

University of MinhoSchool of Engineering

Author's full name

Title Title





University of MinhoSchool of Engineering

Author's full name

Title Title

Master's Dissertation in Informatics Engineering

Dissertation supervised by **Supervisor Name Co-Supervisor Name**

Copyright and Terms of Use for Third Party Work

This dissertation reports on academic work that can be used by third parties as long as the internationally accepted standards and good practices are respected concerning copyright and related rights.

This work can thereafter be used under the terms established in the license below.

Readers needing authorization conditions not provided for in the indicated licensing should contact the author through the RepositoriUM of the University of Minho.

License granted to users of this work:

[Caso o autor pretenda usar uma das licenças Creative Commons, deve escolher e deixar **apenas um** dos seguintes ícones e respetivo lettering e URL, eliminando o texto em itálico que se lhe segue.

Contudo, é possível optar por outro tipo de licença, devendo, nesse caso, ser incluída a informação necessária adaptando devidamente esta minuta]



CC BY

https://creativecommons.org/licenses/by/4.0/ [Esta licença permite que outros remisturem, adaptem e criem a partir do seu trabalho, mesmo para fins comerciais, desde que lhe atribuam o devido crédito e que licenciem as novas criações ao abrigo de termos idênticos. Esta licença costuma ser comparada com as licenças de software livre e de código aberto «copyleft». Todos os trabalhos novos baseados no seu terão a mesma licença, portanto quaisquer trabalhos derivados também permitirão o uso comercial. Esta é a licença usada pela Wikipédia e é recomendada para materiais que seriam

beneficiados com a incorporação de conteúdos da Wikipédia e de outros projetos com licenciamento semelhante.]



CC BY-SA

https://creativecommons.org/licenses/by-sa/4.0/ [Esta licença permite que outros remisturem, adaptem e criem a partir do seu trabalho, mesmo para fins comerciais, desde que lhe atribuam o devido crédito e que licenciem as novas criações ao abrigo de termos idênticos. Esta licença costuma ser comparada com as licenças de software livre e de código aberto «copyleft». Todos os trabalhos novos baseados no seu terão a mesma licença, portanto quaisquer trabalhos derivados também permitirão o uso comercial. Esta é a licença usada pela Wikipédia e é recomendada para materiais que seriam beneficiados com a incorporação de conteúdos da Wikipédia e de outros projetos com licenciamento semelhante.]



CC BY-ND

https://creativecommons.org/licenses/by-nd/4.0/ [Esta licença permite que outras pessoas usem o seu trabalho para qualquer fim, incluindo para fins comerciais. Contudo, o trabalho, na forma adaptada, não poderá ser partilhado com outras pessoas e têm que lhe ser atribuídos os devidos créditos.]



CC BY-NC

https://creativecommons.org/licenses/by-nc/4.0/ [Esta licença permite que outros remisturem, adaptem e criem a partir do seu trabalho para fins não comerciais, e embora os novos trabalhos tenham de lhe atribuir o devido crédito e não possam ser usados para fins comerciais, eles não têm de licenciar esses trabalhos derivados ao abrigo dos mesmos termos.]



CC BY-NC-SA

https://creativecommons.org/licenses/by-nc-sa/4.0/ [Esta licença permite que outros remisturem, adaptem e criem a partir do seu trabalho para fins não comerciais, desde que lhe atribuam a si o devido crédito e que licenciem as novas criações ao abrigo de termos idênticos.]



CC BY-NC-ND

https://creativecommons.org/licenses/by-nc-nd/4.0/ [Esta é a mais restritiva das nossas seis licenças principais, só permitindo que outros façam download dos seus trabalhos e os compartilhem desde que lhe sejam atribuídos a si os devidos créditos, mas sem que possam alterá- los de nenhuma forma ou utilizá-los para fins comerciais.]

Acknowledgements

Write your acknowledgements here. Do not forget to mention the projects and grants that you have benefited from while doing your research, if any. Ask your supervisor about the specific textual format to use. (Funding agencies are quite strict about this.)

Statement of Integrity

I hereby declare having conducted this academic work with integrity.

I confirm that I have not used plagiarism or any form of undue use of information or falsification of results along the process leading to its elaboration.

I further declare that I have fully acknowledged the Code of Ethical Conduct of the University of Minho.

