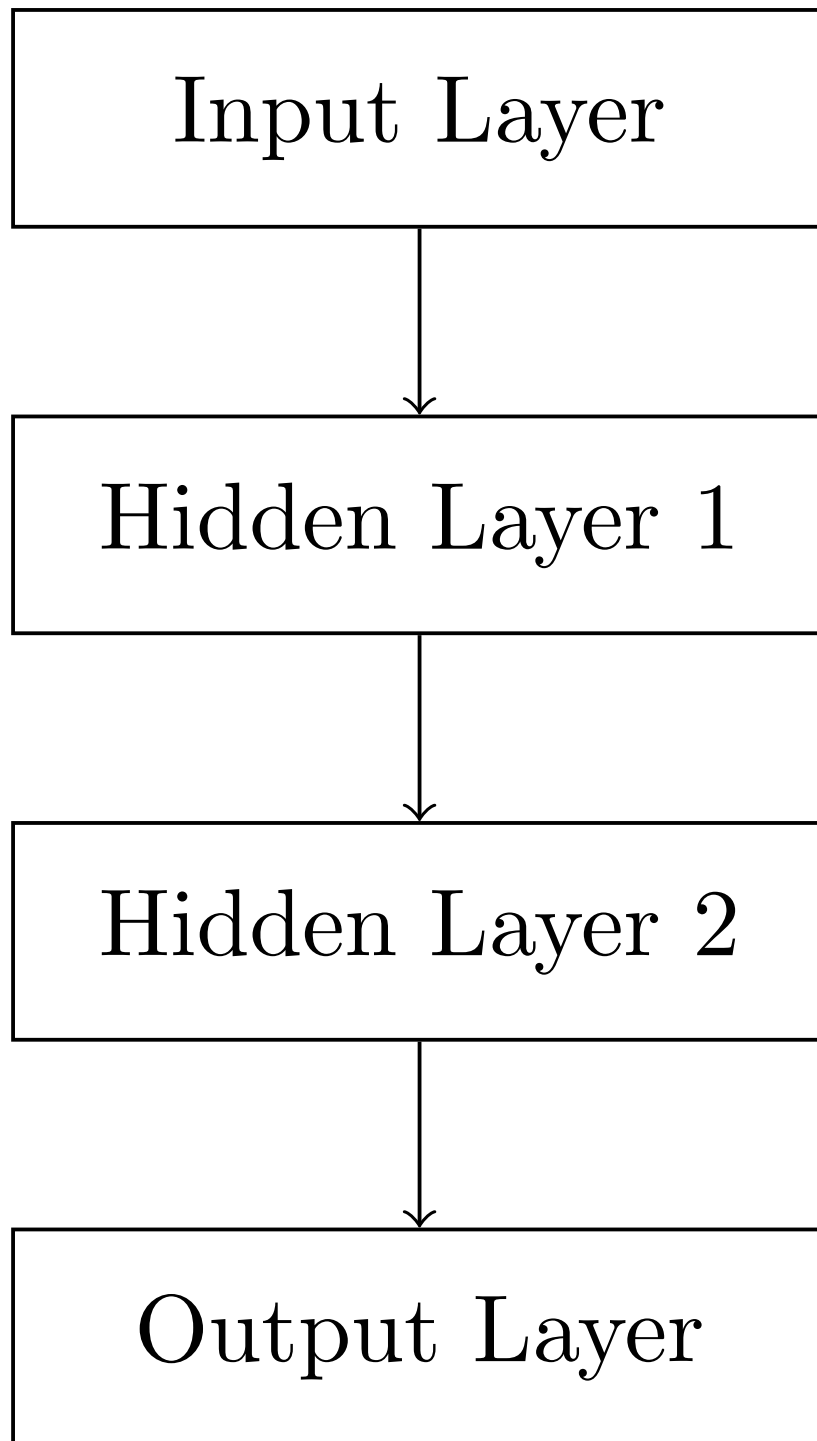


Figure 2.1: Example figure: Neural Network architecture

2.2.1 a

Your content here

2.2.2 b

Your content here

2.2.3 c

Your content here

2.3 Theoretical Models

Your content here

2.3.1 a

Your content here

Table 2.1: Your caption here

Column 1	Column 2
Data	Data

2.3.2 b

Your content here

Table 2.2: Your caption here

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2.3.3 c

Your content here

Table 2.3: Your caption here

Table content placeholder

2.3.4 d

Your content here

Table 2.4: Your caption here

Table content placeholder

2.4 Datasets and Corpora

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Table 2.5: Your caption here

