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Abstract

This package provides an unofficial LaTeX template designed to comply with the formatting and typographic guidelines established by the Alma Mater Studiorum – Università di Bologna (UniBO). It is intended to assist students, researchers, and faculty in producing consistently formatted academic documents — including theses, reports, and dissertations — in accordance with the university’s editorial standards. The template encapsulates the required document structure, covering the title page (frontespizio), body layout, bibliography, and appendices. It enforces the prescribed typographic conventions: A4 page size, standard margins of 2.5 cm on all sides, recommended font families (such as Times New Roman, Arial, or equivalent), a body font size of 12–13pt, 1.5 line spacing, and footnotes set in 10pt. The frontespizio follows the official UniBO facsimile, featuring the institution’s full Latin name — Alma Mater Studiorum · Università di Bologna — along with fields for the degree programme, thesis title, candidate, supervisor, and academic year.

Riassunto

Write the Abstract Here in Italian

Questo pacchetto fornisce un template LaTeX non ufficiale, progettato per essere conforme alle linee guida di formattazione e tipografiche stabilite dall'Alma Mater Studiorum – Università di Bologna (UniBO). È pensato per aiutare studenti, ricercatori e docenti a produrre documenti accademici con una formattazione coerente, tra cui tesi, relazioni e dissertazioni, in conformità con gli standard editoriali dell'università.

Il template racchiude la struttura del documento richiesta, comprendente frontespizio, impaginazione del corpo del testo, bibliografia e appendici. Applica le convenzioni tipografiche prescritte: formato pagina A4, margini standard di 2,5 cm su tutti i lati, font consigliati (come Times New Roman, Arial o equivalenti), dimensione del carattere del corpo 12-13pt, interlinea 1,5 e note a piè di pagina in 10pt. Il frontespizio segue il facsimile ufficiale dell'UniBO, riportando il nome completo in latino dell'istituzione — Alma Mater Studiorum · Università di Bologna — insieme ai campi per il corso di laurea, il titolo della tesi, il candidato, il relatore e l'anno accademico.

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Nomenclature

Symbol	Description
m	Mass of the aerial robot
J	Inertia matrix of the aerial robot
I_3	3×3 identity matrix

Chapter 1

Introduction

This thesis is submitted in partial fulfillment of the requirements for the degree of *[Degree Name]* at the *Alma Mater Studiorum – Università di Bologna*. The work presented herein investigates *[brief one-line description of the topic]*, with the aim of contributing meaningful insights to the field of *[Research Field]*. As noted by Lamport [1], the use of structured document preparation systems greatly enhances the clarity and reproducibility of academic writing.

The remainder of this chapter is organized as follows: Section 1.1 provides the background and motivation, Section 1.2 defines the problem statement, Section 1.3 outlines the research objectives, Section 1.4 briefly describes the methodology, and Section 1.6 presents the overall structure of the thesis.

1.1 Background and Motivation

1.1.1 Historical Context

The study of *[topic]* has evolved significantly over the past decades. Early contributions by Knuth [2] laid the foundational principles of typesetting that continue to inform modern academic publishing. The *Università di Bologna*, founded circa 1088 and widely regarded as the world's oldest university in continuous operation [3], has long been at the forefront of advances in *[field]*, making it a fitting home for the present work.

The rapid growth of digital communication and open-access publishing has further underscored the importance of standardized document formats [4]. In this context, reproducible and well-structured academic templates serve not only an aesthetic purpose but also a functional one, enabling consistent dissemination of scholarly output [2].

1.1.2 Current State of the Art

Recent developments in *[field]* have demonstrated the growing importance of *[specific topic]*. Influential surveys such as [5] have shown that *[key finding or trend]*. Meanwhile, seminal works by [6] proposed novel approaches that addressed several long-standing limitations in the area. Despite these advances, several open challenges remain, particularly in the areas of:

- **Challenge 1:** As identified by [7], a brief description of the first limitation or gap.
- **Challenge 2:** A brief description of the second limitation, further discussed in [4].
- **Challenge 3:** A brief description of the third limitation or gap.

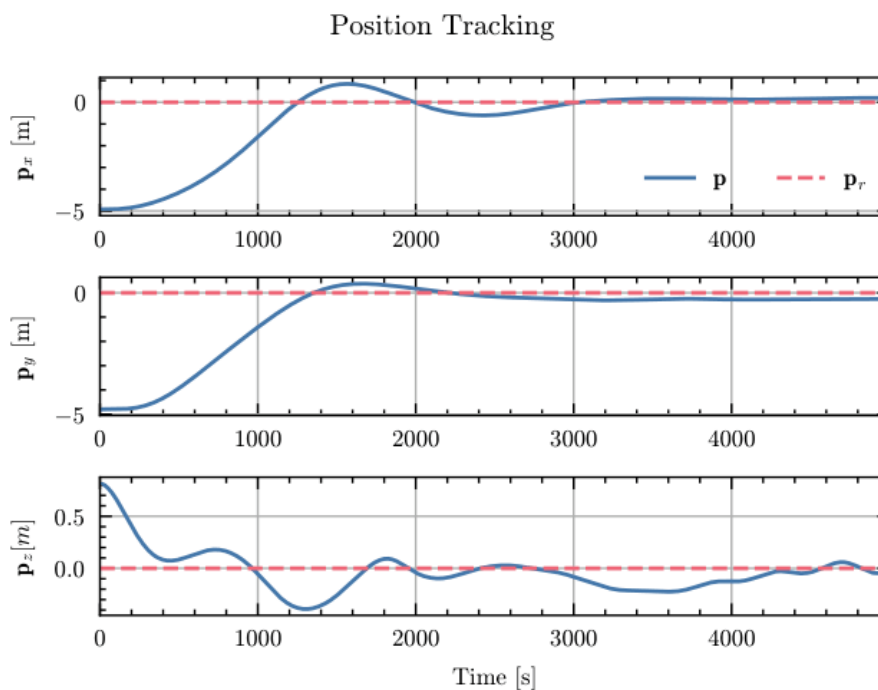


Figure 1.1: An Exmple on publishing the Images

These gaps collectively motivate the research presented in this thesis.

