UNIVERSIDADE DE LISBOA FACULTY OF SCIENCES



A Very Long and Impressive Thesis Title with a Forced Line Break

Doctorate in Study Program Name Specialization in Specialization Name

John Very Longname Doe

Thesis supervised by:

Mary Doe Adviser Name, John Doe Co-Adviser Name and John Doe other Co-Adviser Name

Document written to earn the degree of Doctor of Philosophy

UNIVERSIDADE DE LISBOA FACULTY OF SCIENCES



A Very Long and Impressive Thesis Title with a Forced Line Break

Doctorate in Study Program Name Specialization in Specialization Name

John Very Longname Doe

Thesis supervised by:

Mary Doe Adviser Name, John Doe Co-Adviser Name and John Doe other Co-Adviser Name

Document written to earn the degree of Doctor of Philosophy

A Very Long and Impressive Thesis Title with a Forced Line Break

Copyright © John Very Longname Doe, Faculty of Sciences, Universidade de Lisboa. The Faculty of Sciences and the Universidade de Lisboa have the right, perpetual and without geographical boundaries, to file and publish this dissertation through printed copies reproduced on paper or on digital form, or by any other means known or that may be invented, and to disseminate through scientific repositories and admit its copying and distribution for non-commercial, educational or research purposes, as long as credit is given to the author and editor.

This document was created with the (pdf/Xe/Lua)LATeX processor and the NOVAthesis template (v7.4.1).

J. M. Lourenço. *The NOVAthesis LATeX Template User's Manual*. NOVA University Lisbon. 2021. URL: https://github.

com/joaomlourenco/novathesis/raw/main/template.pdf.

Dedicatory lorem ipsum.

Acknowledgements

Acknowledgments are personal text and should be a free expression of the author.

However, without any intention of conditioning the form or content of this text, I would like to add that it usually starts with academic thanks (instructors, etc.); then institutional thanks (Research Center, Department, Faculty, University, FCT / MEC scholarships, etc.) and, finally, the personal ones (friends, family, etc.).

But I insist that there are no fixed rules for this text, and it must, above all, express what the author feels.

"You cannot teach a man anything; you can only help him discover it in himself."

— **Galileo**, Somewhere in a book or speach (Astronomer, physicist and engineer)

Abstract

Regardless of the language in which the dissertation is written, usually there are at least two abstracts: one abstract in the same language as the main text, and another abstract in some other language.

The abstracts' order varies with the school. If your school has specific regulations concerning the abstracts' order, the NOVAthesis LaTeX (novothesis) (LaTeX) template will respect them. Otherwise, the default rule in the novothesis template is to have in first place the abstract in the same language as main text, and then the abstract in the other language. For example, if the dissertation is written in Portuguese, the abstracts' order will be first Portuguese and then English, followed by the main text in Portuguese. If the dissertation is written in English, the abstracts' order will be first English and then Portuguese, followed by the main text in English. However, this order can be customized by adding one of the following to the file 5_packages.tex.

```
\ntsetup{abstractorder={<LANG_1>,...,<LANG_N>}}
\ntsetup{abstractorder={<MAIN_LANG>={<LANG_1>,...,<LANG_N>}}}
```

For example, for a main document written in German with abstracts written in German, English and Italian (by this order) use:

```
\ntsetup{abstractorder={de={de,en,it}}}
```

Concerning its contents, the abstracts should not exceed one page and may answer the following questions (it is essential to adapt to the usual practices of your scientific area):

- 1. What is the problem?
- 2. Why is this problem interesting/challenging?
- 3. What is the proposed approach/solution/contribution?
- 4. What results (implications/consequences) from the solution?

 $\textbf{Keywords:} \ \ \text{One keyword} \cdot \text{Another keyword} \cdot \text{Yet another keyword} \cdot \text{One keyword more} \cdot \text{The last keyword}$

Resumo

Independentemente da língua em que a dissertação está escrita, geralmente esta contém pelo menos dois resumos: um resumo na mesma língua do texto principal e outro resumo numa outra língua.

