



TECHNICAL UNIVERSITY

OF CLUJ-NAPOCA, ROMANIA

**FACULTY OF AUTOMATION AND COMPUTER SCIENCE
COMPUTER SCIENCE DEPARTMENT**



LICENSE THESIS TITLE

LICENSE THESIS

Graduate: **Firstname LASTNAME**

Supervisor: **scientific title Firstname LASTNAME**

2025



TECHNICAL UNIVERSITY
OF CLUJ-NAPOCA, ROMANIA
FACULTY OF AUTOMATION AND COMPUTER SCIENCE
COMPUTER SCIENCE DEPARTMENT

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HEAD OF DEPARTMENT,
Prof. dr. eng. Rodica
POTOLEA



Graduate: **Firstname** LASTNAME

LICENSE THESIS TITLE

1. **Project proposal:** *Short description of the license thesis and initial data*
2. **Project contents:** *(enumerate the main component parts) Presentation page, advisor's evaluation, title of chapter 1, title of chapter 2, ..., title of chapter n, bibliography, appendices.*
3. **Place of documentation:** *Example:* Technical University of Cluj-Napoca, Computer Science Department
4. **Consultants:**
5. **Date of issue of the proposal:** November 1, 2024
6. **Date of delivery:** July 11, 2025

Graduate: _____

Supervisor: _____



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**Declarație pe propria răspundere privind
autenticitatea lucrării de licență**

Subsemnatul(a) _____, legitimat(ă) cu
_____ seria _____ nr. _____
CNP _____, autorul lucrării

_____ elaborată în vederea susținerii examenului de finalizare a studiilor de licență la Facultatea de Automatică și Calculatoare, Specializarea _____ din cadrul Universității Tehnice din Cluj-Napoca, sesiunea _____ a anului universitar _____, declar pe propria răspundere că această lucrare este rezultatul propriei activități intelectuale, pe baza cercetărilor mele și pe baza informațiilor obținute din surse care au fost citate, în textul lucrării, și în bibliografie.

Declar că această lucrare nu conține porțiuni plagiate, iar sursele bibliografice au fost folosite cu respectarea legislației române și a convențiilor internaționale privind drepturile de autor.

Declar, de asemenea, că această lucrare nu a mai fost prezentată în fața unei alte comisii de examen de licență.

În cazul constatării ulterioare a unor declarații false, voi suporta sancțiunile administrative, respectiv, *anularea examenului de licență*.

Data

Nume, Prenume

Semnătura

General instructions

Read first (this page should be eliminated from the final version):

1. The three preceding pages (title page, summary page and declaration) should be printed on one side (not two-side) and should be included in the printed paper.
 - a. The summary page (the second one) has to be signed both by the graduate and the supervisor.
 - b. The date used on the declaration page is the date when the thesis is submitted to the commissions' secretaries.
 - c. You must use the correct titles of the supervisor on the title page. (Please use the Web page from where you downloaded this document for a list of the academic staff and their titles.)
2. **The table of contents** should begin on a new odd page (when two-sided printing is used). To update the table of contents use the menu *References: Table of Contents->Update table*. The Table of Contents should be numbered with lowercase Roman numerals
3. All chapters begin on a new page. Page numbering starts at 1 with the first chapter (**Introduction**).
4. **Format:**
 - a. The paper size is A4 and the margins are all 1 inch.
 - b. The font used for the text in this document is Times New Roman, size 12pt, as defined in the Normal style, with 1.0 line spacing (*Paragraph->Line spacing->1.0*) and Alignment *Justify*
 - c. Every chapter begins on a new page. This is achieved with the hidden formatting symbol *Section Break option Next Page* which has already been used at the end of every chapter. If you accidentally delete, you can put it back using the *Breaks* submenu of the *Layout* menu.
 - d. Use the styles defined in this document (Headings, Figure, Table, Normal etc.)
 - e. Please use the predefined styles in this document (Headings, Figure, Table, Normal, etc.)
 - f. **Titles:**
 - i. Chapter titles use Heading 1 style, numbering with one digit (Chapter x. Chapter Name), font Times New Roman, size 16pt, bold, spacing before 30pt, spacing after 18pt.
 - ii. Section titles use Heading 2 style, Times New Roman 14pt, Bold, spacing before 12pt, spacing after 6pt
 - iii. Subsection titles use Heading 3 style, Times New Roman 12pt, Regular, spacing before 12pt, spacing after 6pt
 - iv. The first line for each paragraph must be indented (default in Normal Style), and no additional space inserted between successive paragraphs.
5. View this document (you can use this while editing as well) with hidden formatting symbols shown enabled (click on the pictogram π of *Home/Paragraph*).
6. Observe and obey the rest of the instructions included in each chapter.
7. When saving the document as a pdf file, first select No Markup from the Review menu. Then select from the *Options* menu as below