Column headers	
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2.5 Machine Learning Techniques

Your content here

2.5.1 a

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Table 2.6: Your caption here

Table content placeholder

2.5.2 b

Your content here

Table 2.7: Your caption here

Table content placeholder	
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2.5.3 c

Your content here

Table 2.8: Your caption here

Table content placeholder	
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Table 2.9: Your caption here

Table content placeholder	
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2.5.4 d

Your content here

2.5.5 e

Your content here

PLACEHOLDER: Figure showing neural network architecture

Figure 2.2: Your caption here

PLACEHOLDER: Figure showing RNN architecture

Figure 2.3: Your caption here

PLACEHOLDER: Figure showing LSTM architecture

Figure 2.4: Your caption here

PLACEHOLDER: Figure showing Transformer architecture

Figure 2.5: Your caption here

2.6 Class Imbalance Mitigation Techniques

Your content here

2.7 Large Language Models (LLM)

Your content here

2.7.1 a

Your content here

2.7.2 b

Your content here

2.7.3 c

Your content here

2.8 Recognition Models

Your content here

2.8.1 a

Your content here

2.8.2 b

Your content here

2.8.2.1 a

Your content here

2.8.2.2 b

Your content here

2.8.3 c

Your content here

2.9 Applications

Your content here

2.9.1 a

Your content here

2.9.1.1 a

Your content here

2.9.1.2 b

Your content here

2.9.2 b

Your content here

2.9.2.1 a

Your content here

2.9.2.2 b

Your content here

2.10 Epilogue

Your content here

CHAPTER 3

CHAPTER TITLE

3.1 Preface

Your content here

The key contributions of this work are as follows:

- Contribution 1
- Contribution 2
- Contribution 3

3.2 Methodologies

Your content here

PLACEHOLDER: Figure showing methodology diagram

Figure 3.1: Your caption here

$$\textit{Yourequationhere} \tag{3.1}$$

PLACEHOLDER: Figure showing label distribution

Figure 3.2: Your caption here

PLACEHOLDER: Figure showing dataset split

Figure 3.3: Your caption here

$$\textit{Yourequationhere} \tag{3.2}$$

3.2.1 a

Your content here

3.2.2 b

Your content here

3.2.3 c

Your content here

3.2.4 d

Your content here

$$\textit{Yourequation} \tag{3.3}$$

$$\textit{Yourequation} \tag{3.4}$$

3.2.5 e

Your content here

3.2.6 f

Your content here

3.2.6.1 a

Your content here

Yourequationhere (3.5)

3.2.6.2 b

Your content here

Yourequationhere (3.6)

3.2.6.3 c

Your content here

Yourequationhere (3.7)

Yourequationhere (3.8)

Yourequationhere (3.9)