A ordem dos resumos varia de acordo com a escola. Se a sua escola tiver regulamentos específicos sobre a ordem dos resumos, o template (IATEX) novothesis irá respeitá-los. Caso contrário, a regra padrão no template novothesis é ter em primeiro lugar o resumo no mesmo idioma do texto principal e depois o resumo no outro idioma. Por exemplo, se a dissertação for escrita em português, a ordem dos resumos será primeiro o português e depois o inglês, seguido do texto principal em português. Se a dissertação for escrita em inglês, a ordem dos resumos será primeiro em inglês e depois em português, seguida do texto principal em inglês. No entanto, esse pedido pode ser personalizado adicionando um dos seguintes ao arquivo 5_packages.tex.

```
\abstractorder(<MAIN_LANG>):={<LANG_1>,...,<LANG_N>}
```

Por exemplo, para um documento escrito em Alemão com resumos em Alemão, Inglês e Italiano (por esta ordem), pode usar-se:

```
\ntsetup{abstractorder={de={de,en,it}}}
```

Relativamente ao seu conteúdo, os resumos não devem ultrapassar uma página e frequentemente tentam responder às seguintes questões (é imprescindível a adaptação às práticas habituais da sua área científica):

- 1. Qual é o problema?
- 2. Porque é que é um problema interessante/desafiante?
- 3. Qual é a proposta de abordagem/solução?
- 4. Quais são as consequências/resultados da solução proposta?

Palavras-chave: Primeira palavra-chave \cdot Outra palavra-chave \cdot Mais uma palavra-chave \cdot A última palavra-chave

Анотація

This document was automatically translated. Improvement suggestions are very welcome!

Незалежно від того, якою мовою написана дисертація, зазвичай ϵ щонайменше два автореферати: один автореферат ті ϵ ю ж мовою, що й основний текст, а інший - іншою мовою.

Порядок подання авторефератів залежить від навчального закладу. Якщо у вашому навчальному закладі існують особливі правила щодо порядку розташування рефератів, шаблон novothesis (IATEX) буде їх дотримуватися. В іншому випадку, за замовчуванням у шаблоні novothesis на першому місці розміщується анотація мовою такою самою, що й основний текст, а потім анотація мовою іншою мовою. Наприклад, якщо дисертація написана португальською мовою, то порядок анотацій буде таким: спочатку португальська, потім англійська, а потім основний текст португальською. Якщо дисертація написана англійською мовою, то порядок анотацій буде наступним: спочатку англійською, потім португальською, а потім основний текст англійською мовою. Однак цей порядок можна змінити, додавши до файлу 5_packages.tex один з наступних рядків.

Translated with www.DeepL.com/Translator (free version)

```
\ntsetup{abstractorder={<LANG_1>,...,<LANG_N>}}
\ntsetup{abstractorder={<MAIN_LANG>={<LANG_1>,...,<LANG_N>}}}
```

Наприклад, для основного документа, написаного німецькою мовою, з рефератами, написаними німецькою, англійською та італійською мовами (у такому порядку):

```
\ntsetup{abstractorder={de={de,en,it}}}
```

Щодо змісту, то тези не повинні перевищувати однієї сторінки і можуть відповідати на наступні питання (важливо адаптуватися до звичайних практик вашої наукової галузі):

- 1. У чому полягає проблема?
- 2. Чому ця проблема ϵ цікавою або складною?
- 3. Який запропонований підхід / розв'язання / внесок?
- 4. Які результати (наслідки / висновки) отримано завдяки цьому рішенню?

Ключові слова: Одне ключове слово · Інше ключове слово · Ще одне ключове слово · Ще одне ключове слово · Останн ϵ ключове слово

Περίληψη

Αυτή είναι μια μετάφοαση "Google Translate" από την αγγλική έκδοση! Διοφθώσεις και διοφθώσεις είναι ευπρόσδεκτες!

Ανεξάρτητα από τη γλώσσα στην οποία έχει γραφτεί η διατριβή, συνήθως υπάρχουν τουλάχιστον δύο περιλήψεις: μία περίληψη στην ίδια γλώσσα με το κύριο κείμενο και μία περίληψη σε κάποια άλλη γλώσσα.

Η σειφά των πεφιλήψεων διαφέφει ανάλογα με το πανεπιστήμιο. Εάν το πανεπιστήμιό σας έχει συγκεκφιμένους κανονισμούς σχετικά με τη σειφά των πεφιλήψεων, το πφότυπο novothesis (IΔΤΕΧ) θα τους τηφήσει. Διαφοφετικά, ο πφοεπιλεγμένος κανόνας στο πφότυπο novothesis είναι να τοποθετείται πφώτα η πεφίληψη στη γλώσσα του κύριου κειμένου και στη συνέχεια η πεφίληψη στη δεύτερη γλώσσα. Για παφάδειγμα, εάν η διατφιβή είναι γφαμμένη στα Ποφτογαλικά, η σειφά των πεφιλήψεων θα είναι πφώτα στα Ποφτογαλικά και μετά στα Αγγλικά, ακολουθούμενη από το κύφιο κείμενο στα Ποφτογαλικά. Εάν η διατφιβή είναι γφαμμένη στα Αγγλικά, η σειφά θα είναι πφώτα Αγγλικά και μετά Ποφτογαλικά, ακολουθούμενη από το κύφιο κείμενο στα Αγγλικά και μετά Ποφτογαλικά, ακολουθούμενη από το κύφιο κείμενο στα Αγγλικά. Ωστόσο, αυτή η σειφά μποφεί να πφοσαφμοστεί πφοσθέτοντας μία από τις ακόλουθες εντολές στο αφχείο 5_packages.tex.

```
\ntsetup{abstractorder={<LANG_1>,...,<LANG_N>}}
\ntsetup{abstractorder={<MAIN_LANG>={<LANG_1>,...,<LANG_N>}}}
```

