



University of West Attica

Department of Electrical and Electronics Engineering

and

Department of Industrial Design and Production Engineering

MSc Artificial Intelligence and Deep Learning

MSc Thesis Guide

March 2024

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Introduction

In the third semester of the Master's degree in "Artificial Intelligence and Deep Learning", the student is required to complete a Postgraduate MSc Thesis of a research nature with a weight of 30 ECTS. The MSc Thesis delves into a cutting-edge topic in the field of the specialization of the MSc Program, which is dealt with in a comprehensive and original way, introducing students to the way of thinking and functioning of the researcher. The MSc Thesis is supervised by a lecturer of the MSc Program and is examined by a three-member examination committee appointed by the Curriculum Committee. The student, before submitting it for examination, must ensure that its content is at least 80% original, excluding bibliographical references.

Educational purpose of the MSc Thesis

The MSc Thesis delves into a cutting-edge topic in the field of the specialty which is addressed comprehensively and has elements of originality, introducing students to the way of thinking and functioning of the researcher.

Proposed MSc Thesis topics and fields of research interest

The topic of the MSc Thesis should be specialized, at the cutting edge of science and technology in the field of the Master's degree, with elements of originality and research character.

The lecturers of the MSc Program formulate proposed topics for the dissertation in their areas of research interest, and post them on the MSc Program website, as indicated in the section on the announcement of available topics.

Proposed topics include a title, topic abstract and indicative bibliography/sources, and their topics must be in line with the learning objectives of the MSc Program. Indicative, (but not exclusive) topics include work related to AI and deep learning mechanisms and algorithms; design, evaluation, application and implementation of AI and deep learning solutions in various platforms and computing environments and domains; and services leveraging AI and deep learning algorithms.

Students can also propose topics of their interest to the lecturers of the MSc Program, who then formulate them appropriately.

Assignment of the MSc Thesis topic

The MSc Thesis is individual. In all other cases, a documented recommendation by the supervisor and approval by the CC is required. In order to undertake a MSc Thesis topic, the student must have successfully completed the courses in the curriculum, unless otherwise decided by the relevant institution.

Evaluation of the Thesis - approval – grading

In order for the project to be approved, the student must support it before the examination committee. For this purpose, the MSc Thesis are examined by the relevant three-member examination committee, with oral public support. The place and time of the support will be announced in time by the secretariat. During the support process, the MSc Thesis is evaluated and graded according to the following scheme (evaluation criteria and participation in the rating):

Evaluation criteria and their analysis			Participation in the rating
Criteria-Evaluation criteria-Content of the MSc Thesis	Targeting, organisation and bibliographic review of the topic	Definition and documentation of the purpose and objectives of the MSc Thesis	5%
		Adequate literature research and review of the topic	10%
		Design of the survey, choice of appropriate methodology and analysis of the survey	10%
	Quality and scope of work -Degree of originality	Qualitative and quantitative adequacy of the work done personally by the student	10%
		Critical analysis of the work in the context of the methodology (points of uncertainty, potential and limitations of the methodology)	10%
		Degree of originality and analysis of the contribution of the work to the wider scientific field in which it belongs	10%
	Structure, quality, Text quality and appearance	Text structure and clarity in the analysis of methodology and arguments	10%
		Use of language	5%
		Quality and appearance of text (references, figures, tables)	5%

Evaluation criteria for the presentation and support of the MSc Thesis	Presentation of the MSc Thesis	Presentation content – adequate Coverage of the MSc Thesis	3%
		Presentation organisation - structure, clarity	4%
		Method and way of presentation	5%
		Presentation time management	3%
	MSc Thesis	Answers to questions after the presentation	10%

Stages of preparation and submission of the MSc Thesis

In order to undertake, prepare, present and complete the MSc Thesis, the student has to go through the following steps, provided that (s)he meets the criteria described above for the assignment of an MSc Thesis:

1. Topic Selection
2. MSc Thesis registration
3. Preparation (writing) of the MSc Thesis Document
4. In case the MSc Thesis cannot be delivered, or cannot be delivered on time, or in the case a modification in the MSc Thesis title or change of supervisor is needed, proceed with one of the following (according to the situation which applies):
 - a. Ask for an extension of the MSc submission period
 - b. Resign from the MSc Thesis
 - c. Submission of the MSc Thesis application for modification form
5. Completion of the MSc thesis (and check that it meets all requirements before submission)
6. Submission for evaluation

7. Presentation before the 3 member evaluation committee
8. Submission to the Institution's repository (Polynoe)

The steps above are described in a special presentation file available at the MSc Program web site, which is also available in Annex A.