3.2.6.4 d

Your content here

$$\textit{Your equation} \tag{3.10}$$

PLACEHOLDER: Figure showing loss visualization

Figure 3.4: Your caption here

3.2.7 g

Your content here

3.2.7.1 a

Your content here

$$\textit{Yourequationhere} \tag{3.11}$$

3.2.7.2 b

Your content here

$$\textit{Yourequationhere} \tag{3.12}$$

$$\textit{Yourequationhere} \tag{3.13}$$

3.2.7.3 c

Your content here

$$\textit{Yourequationhere} \tag{3.14}$$

3.2.8 h

Your content here

Algorithm 1 Your algorithm caption

Require: Input parameters

Ensure: Output

1: Algorithm steps

3.3 Evaluations

3.3.1 a

Your content here

$$\textit{Yourequationhere} \tag{3.15}$$

$$\textit{Yourequationhere} \tag{3.16}$$

$$\textit{Yourequationhere} \tag{3.17}$$

$$\textit{Yourequationhere} \tag{3.18}$$

$$\textit{Yourequationhere} \tag{3.19}$$

$$\textit{Yourequationhere} \tag{3.20}$$

$$\textit{Yourequationhere} \tag{3.21}$$

$$\textit{Yourequationhere} \tag{3.22}$$

$$\textit{Yourequationhere} \tag{3.23}$$

$$\textit{Yourequationhere} \tag{3.24}$$

3.3.2 b

Your content here

$$\textit{Yourequationhere} \tag{3.25}$$

Where:

- Description 1
- Description 2

3.4 Results

Your content here

3.4.1 a

Your content here

PLACEHOLDER: Figure 1 PLACEHOLDER: Figure 2

(a) Dataset 1

(b) Dataset 2

Figure 3.5: Your caption here

3.4.2 b

Your content here

Table 3.1: Your caption here

Table content placeholder

Table 3.2: Your caption here

Table content placeholder

3.4.3 c

Your content here

Table 3.3: Your caption here

Table content placeholder

Table 3.4: Your caption here

Table content placeholder

PLACEHOLDER: Figure 1 PLACEHOLDER: Figure 2

(a) Dataset 1

(b) Dataset 2

Figure 3.6: Your caption here

3.4.4 d

Your content here

PLACEHOLDER: Figure 1

PLACEHOLDER: Figure 2

(a) Subfigure 1

(b) Subfigure 2

PLACEHOLDER: Figure 3

PLACEHOLDER: Figure 4

(c) Subfigure 3

(d) Subfigure 4

Figure 3.7: Your caption here

PLACEHOLDER: Figure 1 PLACEHOLDER: Figure 2

(a) Dataset 1

(b) Dataset 2

Figure 3.8: Your caption here

$$\textit{Yourequationhere} \tag{3.26}$$

$$\textit{Yourequationhere} \tag{3.27}$$

$$\textit{Yourequationhere} \tag{3.28}$$

Table 3.5: Your caption here

Table content placeholder

3.5 Epilogue

Your content here

CHAPTER 4

CHAPTER TITLE

4.1 Preface

Your content here

1. Research Question 1
2. Research Question 2
3. Research Question 3

4.2 Methodologies

Your content here

- Contribution 1
- Contribution 2
- Contribution 3

PLACEHOLDER: Figure showing methodology diagram

Figure 4.1: Your caption here

4.2.1 a

Your content here

4.2.2 b

Your content here

4.2.2.1 a

Your content here

PLACEHOLDER: Prompt example figure

Figure 4.2: Your caption here

4.2.2.2 b

Your content here

PLACEHOLDER: Prompt example figure

Figure 4.3: Your caption here

4.2.2.3 c

Your content here

PLACEHOLDER: Prompt example figure

Figure 4.4: Your caption here

4.2.2.4 d

Your content here

PLACEHOLDER: Prompt example figure

Figure 4.5: Your caption here

4.2.2.5 e

Your content here

4.2.3 c

Your content here

4.3 Evaluations

Your content here

4.3.1 a

Your content here

4.3.2 b

Your content here

4.3.3 c

Your content here

4.4 Results

Your content here

4.4.1 a

Your content here

4.4.2 b

Your content here

4.4.2.1 a

Your content here

4.4.2.2 b

Your content here

4.4.2.3 c

Your content here

4.4.2.4 d

Your content here

4.4.3 c

Your content here

4.4.3.1 a

Your content here

4.4.3.2 b

Your content here

4.4.3.3 c

Your content here

4.4.3.4 d

Your content here

4.4.4 d

Your content here

PLACEHOLDER: Figure 1 PLACEHOLDER: Figure 2

(a) Subfigure 1

(b) Subfigure 2

Figure 4.6: Your caption here

PLACEHOLDER: Figure showing cost analysis

Figure 4.7: Your caption here

4.4.5 e

Your content here

4.5 Epilogue

Your content here

CHAPTER 5

CHAPTER TITLE

5.1 Preface

Your content here

1. Contribution 1
2. Contribution 2
3. Contribution 3

5.2 Methodologies

Your content here

PLACEHOLDER: Figure showing JAM architecture

Figure 5.1: Your caption here

5.2.1 a

Your content here

$$\textit{Yourequationhere} \tag{5.1}$$

5.2.2 b

Your content here

5.2.2.1 a

Your content here

$$\textit{Yourequationhere} \tag{5.2}$$

$$\textit{Yourequationhere} \tag{5.3}$$

$$\textit{Yourequationhere} \tag{5.4}$$

$$\textit{Yourequationhere} \tag{5.5}$$

5.2.2.2 b

Your content here

$$\textit{Yourequationhere} \tag{5.6}$$

PLACEHOLDER: Figure showing LAJ mechanism

Figure 5.2: Your caption here

5.2.2.3 c

Your content here

5.2.3 c

Your content here

5.3 Evaluations

Your content here

5.3.1 a

Your content here

5.3.2 b

Your content here

5.4 Results

Your content here

5.4.1 a

Your content here

PLACEHOLDER: Figure 1 PLACEHOLDER: Figure 2

(a) Dataset 1

(b) Dataset 2

Figure 5.3: Your caption here

5.4.2 b

Your content here

PLACEHOLDER: Figure 1 PLACEHOLDER: Figure 2

(a) Dataset 1

(b) Dataset 2

Figure 5.4: Your caption here

PLACEHOLDER: Figure 1 PLACEHOLDER: Figure 2

(a) Subfigure 1

(b) Subfigure 2

PLACEHOLDER: Figure 3 PLACEHOLDER: Figure 4

(c) Subfigure 3

(d) Subfigure 4

Figure 5.5: Your caption here

PLACEHOLDER: Figure 1 PLACEHOLDER: Figure 2

(a) Subfigure 1

(b) Subfigure 2

PLACEHOLDER: Figure 3 PLACEHOLDER: Figure 4

(c) Subfigure 3

(d) Subfigure 4

Figure 5.6: Your caption here

5.5 Epilogue

Your content here

CHAPTER 6

CHAPTER TITLE

6.1 Preface

Your content here

- Research Question 1
- Research Question 2
- Research Question 3

6.2 Methodologies

Your content here

PLACEHOLDER: Figure showing ADAM architecture

Figure 6.1: Your caption here

6.2.1 a

Your content here

$$Your equation here \quad (6.1)$$

Where:

- Description 1
- Description 2

Table 6.1: Your caption here

Table content placeholder	
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6.2.2 b

Your content here

6.2.2.1 a

Your content here

$$\textit{Yourequationhere} \qquad (6.2)$$

$$\textit{Yourequationhere} \qquad (6.3)$$

$$\textit{Yourequationhere} \qquad (6.4)$$

Where:

- Description 1
- Description 2
- Description 3

6.2.2.2 b

Your content here

$$\textit{Yourequationhere} \qquad (6.5)$$

6.2.2.3 c

Your content here

$$\textit{Yourequationhere} \qquad (6.6)$$

6.2.3 c

Your content here

6.3 Evaluations

Your content here

6.3.1 a

Your content here

6.3.2 b

Your content here

6.4 Results

Your content here

PLACEHOLDER: Figure 1 PLACEHOLDER: Figure 2

(a) Subfigure 1

(b) Subfigure 2

PLACEHOLDER: Figure 3 PLACEHOLDER: Figure 4

(c) Subfigure 3

(d) Subfigure 4

PLACEHOLDER: Figure 5

(e) Subfigure 5

Figure 6.2: Your caption here

PLACEHOLDER: Figure 1 PLACEHOLDER: Figure 2

(a) Dataset 1

(b) Dataset 2

Figure 6.3: Your caption here

PLACEHOLDER: Figure 1 PLACEHOLDER: Figure 2

(a) Dataset 1

(b) Dataset 2

Figure 6.4: Your caption here

PLACEHOLDER: Figure 1 PLACEHOLDER: Figure 2

(a) Subfigure 1

(b) Subfigure 2

PLACEHOLDER: Figure 3 PLACEHOLDER: Figure 4

(c) Subfigure 3

(d) Subfigure 4

PLACEHOLDER: Figure 5

(e) Subfigure 5

Figure 6.5: Your caption here

PLACEHOLDER: Figure 1 PLACEHOLDER: Figure 2

(a) Subfigure 1

(b) Subfigure 2

PLACEHOLDER: Figure 3 PLACEHOLDER: Figure 4

(c) Subfigure 3

(d) Subfigure 4

PLACEHOLDER: Figure 5

(e) Subfigure 5

Figure 6.6: Your caption here

6.4.1 a

Your content here

6.4.2 b

Your content here

6.4.3 c

Your content here

6.5 Epilogue

Your content here

CHAPTER 7

CHAPTER TITLE

7.1 Preface

Your content here

- Contribution 1
- Contribution 2
- Contribution 3

7.2 Methodologies

Your content here

PLACEHOLDER: Figure showing framework

Figure 7.1: Your caption here

7.2.1 a

Your content here

Table 7.1: Your caption here

Table content placeholder

7.2.2 b

Your content here

7.2.2.1 a

Your content here

7.2.2.2 b

Your content here

7.2.3 c

Your content here

PLACEHOLDER: Figure showing feature visualization

Figure 7.2: Your caption here

7.3 Evaluations

Your content here

7.3.1 a

Your content here

7.3.2 b

Your content here

7.4 Results

Your content here

7.4.1 a

Your content here

Table 7.2: Your caption here

Table content placeholder

7.4.2 b

Your content here

Table 7.3: Your caption here

Table content placeholder

7.4.3 c

Your content here

Table 7.4: Your caption here

Table content placeholder

7.4.4 d

Your content here

Table 7.5: Your caption here

Table content placeholder

7.5 Epilogue

Your content here

CHAPTER 8

CONCLUSION

8.1 Preface

Your content here

8.2 Recapitulation

Your content here

8.2.1 a

Your content here

8.2.2 b

Your content here

8.2.3 c

Your content here

8.2.4 d

Your content here

8.2.5 e

Your content here

8.3 Future Works

Your content here

8.3.1 a

Your content here

8.3.2 b

Your content here

8.3.3 c

Your content here

8.3.4 d

Your content here

8.4 Epilogue

Your content here

REFERENCES

A. Author and B. Author. Example article title. *Journal Name*, 1:1–10, 2024.

D. Author. *Example Book Title*. Publisher Name, 2022.

Robert Jones. Deep learning techniques. In *Proceedings of the International Conference on AI*, pages 200–215, 2021.

John Smith and Jane Doe. Machine learning applications. *Journal of Computer Science*, 15(3):45–62, 2020.

APPENDICES

.1 Datasets

Your datasets description here

- **Dataset 1 Name**

[DatasetURL](#)

- **Dataset 2 Name**

[DatasetURL](#)

.2 Code Repository and Resources

Your code repository description here

- **Chapter 3**
Chapter Title:
[RepositoryURL](#)
- **Chapter 4**
Chapter Title:
[RepositoryURL](#)
- **Chapter 5**
Chapter Title:
[RepositoryURL](#)
- **Chapter 6**
Chapter Title:
[RepositoryURL](#)
- **Chapter 7**
Chapter Title:
[RepositoryURL](#)

Each link provides access to the corresponding chapter's codebase and resources. For setup instructions and further details, please consult the README files in each repository.

.3 Publication

Your publication information here

Articles derived from this Degree thesis

- Publication entry 1
- Publication entry 2

Articles related to this Degree thesis

- Publication entry 1
- Publication entry 2

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