Για παράδειγμα, για ένα κύριο έγγραφο γραμμένο στα Γερμανικά με περιλήψεις στα Γερμανικά, Αγγλικά και Ιταλικά (με αυτή τη σειρά) χρησιμοποιήστε:

```
\ntsetup{abstractorder={de={de,en,it}}}
```

Όσον αφορά το περιεχόμενο, οι περιλήψεις δεν πρέπει να υπερβαίνουν μία σελίδα και μπορούν να απαντούν στις ακόλουθες ερωτήσεις (είναι σημαντικό να προσαρμόζονται στις συνήθεις πρακτικές του επιστημονικού σας τομέα):

- 1. Ποιο είναι το πρόβλημα;
- 2. Γιατί είναι ενδιαφέρον/προκλητικό αυτό το πρόβλημα;

- 3. Ποια είναι η προτεινόμενη προσέγγιση/λύση/συμβολή;
- 4. Τι αποτελέσματα (συνέπειες/συνέπειες) από τη λύση;

Λέξεις-κλειδιά: Μία λέξη-κλειδί · Μια άλλη λέξη-κλειδί · Μια άλλη λέξη-κλειδί · Μία λέξη-κλειδί ακόμα · Η τελευταία λέξη-κλειδί

Contents

G	lossa	ry	xxiii
A	crony	vms	xxv
Sy	mbo	ıls	xxvii
1	Intr	roduction	1
	1.1	The NOVAthesis Template	1
		1.1.1 Your Time is Precious	1
		1.1.2 Recognition	2
	1.2	Getting Started	2
		1.2.1 Using Overleaf	2
		1.2.2 Using a Local LATEX Installation Local	4
	1.3	Getting Help	4
		1.3.1 Suggestions, Bugs and Feature Requests	5
	1.4	Donors	5
	1.5	Disclaimer	5
2	NO	VAthesis Template <i>User's Manual</i>	7
	2.1	Introduction	7
	2.2	Quick Start	7
		2.2.1 With a Local LATEX Installation	7
		2.2.2 With a Remote Cloud-based Service	9
	2.3	Folder and Files	9
	2.4	Customizing the <i>novathesis</i> template	11
		2.4.1 Options in 1_novathesis.tex	11
	2.5	How to Write Using LATEX	16
	2.6	Example glossary, acronyms, and symbols	16
3	A S	hort LATEX Tutorial with Examples	17

	3.1	Document Structure	17
	3.2	Dealing with Bibliography	17
	3.3	Inserting Tables	17
	3.4	Importing Images	17
	3.5	Floats, Figures and Captions	17
	3.6	Text Formatting	19
	3.7	Generating PDFs from LATEX	19
		3.7.1 Generating PDFs with pdflatex	19
		3.7.2 Dealing with Images	20
		3.7.3 Dealing with Citations	20
		3.7.4 Footnotes	20
		3.7.5 Tables	20
		3.7.6 Figures	21
	3.8	Equations	21
	3.9	Test for algorithms	21
4		ding Support to a New School (work in progress)	25
Bi	bliog	graphy	27
Aj	ppen	dices	
A	NO [°]	VAthesis covers showcase	29
	A.1	A section here	33
В	App	pendix 2 Lorem Ipsum	37
Aı	nnexe	es	
I	Anr	nex 1 Lorem Ipsum	43
In	dex		45

List of Figures

1.1	The novathesis project web page in GitHub	3
1.2	NOVAthesis template in Overleaf	3
1.3	The NOVAthesis Project page in GitHub	4
3.1	A figure with two sub-figures!	18
3.2	Bitmap image (JPG/PNG)	22
3.3	Vectorial image (PDF)	2 3
3.4	Exemplo de utilização de <i>subbottom</i>	24

List of Tables

2.1	The folders and files (top level)	9
2.2	The configuration files (Config folder)	10
3.1	Test results summary.	20

Glossary

computer

An electronic device which is capable of receiving information (data) in a particular form and of performing a sequence of operations in accordance with a predetermined but variable set of procedural instructions (program) to produce a result in the form of information or signals. This is a test that adds a citation [2] to the glossary! (*p.* 16)