Format of the MSc Thesis

The MSc Thesis file should be prepared in either Ms word or LaTeX format. The MSc Thesis document should be formatted according to the provided template available at the MSc Program web site, and in Annex B of the present document. Conversion of the file to a PDF format for delivery to the evaluation committee is recommended.

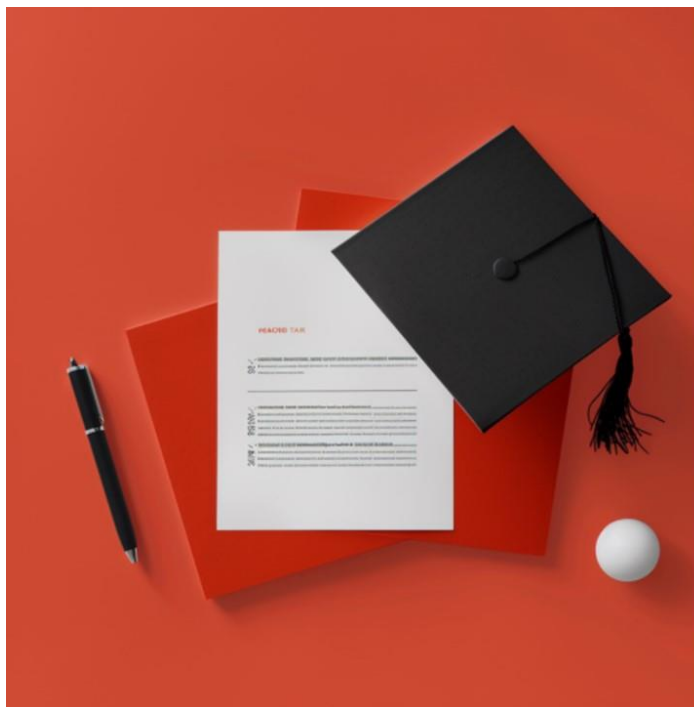
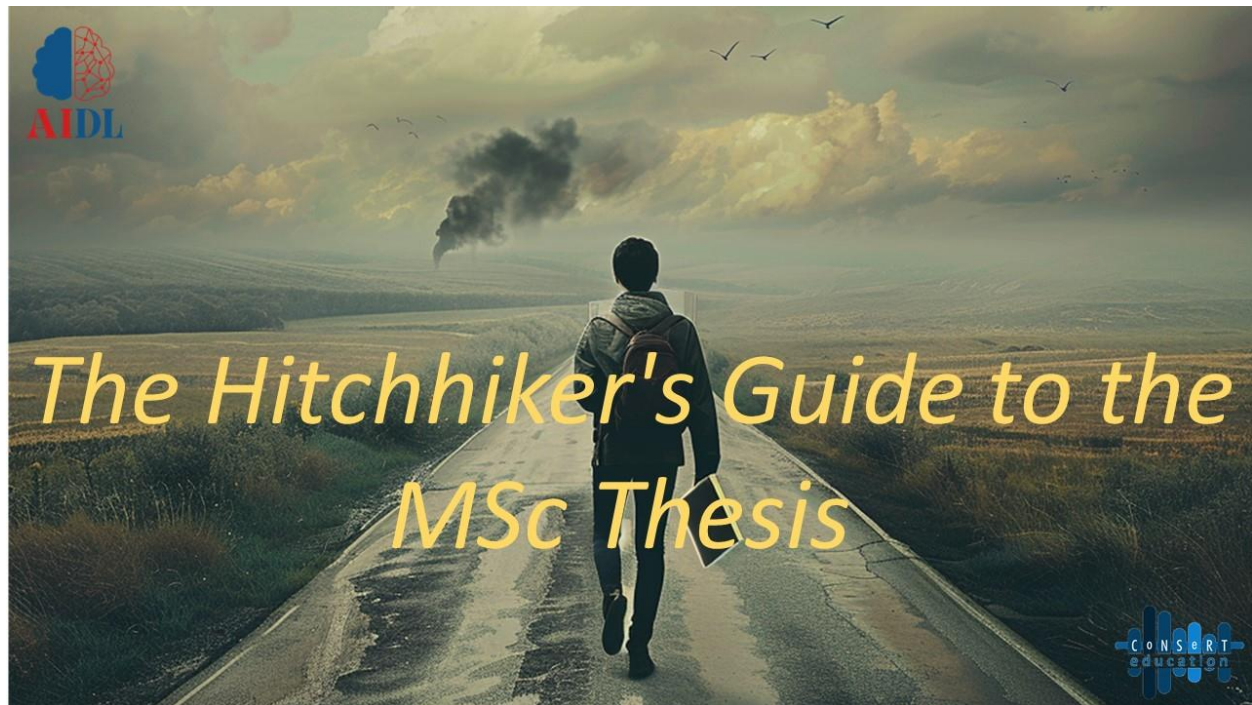
Guidelines and best practice guides for preparation of the MSc Thesis