University of Minho, Braga, september 2025

Author's full name

Abstract

Write abstract here (in English)

Keywords keywords, here, comma, separated

Resumo

Escrever aqui o resumo (em português)

Palavras-chave palavras, chaves, aqui, separadas, por, vírgulas

Contents

I	In	troductory Material	. 1
	1	Introduction	. 2
	2	State of the Art	. 3
		2.1 Citations	. 3
		2.2 Mathematical expressions	. 3
		2.3 Footnotes	. 4
		2.4 Acronyms and Glossary	. 4
		2.5 Index	. 4
	3	The problem and its challenges	. 5
		3.1 Images	. 5
II	Сс	ore of the Dissertation	. 6
	4	Contribution	. 7
		4.1 Introduction	. 7
		4.2 Summary	. 7
	5	Applications	. 8
		5.1 Introduction	. 8
		5.2 Summary	. 8
	6	Conclusions and future work	. 9
		6.1 Conclusions	. 9
		6.2 Future work	. 9
	7	Planned Schedule	10
		7.1 Activities	10
BiŁ	olio	graphy	11
Inc	lex		12
Ш	Αp	ppendices	13
	Δ	Support work	14

В	Details of results	15
С	Listings	16
D	Tooling	17

List of Figures

Figure 1 Logo of the University of Minho	
--	--

List of Tables

Table 1	Planned Schedule	. 10



Part I Introductory Material

Introduction

Context, motivation, main aims.

State of the Art

State of the art review; related work.

2.1 Citations

Example of a citation: [1], or [1] M. Goossens, S. Rahtz, and F. Mittelbach, The LaTeX Graphics Companion. Addison-Wesley, 1997..

This entry is in the dissertation.bib file.

Check more information about bibliography here: https://typst.app/docs/reference/model/bibliography/ and here: https://typst.app/docs/reference/model/cite/.

2.2 Mathematical expressions

The mass-energy equivalence is expressed by the equation

$$E = mc^2 (1)$$

discovered in 1905 by Albert Einstein. In natural units (c=1) the formula expresses the identity

$$E = m$$

Check more information about math expressions here.

2.3 Footnotes

This is a footnote example¹.

2.4 Acronyms and Glossary

Given a set of numbers, there are elementary methods to compute its Greatest Common Divisor (GCD), which is abbreviated GCD. This process is similar to that used for the Least Common Multiple (LCM).

The LaTeX typesetting markup language is specially suitable for documents that include Maths. Formulas are rendered properly an easily once one gets used to the commands.

This glossary is powered by the glossy package. Check more about it there.

2.5 Index

In this example, several keywords will be used which are important and deserve to appear in the Index.

Terms like generate and some will also show up. Terms in the index can also be nested.

The index is powered by the in-dexter package. Check more about it there.

 $^{{}^{1}\}mbox{The quick brown fox jumps over the lazy dog.}$

The problem and its challenges

The problem and its challenges.

3.1 Images

Example of inserting an image as displayed text,



or as a figure:



Figure 1: Logo of the University of Minho

Part II Core of the Dissertation

Contribution

Main result(s) and their scientific evidence

4.1 Introduction

4.2 Summary

Applications

Applications of the main result (examples and case studies)

5.1 Introduction

5.2 Summary

Conclusions and future work

Conclusions and future work

6.1 Conclusions

6.2 Future work

Planned Schedule

7.1 Activities

Task	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
Background and SOA	•	•	•							
PDR preparation		•	•	•						
Contribution			•	•	•	•	•	•	•	
Writing up							•	•	•	•

Table 1: Planned Schedule

For more elegant visualisation check some community-made packages like gantty or timeliney.

Bibliography

- [1] M. Goossens, S. Rahtz, and F. Mittelbach, The LaTeX Graphics Companion. Addison-Wesley, 1997.
- [2] B. Kernighan and D. Ritchie, The C Programming Language (ANSI C), 2nd ed. Prentice Hall Software series, 1988.
- [3] R. Bird and P. Wadler, Introduction to Functional Programming. Prentice-Hall, 1988.
- [4] D. Flanagan, Java in a Nutshell, 3rd ed. O'Reilly & Associates, 1999.
- [5] L. Lamport, LaTeX\ A Document Preparation System, \nth5 ed. Addison-Wesley Publishing Company, 1986.

Index

 G

 Generate
 4

 I

 Index
 4

 Nested
 4

 K

 Keywords
 4

 O
 Others

Part III Appendices

Appendix A

Support work

Auxiliary results which are not main-stream.

Appendix B

Details of results

Details of results whose length would compromise readability of main text.

Appendix C

Listings

Should this be the case.

```
factorial :: Integer -> Integer
factorial 0 = 1
factorial n = n * factorial (n-1)
```

Listing 1: Factorial function

Appendix D

Tooling

(Should this be the case)

Anyone using LaTeX should start using Typst.



ace here information about funding, FCT project, etc. in which the wor	к is iraified. Leave empty