Acronyms

aaa acronym aaa (p. 16)aab acronym aab (p. 16)aba acronym aba (p. 16)

abbrev abbreviation of a longer text (p. 16)

bbb acronym bbb (*p.* 16)

DI Department of Computer Science (p. 1)

FCT NOVA School of Science and Technology (pp. 1, 7)

NOVA NOVA University Lisbon (*p.* 1)

novathesis NOVAthesis IATEX (pp. ix, xi, xiii, xv, xix, 1-5, 7-10)

Symbols

- μ Mu (p. 16)
- π the numerical value of pi (p. 16)
- r the radius of a circle (p. 16)

Introduction



This is the novothesis LATEX template Version 7.4.1 from Template!date2025-10-05.

This work is licensed under the LATEX Project Public License v1.3c. To view a copy of this license, visit the LaTeX project public license.

This first Chapter introduces the novothesis template and how it is organized. In Chapter 2 you can find some specific instructions on how to use this template. Chapter 3 shows some examples and give some hints on how to write your text. Please read these next Chapters carefully.

1.1 The NOVAthesis Template

The novothesis template was born at the Department of Computer Science (DI) of NOVA School of Science and Technology (FCT) of NOVA University Lisbon (NOVA), Portugal. But the user base grew... initially grew to other Departments of FCT-NOVA, then to other Schools of NOVA, and later to other Schools of other Universities. Currently more than 25 Schools are natively supported by the novothesis template. The full list of supported Schools can be found at the Project's GitHub page.

1.1.1 Your Time is Precious

Did you learn how to drive by sitting by the wheel and throwing your car into the road? Most probably you did take your time *learning the rules* and *practicing* first! Likewise, it is not wise to throw yourself at the task of writing a thesis/dissertation in LATEX without seriously considering the following recommendation!

If you are going to spend zillions of hours writing your thesis/dissertation using the novothesis LATEX template (or some other LATEX template), be wise and spend a couple of hours learning how to use it properly by reading its manual. And then, be even wiser, and spend a few more hours learning some LATEX. I am sure that the time you are investing now will pay itself countless times before you submit your thesis/dissertation.

— João Lourenço

1.1.2 Recognition

The novothesis template was born in 1996, and what you see now accumulates to many many hundreds (thousands?!) of working hours, unpaid and stolen from family and friends. This work is available to the community under the LATEX Project Public License v1.3c, which means you are entitled to use it for free and change it at your will. However, if you decide to use this template to write your thesis/dissertation, be fair to the developers and:

- 1. Cite the novothesis manual [11] in a place of your choice (e.g., in the *Acknowledgments*) of your thesis/dissertation with "\cite{novathesis-manual}". If you cite it this way, the correct entry will be added automatically to your bibliography (no need to worry with the necessary BibTeX entry, as it will be added automatically);
- 2. Go to the project web page in GitHub and give the project a star (marked with a red ellipse at the top-right in Figure 1.1); and
- 3. Make a donation by visiting the novothesis project page and clicking in the button marked with a green ellipse at the top-center in Figure 1.1). Alternatively, just click **HERE** and your browser will be directed to the right page.

1.2 Getting Started

The template provides an *easy to use* setting for you to write your thesis/dissertation in LATEX:

- Select your school;
- Fill your thesis metadata (title, research field, etc) in the file "template.tex";
- Create your thesis/dissertation contents using the files in folder "Chapters"; and
- Process using you favorite LATEX processor (pdfLATEX, XALATEX or LuaLATEX).

1.2.1 Using Overleaf

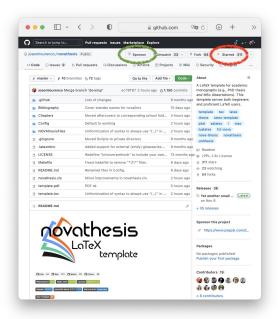


Figure 1.1: The novothesis project web page in GitHub.

Overleaf is a collaborative cloud-based LaTeX editor used for writing, editing and publishing scientific documents. Like "Google Docs", for LATeX users. You can edit and compile your LATeX source on the cloud, without installing software in your own computer, and, much like *Google Docs*, you can share your document with others users and everybody can edit the same file at the same time (this may be dangerous).

If you do not have an account in Overleaf, you must create one first.

Once you have an account, please access the **novothesis** template in Overleaf and select the green button *Open as Template* (see Figure 1.2).



Figure 1.2: NOVAthesis template in Overleaf.