Preparing the MSc Thesis involves a structured approach to research, analysis, and documentation. Following, there is a list of recommendation which can help students ensure that their MSc Thesis is well-organized, rigorous, and contributes meaningfully to their selected research domain:

- **Start Early and Plan Methodically:** Begin your planning as soon as possible. Develop a clear timeline with milestones for each stage of research, writing, and revision. Breaking down the work into manageable tasks helps prevent last-minute rushes and ensures thoroughness.
- **Define Clear Objectives and Research Questions:** Clearly articulate the purpose of the MSc Thesis and the specific research questions you aim to answer. This clarity guides your literature review, data collection, analysis, and conclusions.
- **Conduct a Comprehensive Literature Review:** Thoroughly review existing literature relevant to your topic. Identify gaps, controversies, and areas needing further exploration. Use reputable sources and critically evaluate the validity and significance of each study. Do not use Wikipedia or other crowdsourced repositories or resources, but only to refer to common (not scientific) knowledge.
- **Choose an Appropriate Methodology:** Select a research methodology that aligns with your research questions and objectives. Whether qualitative, quantitative, or mixed methods, justify your choice and explain how it enables you to address your research questions effectively.
- **Collect and Analyze Data Methodically:** If your thesis involves data collection, ensure your methods are rigorous and ethical. Maintain detailed records of your data collection process and apply appropriate statistical or analytical techniques to analyse the data accurately.
- **Maintain Consistent Writing and Citation Styles:** Adhere to a consistent writing style throughout your thesis, following the guidelines of your institution or department. Use the citation style defined in the MSc Thesis template consistently to properly attribute sources and avoid plagiarism.
- **Organize Your Thesis Effectively:** Structure your thesis logically, with clear sections such as introduction, literature review, methodology, results, discussion, and conclusion. Each section should flow smoothly into the next, guiding the reader through your research process and findings.

- **Seek Feedback and Revision:** Share drafts of your thesis with your supervisor, peers, or other experts in your field for feedback. Revise your work based on their suggestions, paying close attention to clarity, coherence, and argumentation.
- **Proofread and Edit Thoroughly:** Before submission, meticulously proofread your thesis for errors in grammar, spelling, punctuation, and formatting. Consider using special tools if necessary to ensure your writing is polished and professional.
- **Always follow Institutional Guidelines and Deadlines:** Make sure that you have read and understood all that is contained in this document. Ensure your thesis meets all requirements and is submitted on time to avoid delays or complications in the evaluation process.

Annex A: The Hitchhiker's Guide to the MSc Thesis



Topic selection

1) Check if according to the studies regulation you are eligible to start preparing your MSc Thesis (i.e. semester of your studies, courses that you have successfully passed)

2) Check the available MSc Thesis topics or if you have an idea for an assignment, find a potential supervisor and discuss it with him or her.

2) Agree with your supervisor professor and agree on your MSc Thesis topic and title



MSc Thesis registration

- 1) Download and fill in the [MSc Thesis Application Form](#).
- 2) Send the form with your signature to your supervisor, asking for his/her signature.
- 3) **Send the completed form** to the MSc program secretariat.
- 4) **Register** your MSc Thesis on your current semester courses registration.



Writing the diploma Thesis Document

- 1) **Download** the department's [MSc Thesis Template](#) and start writing the thesis.
- 2) Keep track of the resources you use, so that you can reference them.
- 3) Make sure to **follow the recommended text formatting** explained within the template.
- 4) **Be in contact with your supervisor** at all times.



Unable to complete the MSc Thesis during the semester?

If you cannot complete the MSc Thesis within the semester, then **before the semester ends and the soonest possible**, meet with your supervisor and discuss if you

- need an extension or
- should resign from the MSc Thesis



Extension of Diploma Thesis submission period

- 1) Make sure that **you do not exceeded the max allowed period.**
- 2) Download the [MSc Thesis Extension Application Form](#)
- 3) Fill the form including:
 - the status of the MSc Thesis
 - a timeplan for completion
 - the reason for the extension
- 4) Sign the form and ask for the signature of your supervisor.
- 5) Submit the completed form to the MSc program secretariat.
- 6) **Re-register your MSc Thesis** for every extra semester you take



Resign from a MSc Thesis

- 1) Download the [MSc Thesis Resignement Application Form](#)
- 2) Fill it in, sign it, and **send it to the MSc program secretariat.**



Need a modification to the MSc Thesis?