Options ? X

Page range

All

Current page

Selection

Page(s) From: 1 To: 1

Publish what

Document

Document showing markup

Include non-printing information

Create bookmarks using:

Headings

Word bookmarks

Document properties

Document structure tags for accessibility

PDF options

PDF/A compliant

Optimize for image quality

Bitmap text when fonts may not be embedded

Encrypt the document with a password

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Chapter 1. Introduction

This chapter will contain:

- Project context,
- Specification of the precise domain of the license thesis

Use about between 2 and 3 pages, no more.

No sections allowed here.

Chapter 2. Project Objectives

The project theme must be described in this chapter (as a research/design proposal, clearly formulated, with clear objectives and, possibly, some explanatory figures).

This chapter should take about between 2 and 3 pages.

Chapter 3. Bibliographic Research

Bibliographic research has as an objective the establishment of the references for the project, within the project domain/thematic. While writing this chapter (in general the whole document), the author will consider the knowledge accumulated from several dedicated disciplines in the second semester, 4th year (Project Elaboration Methodology, etc.), and other disciplines that are relevant to the project theme.

This chapter should take between 3 and 10 pages.

References will be included in the *Bibliography* section. The reference format must be IEEE, or similar. The introduction of new references in the *Bibliography* section, and their citation within the document text can be done manually (by obeying the format), but it is not recommended as it not easy to manage them, or by using the tools mentioned in the last paragraphs of this chapter.

In the *Bibliography* section, there are examples of references to conferences or workshops articles [1] [2], journal [3], and books [4]. References to applications or online resources (web pages) must include at least a short relevant description in addition to the link [5], and other information is available (authors, year, etc.). References that contain only the link to the online resource will be placed in the page footer.

No that if sources change you have to update all citation fields in the document as specified by Microsoft documentation.

Each reference must be cited within the document text, see example below (depending on the project theme, the presentation of a method/application can vary).

In paper [1] the authors present a detection system for moving obstacles based on stereovision and ego motion estimation (note that this is not true about that article contents). The method is ... *discuss the algorithms, data structures, functionality, specific aspects related to the project theme, etc....* Discussion: *pros and cons*.

In chapter 4 of [4], the *similar-to-my-project-theme algorithm* is presented, with the following features...

Starting with **MS Word 2007**, the integrated bibliography management system should be used: *References* submenu *Citations & Bibliography*. More information can be found in the online documentation of MS Office.

DO NOT copy technology descriptions here

Chapter 4. Analysis and Theoretical Foundation

Together with the next three chapters takes about 70% of the whole paper.

The purpose of this chapter is to explain the operating principles of the implemented application.

Here you write about your solution from a theory standpoint – i.e. you explain it and demonstrate its theoretical properties/value, e.g.:

- used or proposed algorithms,
- used protocols,
- abstract models,
- logic explanations/arguments concerning the chosen solution,
- logic and functional structure of the application, etc.
- use cases
- specifications

YOU SHOULD NOT write about the implementation.

YOU SHOULD NOT describe technologies and other things which do not pertain to your project (no fillers, please!).

4.1. Example section Title

4.1.1. Example Subsection Title

Every table used in this document is labeled as Table $x.y$, where x represents the chapter number, and y shows the table number within the current chapter. Leave a blank line before and after each table, relative to the adjacent paragraphs.

To insert a table caption, use the *References* menu, *Captions* submenu, *Cross-reference* and select *Table* from the pop-up.