Please notice that the version currently available in Overleaf (v7.1.18) is slightly outdated (current version is v7.4.1). A new version (v7.1.29) will be submitted to Overleaf soon. Until then, please:

- 1. Download the latest version from the GitHub repository as a Zip file.
- 2. Login to your favorite LaTeX cloud service. I recommend Overleaf but there are alternatives (these instructions apply to Overleaf and you'll have to adapt for other providers).
- 3. In the menu select: New project \rightarrow Upload project.
- 4. Upload the zip file.

- 5. Select "template.tex" as the main file.
- 6. Let Overleaf compile the document.

Notice that you need a (student) subscription to compile the **novothesis** template in Overleaf, otherwise your compilation will always time out.

1.2.2 Using a Local Lation Local

First of all, start by installing IATEX in your computer. There are two main distributions, MikTEX and TEXLive, and both of them are available for the 3 most popular Operating Systems: Linux, macOS and Windows.

Be aware that a full installation of MikT_EX or T_EXLive will take near 5 GB of hard disk space. So, think twice before installing the full distribution. See the novothesis Wiki for the list of packages required to compile the template.



Figure 1.3: The NOVAthesis Project page in GitHub.

Once you have LATEX up and running, remember to install a good LATEX text editor. I recommend you to take a look at this post in the tex.stackexchange.com site. If you want a quick and dirty recommendation, try TeXStudio.

Now, you must access the **novothesis** repository in GitHub, select the green button *Code* and then *download* (or *clone*) the template. You will always get the latest version of the template (currently v7.4.1 from 2025-10-05).

1.3 Getting Help

No! You don't have to use this template to write your thesis. You don't even have to use LATEX. However, writing a thesis is serious stuff, and which tool you shall use to write it is not a decision to make lighthearted.

IATEX is hard enough by itself. This template aims at making your life easier, but not easy. If you choose to use this template to write your thesis, you are very welcome. However, don't expect me to provide you help with IATEX. Look for help with your friends (you have some friends, don't you?), or search the web, or try even to read some book(s) on IATEX. In the end you will certainly find the experience rewarding.

When you come to the point of "How do I do this with the novathesis template?", remember...

- 1. To check the **novothesis** wiki and have some hope! :D
- 2. Google is your best friend.

- 3. Search the GitHub Discussions page for a question related to yours. *If and only if* you don't find one, then post your own question in English please!
- 4. Search the NOVAtheis Facebook group for a question related to yours. *If and only if* you don't find one, then post your own question in either Portuguese or English, at your preference.

When you post your own question, remember to **always** state the **novothesis** version number you are using and referring to.

Please do not attempt to contact me directly (email, Messenger, etc)...

I WILL NOT REPLY!

1.3.1 Suggestions, Bugs and Feature Requests

Help: If you just need some help, see above Section 1.3.

Suggestion: Do you have a suggestion/recommendation? Please add it to the wiki and help other users!

Bug: Did you find a bug? Please open an issue. Thanks!

New Feature: Would you like to request a new feature (or support of a new School)? Please open an issue. Thanks!

1.4 Donors

The list of *Donnors* is available in the **novothesis** Project page.

1.5 Disclaimer

Although the novothesis template is endorsed by some Schools (e.g., linked from FCT-NOVA web site), the novothesis template this not an official template for any School.

The novothesis template exists to make your life easier and we do our best to make it compliant to the supported (+25) Schools' regulations but, in the end of the line, you and only you are accountable for both the look and the contents of the document you submit as your thesis/dissertation.

NOVAthesis Template User's Manual

This manual is outdated and must be revised!

2.1 Introduction

This Chapter describes how to use the NOVAthesis LATEX (novothesis) template. It is assumed that you have a working of LATEX, either local (in your own computer) or remote (in Overleaf), and that you were able to generate a PDF for the default configuration of the template: a PhD thesis for NOVA School of Science and Technology (FCT).

2.2 Quick Start

2.2.1 With a Local LATEX Installation

Follow these steps to get started with a local IATEX installation:

- 1. Download LATEX. There are two major LATEX distributions MikTEX and TEXLive that share lots of similarity, and LATEX documents are portable between them. This means that, for most users, both systems are equally usable.
 - **TEX-Live** is maintained by (La)TEX developers and is certainly the best distribution you may install in your computer: However, the default distribution will take more than 5 GB on your hard disk... so, if you are not short on disk space, install TEXLive!
 - **MikT_EX** will, by default, install only a minimal set of packages. The extra/additional packages will be installed on the fly. Installing packages on the fly is useful if disk space is limited, but has its own caveats in the longer term. Definitely choose MikT_EX if you're short on disk space.