If a change in the MSc Thesis is needed (i.e. change of title, or supervisor), then **before the semester ends and the soonest possible**, discuss it with your supervisor. Following, proceed with submitting the **MSc Thesis modification application form** co-signed by your supervisor (and in the case of supervisor change, by the new supervisor as well)



Completing the MSc Thesis

- 1) Check that MSc Thesis document **meets all requirements** described in the [MSc Thesis Guide](#) (pages/ words/ contents/ refs e.a).
- 2) Make sure that **similarity percentage is below 20%**, as reported by the plagiarism checking tool ([TurnitIn](#)).
- 3) Send your final version of your MSc Thesis text to your supervisor.



Submitting the MSc Thesis for evaluation

- 1) Coordinate with your supervisor on **submitting** the
 - [MSc Thesis Examination Application Form](#), (**sent by the student**) and
 - [MSc Thesis Completion Form](#) (sent by the supervisor).
- 2) Submit the application within the dates announced by the MSc program secretariat.
- 3) **Be informed** about the date/time/place of MSc Thesis examination and defense.



Presenting the MSc Thesis

- 1) **Prepare** your presentation (plan for 20-30 mins presentation).
- 2) Be ready to answer questions by the evaluation committee.
- 3) In case of a presentation over the web, make sure that you have the necessary software and hardware to participate in the presentation, as well as an adequate quality of service in your internet connection.
- 4) If you have a demo, consider producing a video in case presenting a demo is not possible during your presentation



After a successful presentation

- 1) Your supervisor and the rest members of your committee must fill in the MSc Thesis Examination Process Form and submit it to the MSc Program secretariat.
- 2) Wait for your supervisor to send you the signed by the evaluation committee MSc Thesis document.
- 3) Start your graduation process by **submitting** the MSc Thesis text to the institution's repository Polynoε.

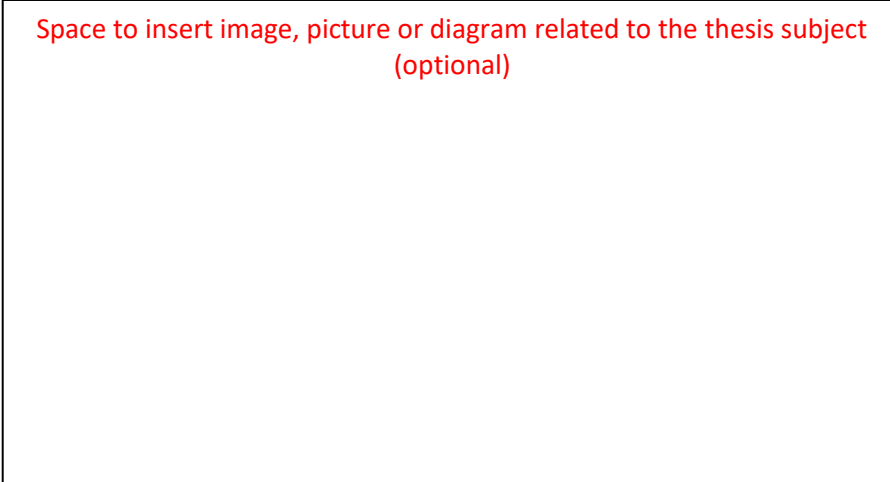


Annex B: MSc Thesis preparation template

Master of Science Thesis

(Insert MSc Thesis title in English, in 14 pt font size bold)

Space to insert image, picture or diagram related to the thesis subject
(optional)



Student: Insert student name in latin characters in the form Surname, Name
Registration Number: Insert student registration nr. in the form AIDL-xxxx

MSc Thesis Supervisor

Insert supervisor name in latin characters, in the form Surname, name
Insert supervisor grade as: Professor, Assoc. Professor, Assist. Professor, Lecturer

ATHENS-EGALEO, Insert month in English) (Insert year in the form 20xx

This MSc Thesis has been accepted, evaluated and graded by the following committee:

Supervisor	Member	Member
SIGNATURE	SIGNATURE	SIGNATURE
Surname, Name	Surname, Name	Surname, Name
Grade	Grade	Grade
Department or School	Department or School	Department or School
Institution	Institution	Institution

Msc Thesis title

Student Name & Reg. Nr.

Copyright © All rights reserved.

University of West Attica and (Name and Surname of the student)

Month, Year

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The opinions and the conclusions included in this document express solely the author and do not express the opinion of the MSc thesis supervisor or the examination committee or the formal position of the Department(s) or the University of West Attica.