To refer to a table use the menu *References*, *Cross-reference* submenu and select from the popup *Table* → *only label and number*.

Example: in this row we have inserted a reference to Table 4.1.

Table 4.1. Table name

Times New Roman (12)	Xxxx	xxxx	xxxx	

Every figure used in the document must be referred within the text (ex: in Figure $x.y$ the system components are presented...) and labeled. The labeling must be as Figure $x.y$ where x represents the chapter number, and y shows the number of the figure within the current chapter.

Use the menu *References*, *Insert caption* → *Figure*.

To refer to a figure use the menu *References*, *Cross-reference* submenu and select from the popup *Figure* → *only label and number*.

Example: in this row we have inserted a reference to Figure 4.1

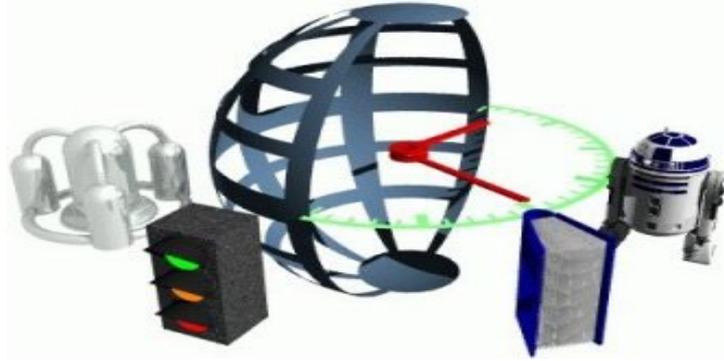


Figure 4.1. Figure name

Chapter 5. Detailed Design and Implementation

Together with the previous and following chapters takes about 70% of the paper.

The purpose of this chapter is to document the developed application such a way that it can be maintained and developed later. A reader should be able (from what you have written here) to identify the main functions of the application.

The chapter should contain (but not limited to):

- a general application sketch/scheme,
- a description of every component implemented, at module level,
- class diagrams, important classes and methods from key classes.
- database diagrams

Chapter 6. Testing and Validation

Together with the previous two chapters should take chapter should take about 70% of the paper.

Chapter 7. User's Manual

In the section describing the installation procedure you should detail the hardware and software resources needed for installing and running the application, and a step by step description of how your application can be deployed/installed. An administrator should be able to perform the installation/deployment based on your instructions.

In the section for the user you should describe how to use the application from the point of view of a user with no inside technical information; this should be adorned with screen shots and a stepwise explanation of the interaction. Based on user's manual, a person should be able to install and use your product.

Minimum 1 page, up to 5 pages

Chapter 8. Conclusions

This chapter should take between 1 and 2 pages.

In this chapter you should include:

- A summary of your contributions/achievements,
- A critical analysis of the results achieved,
- A description of the possibilities of improvements/further development.

Bibliography

- [1] G. Boella și L. van der Torre, „Contracts as Legal Institutions in Organizations of Autonomous Agents,” în *Proceedings of the Third International Joint Conference on Autonomous Agents and Multi Agent Systems (AAMAS'04)*, New York, 2004.
- [2] G. Boella, J. Hulstijn și L. van der Torre, „A Synthesis Between Mental Attitudes and Social Commitments in Agent Communication Languages,” în *Intelligent Agent Technology 05 (IAT 2005)*, Compiègne, 2005.
- [3] G. Cachon și M. Lariviere, „Supply chain coordination with revenue sharing contracts: strengths and limitations,” *Management Science*, vol. 51, pp. 30-44, 2005.
- [4] C. P. Pfleeger, S. L. Pfleeger și J. Margulies, *Security in Computing*, 5th Edition, Pearson, 2015.
- [5] Software Freedom Conservancy, „The Selenium Browser Automation Project,” [Interactiv]. Available: <https://www.selenium.dev/>. [Accesat 17 martie 2021].

Note. After inserting or updating the bibliography, select the whole table and apply the style *Biblio*. The Normal style used indentation for the first line of a paragraph, and thus you will not get an appearance as above without applying this step.

Appendix 1

...
Relevant code sections

Appendix 2

...
Other relevant info (proofs etc.) if any

Appendix 3

Published papers (if any)
etc.