Which one to download? There are pros and cons for both distributions so it is essentially a question of where does your heart fall first! Mine falls to TEXLive, but yours can fall elsewhere! :D

- 2. Install LATEX. Installation of LATEX is as hard as installing any other software. Just do your best and you will certainly succeed.
- 3. Update your LATEX installation using the *TEXLiveUtility* program of the MikTEX console.
- 4. Download the **novothesis** template by either:
 - Cloning the GitHub repository with

or

```
git clone --depth=1 https://github.com/joaomlourenco/novathesis.git
```

- Downloading the latest version from the GitHub repository as a Zip file.
- 5. Download additional School specific files if applicable:

```
Universidade do Minho (UMINHO) download the required NewsGotT font files
    from https://github.com/joaomlourenco/novathesis-extras/raw/main/Fonts/
    NewsGotT.zip
    then unzip the file and copy the 3 font files
        "n015002t.ttf", "n015003t.ttf", and "n015006t.ttf"
    to the folder
        "NOVAthesisFiles/FontStyles/Fonts".
```

Escola Superior de Enfermagem do Porto (ESEP) download the required Calibri font files from https://github.com/joaomlourenco/novathesis-extras/raw/main/Fonts/Calibri.zip then unzip the file and copy the 4 font files

"Calibri.ttf", "Calibrib.ttf", "Calibrii.ttf", and "Calibriz.ttf" to the folder

- NOVAthesisFiles/FontStyles/Fonts.
- 6. Compile the document with you favorite LaTeX processor (pdfLaTeX, XeLaTeX or LuaLaTeX).
 - The main file is named "template.tex", but you are free to rename it as you please.
 - Either load the main file in your favorite LaTeX text editor and press the appropriate (magic) button to generate a PDF file, or open a terminal and compile it with "latexmk -pdf template". If you use a LATeX text editor, please notice that the novothesis template uses "biber" and not "bibtex" to process the bibliography, which means that most probably you have to open the Editor

Preferences and somewhere (depending on the Editor you are using) change "bibtex" to "biber".

- Notice that, due to the external font sets used, pdflATeX will not work for both **UMINHO** and **ESEP**, and you have to use either XHATeX ("latexmk -pdfxe template") or LualATeX("latexmk -pdflua template").
- 7. Edit the files in the "Config" folder. See Table 2.2.
- 8. Recompile de document.
- 9. And you're done with a beautifully formatted thesis/dissertation! :D

2.2.2 With a Remote Cloud-based Service

Follow these steps to get started with a remote LATEX installation:

- Download the latest version from the GitHub repository as a Zip file.
- Login to your favorite LaTeX cloud service. I recommend Overleaf but there are alternatives. These instructions apply to Overleaf and you'll have to adapt for other providers.
- Select "template.tex" as the main file.
- Follow from Step 5 above in Section 2.2.1 (With a Local LATEX Installation).

2.3 Folder and Files

The novothesis template is organized into many files and folders. At the main level it includes the following files and folders listed in Table 2.1.

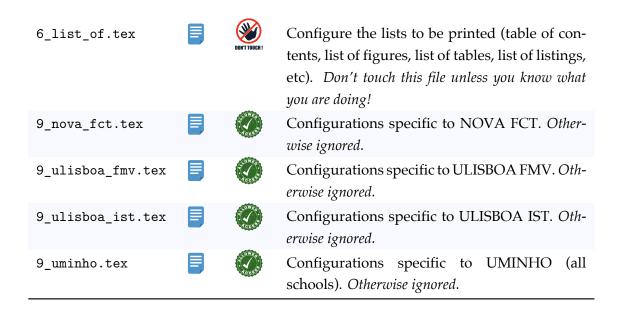
Table 2.1: The folders and files (top level).

Name	Туре	Access	Contents
template.tex		DON'T TOUCH!	The main template file. You need to <i>compile</i> this file with one of pdfIATEX, XHATEX, or LuaIATEX to obtain the PDF file ("template.pdf"). I recommend the usage of the "latexmk" command or, if you use a UN*X-like OS, you may use "make" (and the ggiven "Makefile").
Config		(Control	Configuration files. Please customize your template by changing the files in this folder!

Chapters		Examples of document contents, including Chapters, Appendices, Annexes, Abstracts, Glossaries, Lists of Symbols, etc. Replace them with your own.
Bibliography		Where all your bibliography files should be located. You may have has many bibliography files as you want.
template.pdf		A possible result of applying pdfLATeX to the "template.tex" file. The look and feel of the document will depend on the parametrization/configuration (e.g., School) of this template.
novathesis.cls	DON'T TOUCH!	The main class file.
NOVAthesisFiles	BONT TOUCH!	Additional files for the novothesis template. This is where all the juice is so, unless you are a TEXmagician, don't mess up with the files and folders inside this folder.