Declaration of the author of this MSc thesis

I, **author name, including father's name** with the following student registration number: **student registration number**, postgraduate student of the MSc program in “Artificial Intelligence and Deep Learning”, which is organized by the Department of Electrical and Electronic Engineering and the Department of Industrial Design and Production Engineering of the Faculty of Engineering of the University of West Attica, hereby declare that:

I am the author of this MSc thesis and any help I may have received is clearly mentioned in the thesis. Additionally, all the sources I have used (e.g., to extract data, ideas, words or phrases) are cited with full reference to the corresponding authors, the publishing house or the journal; this also applies to the Internet sources that I have used. I also confirm that I have personally written this thesis and the intellectual property rights belong to myself and to the University of West Attica. This work has not been submitted for any other degree or professional qualification except as specified in it.

Any violations of my academic responsibilities, as stated above, constitutes substantial reason for the cancellation of the conferred MSc degree.

I wish to deny access to the full text of my MSc thesis until **put a date here or erase both lines** following my application to the Library of UNIWA and the approval from my supervisor.

The author

Student name

Signature

Msc Thesis title

Student Name & Reg. Nr.



{Dedication page (optional)}



{ Acknowledgements page (optional) }



Abstract

Present briefly the aim, contents and results of the thesis (500 words approx.).

Keywords

Give 4-6 keywords, comma separated, that best describe the thesis contents. Use standard terminology.

Msc Thesis title

Student Name & Reg. Nr.



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1.3.2 Sub-sub-title 23

2..... CHAPTER 2: (insert chapter title)
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2.1..... Sub-
title **Error! Bookmark not defined.**

2.2..... Sub-
title **Error! Bookmark not defined.**

2.2.1 Sub-sub-title **Error! Bookmark not defined.**

2.2.2 Sub-sub-title **Error! Bookmark not defined.**

2.3..... Sub-
title **Error! Bookmark not defined.**

2.3.1 Sub-sub-title **Error! Bookmark not defined.**

2.3.2 Sub-sub-title **Error! Bookmark not defined.**

3..... CHAPTER 3: (insert chapter title)
 **Error! Bookmark not defined.**



3.1.....		Sub-
		title Error! Bookmark not defined.
3.2.....		Sub-
		title Error! Bookmark not defined.
3.2.1	Sub-sub-title	Error! Bookmark not defined.
3.2.2	Sub-sub-title	Error! Bookmark not defined.
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List of figures

Figure 1.1 Table description (include reference to source, if applicable)[22]
Figure 1.2 Table description (include reference to source, if applicable)[23]

Acronym Index

Include acronyms following the next examples

APA: American Psychological Association

IEEE: The Institute for Electrical and Electronics Engineers

INTRODUCTION

Give a general introduction to the subject of the thesis. Keep it non-technical.

The subject of this thesis

Define the subject of this thesis. Refer to the major issue or problem to be addressed and explain why it is interesting, important and timely.

Aim and objectives

Give the aim and objectives of this thesis and further analyze them into specific research questions to be investigated.

Methodology

Define the methodology to be adopted and describe briefly its steps.

Innovation

Give those features, elements or aspects of this thesis that are innovative.

Structure

Briefly outline the structure of the thesis, in chapters.



CHAPTER 1: insert chapter title

Use a short introductory paragraph to explain what this chapter is about.

Sub-title

Text

Sub-title

Text

Sub-sub-title

Text

Sub-sub-title

Text

Sub-title

Text

Sub-sub-title

Text

Sub-sub-title

Text

.....

.....

.....



CHAPTER 2: insert chapter title

Use a short introductory paragraph to explain what this chapter is about.

Sub-title

Text

Sub-title

Text

Sub-sub-title

Text

Sub-sub-title

Text

Sub-title

Text

Sub-sub-title

Text

Sub-sub-title

Text

.....

.....

.....



CHAPTER 3: insert chapter title

Use a short introductory paragraph to explain what this chapter is about.

Sub-title

Text

Sub-title

Text

Sub-sub-title

Text

Sub-sub-title

Text

Sub-title

Text

Sub-sub-title

Text

Sub-sub-title

Text

.....

.....

.....



CONCLUSIONS

Write your conclusions here



Bibliography – References – Online sources

{Bibliography and references should be given in one of the following forms:

- 1. APA Sixth Edition*
- 2. Chicago 16th Edition*
- 3. IEEE 2006*
- 4. Harvard Anglia 2008}*



Appendix A

.....

Appendix B

.....

Appendix C

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