1.2 Problem Statement

1.2.1 Definition of the Problem

The central problem addressed in this thesis can be formally stated as follows:

“Given [input/context], how can one [action/method] in order to achieve [desired outcome], while satisfying [constraints or requirements]?”

This problem is significant because, as argued by [8], *[explain why it matters in theory and/or practice]*. Without an adequate solution, *[describe the consequences or limitations that persist]*, a concern echoed in the broader literature [5].

1.2.2 Scope and Limitations

While the problem domain is broad, this thesis focuses specifically on *[narrowed scope]*, in line with the methodology suggested by [9]. The following boundaries are explicitly defined for the purposes of this work:

1. The analysis is confined to *[domain/dataset/environment]*.
2. Interactions with *[excluded factor]* are not considered, following the assumptions of [6].
3. Results are validated under *[specific experimental conditions]*.

1.3 Research Objectives

1.3.1 Primary Objectives

Drawing from the gaps identified in [5] and [7], the primary objectives of this thesis are:

1. To *[first main goal]* by means of *[approach]*.
2. To *[second main goal]* through the application of *[method]*, inspired by the framework of [6].
3. To *[third main goal]* with respect to *[criterion]*.

1.3.2 Secondary Objectives

In addition to the primary objectives, this work also aims to:

- Provide a reusable *[artifact, tool, or framework]* for future research in the field, following best practices outlined in [9].
- Contribute to the existing literature by *[type of contribution]*.
- Establish a benchmark for evaluating *[aspect]* under *[conditions]*, complementing the evaluation protocols of [7].

1.4 Research Methodology

1.4.1 Overall Approach

This research adopts a *[qualitative / quantitative / mixed]* methodology, consistent with established practices in the field [9]. The work is structured around three main phases:

1. **Phase 1 – Literature Review:** A systematic review of existing work is conducted following the guidelines of [5], to identify relevant theories, methods, and open problems.
2. **Phase 2 – Design and Implementation:** Based on the findings of the review, a *[model/system/framework]* is designed and implemented, drawing on principles from [6].
3. **Phase 3 – Evaluation:** The proposed solution is evaluated using *[metrics/datasets/experiments]*, and results are compared against the baselines established in [8].

Table 1.1: Example of Table

Parameter	Symbol	Value
Mass	m	2.0 kg
Inertia	J	0.062 kg·m ²
Arm length	l	0.39 m

1.4.2 Tools and Technologies

The document itself is typeset using L^AT_EX [1], with package management and compilation handled via the `latexmk` build system [4]. The following tools are also employed:

- **Programming Language:** *[e.g., Python 3.10]*
- **Frameworks:** *[e.g., TensorFlow, PyTorch, scikit-learn]*
- **Hardware:** *[e.g., GPU cluster, local workstation specs]*
- **Version Control:** *[e.g., Git / GitHub]*

1.5 Contributions

The main contributions of this thesis, which extend the work of [6] and [7], can be summarized as follows:

1. **Contribution 1:** *[Describe the first novel contribution clearly and concisely.]*
2. **Contribution 2:** *[Describe the second novel contribution, e.g., a new algorithm, dataset, or theoretical result.]*
3. **Contribution 3:** *[Describe any additional contributions, such as open-source code, empirical findings, or design guidelines.]*

Parts of this work have been published in / submitted to *[Conference/Journal Name, Year]* [10].

1.6 Thesis Outline

The remainder of this thesis is structured as follows:

Chapter 2 – Related Work: Reviews the relevant literature and theoretical foundations, building upon the surveys of [5].

Chapter 3 – Methodology: Presents the proposed approach, detailing the design decisions, algorithms, and implementation choices inspired by [6].

Chapter 5 – Results and Discussion: Reports the experimental setup, results, and a critical analysis of the findings, benchmarked against [8].

Chapter 6 – Conclusion: Summarizes the key findings, reflects on the limitations of the work, and suggests directions for future research.

Chapter 2

Related Work

2.1 Problem Formulation

2.1.1 Formal Definition

2.1.2 Assumptions and Constraints

2.2 Proposed Approach

2.2.1 System Architecture

2.2.2 Algorithm Design

2.2.3 Mathematical Formulation

2.3 Implementation Details

2.3.1 Software and Hardware Setup

2.3.2 Data Preprocessing

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Methodology

3.1 Datasets

3.1.1 Dataset Description

3.1.2 Data Splitting Strategy

3.2 Evaluation Metrics

3.2.1 Primary Metrics

3.2.2 Secondary Metrics

3.3 Baseline Methods

3.3.1 Classical Baselines

3.3.2 State-of-the-Art Baselines

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Chapter 5

Results and Discussion

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5.3.1 Impact of Each Component

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5.4.1 Interpretation of Results

5.4.2 Limitations of the Proposed Method

Chapter 6

Conclusions

6.1 Summary of Contributions

6.2 Answers to Research Questions

6.3 Limitations and Threats to Validity

6.3.1 Internal Validity

6.3.2 External Validity

6.4 Future Work

6.4.1 Short-Term Directions

6.4.2 Long-Term Research Vision

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