Table 2.2: The configuration files (Config folder).

Name	Туре	Access	Contents
O_memoir.tex		DONT TOUCH!	Options specific for the memoir class. Don't touch this file unless you know what you are doing!
1_novathesis.tex			The main configuration file for the template, e.g., select the document type, the school, the used languages, etc.
2_biblatex.tex			Select how your citations and bibliographic references will be printed. The default is numbers inside square brackets, e.g. [11], but you can change it to other formats, such as author-year, e.g., Lourenço (2021).
3_cover.tex			Configure cover contents (e.g., author's name, thesis/dissertation title, author, advisers, committee, etc)
4_files.tex		Tools of	Select which files shall be included in the document as chapters, appendices, annexes, etc
5_packages.tex			User's customization, such as loading additional packages and declare user defined commands.



2.4 Customizing the novathesis template

The *novathesis* template can be customized by editing the files in the Config folder.

2.4.1 Options in 1_novathesis.tex

2.4.1.1 Most Relevant Options (1_novathesis.tex)

doctype=OPT phd, phdprop, phdplan, msc, mscplan, bsc, plain	The type of the document. $phd \rightarrow PhD$ thesis (\Leftarrow default). $phdprop \rightarrow PhD$ thesis proposal (for FCT-NOVA). $phdplan \rightarrow PhD$ thesis plan. $msc \rightarrow MSc$ thesis. $mscplan \rightarrow MSc$ thesis plan. $bsc \rightarrow BSc$ report. $plain \rightarrow Other$ report.
--	---

school=OPT

nova/fct, nova/fcsh, nova/ims,
nova/ims/mcsig, nova/ims/mgt,
nova/ensp, nova/itqb/green,
nova/itqb/gray, ulisboa/ist, ulisboa/fc,
ulisboa/finv, uminho/eaad, uminho/ec,
uminho/ed, uminho/eeg, uminho/eeng,
uminho/elach, uminho/emed,
uminho/epsi, uminho/ese, uminho/i3bs,
uminho/ics, uminho/ie, iscteiul/eta,
ips/ests, ipl/isel, ipl/isel/meb, ulht/deisi,
ulht/mge, other/esep

Selection of the university and of the school (and degree variant).

 \Rightarrow Default: school=nova/fct

This option changes the typesetting of the de document to some specific School formating and layout, like covers, margins, fonts, paragraph spacing and indentation, etc.

ulht/mge, other/esep	
docstatus=OPT draft, provisional, final	The current status of the document. working \rightarrow Working version (\Leftarrow default). provisional \rightarrow Version for submission. final \rightarrow Final version.
lang=OPT en, pt, de, es, fr, gr, it	The main language for the document. en \rightarrow Enlgish (\Leftarrow default). pt \rightarrow Portuguese. de \rightarrow German. es \rightarrow Spanish. fr \rightarrow French. gr \rightarrow Greek. it \rightarrow Italian.
media=OPT screen, paper	The target media for the PDF. screen \rightarrow No empty/white pages (\Leftarrow default). paper \rightarrow Empty/white pages are added when necessary
print/webography=OPT User defined title	Generate a separate bibliography for @online references. ⇒ Default: print/webography=undefined If undefined, the @online references are list in the main bibliography. If defined, the @online references will be printed in a separate bibliography titled as given in the option.
color/links=OPT	The color for the hyperlinks (URLs, cross refer-

"svgname" color set.

 \Rightarrow Default: color/links=DarkBlue

The valid color names as listed in "xcolor" manual, the

color/gls=OPT	The color for the glossary managed hyperlinks
Color name	(glossary, symbols, etc).
	\Rightarrow Default: color/gls=Black
	The valid color names as listed in "xcolor" manual, the
	"svgname" color set.
print/index=OPT	Print the (words) index at the end of the docu-
true,	ment.
$false (\Leftarrow default)$	Print the index (in Portuguese <i>Índice Remissivo</i>).

2.4.1.2 Less Relevant Options (1_novathesis.tex)

abstractorder=OPT	Forces the abstracts languages and order for
$L_0 = \{L_1, L_2, L_n\}$	documents in language L_0 .
	\Rightarrow Default: abstractorder={en={en,pt}} for english
	\Rightarrow Default: abstractorder={L={L,en}} for lang L
	L_i is a two-letters language code from the set of valid
	language codes, following ISO 3166-1 (alfa-2).
lang/extra=OPT	List of additional languages are used in the doc-
$\{L_1, L_2, , L_n\}$	ument besides the main laguage and those used
	in the abstracts (above).
	\Rightarrow Default: lang/extra={}
	L_i is a two-letters language code from the set of valid
	language codes, following ISO 3166-1 (alfa-2).
gnumberlist=OPT	Shall the glossary entries list the page numbers
$true$, (\Leftarrow default)	where those entries are used? (Like a reverse in-
false	dex!)
numberallpages=OPT	Shall all the pages (except cover) be numbered?
true,	
$false (\Leftarrow default)$	
tocintoc=OPT	Shall table of contents be listed in the table of
true,	contents?
false (← default)	
tocintoc=OPT	Shall a second cover page be forced?
true,	If the contents for the second page are not defined, the
$false \ (\Leftarrow default)$	second cover will be a replica of the first cover.

print/committee=OPT true, false	Shall the evaluation committee be printed? ⇒ Default: print/committee=true if docstatus=final ⇒ Default: print/committee=false otherwise			
$print/frontmatter=OPT$ $true, (\Leftarrow default)$ $false$	Shall the front matter be printed? Set to false to generate a PDF with only the cover and the book chapters.			
$print/statement=OPT$ $true$, $false (\Leftarrow default)$	Shall the honor/originality statement be printed?			
print/copyright=OPT true, (← default) false	Shall the copyright message be printed?			
print/timestamp=OPT true, false	Shall a timestamp (with the PDF generation date/time) be printed in the cover? ⇒ Default: print/timestamp=true if docstatus=working ⇒ Default: print/timestamp=false otherwise			
$style/url=OPT$ $default$, (\Leftarrow default) $same$	Use the same (main) font in URLs?			
style/font=OPT arial, bookman, calibri, erewhon, kieranhealy, kpfonts, libertine, newpx, newsgott, scholax	Which font set to use in the document? arial → Use 'arial' font. Requires XelATEX or LualATEX bookman → Use 'bookman' font. calibri → Use 'calibri' font. Requires XelATEX or LualATE erewhon → Use 'erewhon' font. kieranhealy → Use 'kieranhealy' font. kpfonts → Use 'palatino' font. libertine → Use 'libertine' font. newpx → Use 'palatino' font. (← default) newsgott → Use 'newsgott' font. Requires XelATEX or Lualscholax → Use 'scholax' font.			

style/chapter=OPT	Which chapter style to use in the document?					
See list on the side!	Besides the standard memoir chapter styles					
	(default, section, article, reparticle, hangnum,					
	companion, demo, bianchi, bringhurst, brotherton,					
	chappell, culver, dash, demodemoell, ger,					
	lyhne, madsen, pedersen, southall, thatcher,					
	veelo, verville, crosshead, dowding, komalike,					
	ntglike, tandh, wilsondob), the customized					
	list of chapter styles below is also available.					
	bar \rightarrow Use 'bar' chapter style. (\Leftarrow default)					
	bar -compact \rightarrow Use 'bar-compact' chapter style.					
	bluebox \rightarrow Use 'bluebox' chapter style.					
	compact \rightarrow Use 'compact' chapter style.					
	elegant \rightarrow Use 'elegant' chapter style.					
	fmv \rightarrow Use 'fmv' chapter style.					
	hansen → Use 'hansen' chapter style.					
	ist \rightarrow Use 'ist' chapter style. ist2 \rightarrow Use 'ist2' chapter style.					
	pedersen \rightarrow Use 'pedersen' chapter style.					
lang/cover=OPT						
· ·	The main language for the cover.					
en, pt, de, es, fr, gr, it	\Rightarrow Default: The same as the main language.					
lang/copyright=OPT	The main language for the copyright message.					
en, pt, de, es, fr, gr, it	\Rightarrow Default: The same as the main language.					
spine/layout=OPT	Print the "book spine" at the end of the docu-					
no, full, trim	ment?					
	\Rightarrow Default: `trim' if docstatus=final					
	\Rightarrow Default: `no' otherwise					
	no \rightarrow do not print the book spine.					
	full \rightarrow print the book spine in a full page.					
	$\operatorname{trim} \to \operatorname{print}$ and trim the page to the width of the book spinor.					
spine/width=OPT	Force the width of the "book spine".					
IATEX dimension	\Rightarrow Default: The "natural width".					
	The defailt width for the book spine will be the width					
	of the number of pages of the document if printed in					
	standard paper ($80g/m^2$).					

debug=OPT

cover, spine

Activate debug mode for cover and/or book spine.

⇒ Default: debug={}

2.5 How to Write Using LATEX

Please have a look at Chapter 3, where you may find many examples of LATEX constructs, such as Sectioning, inserting Figures and Tables, writing Equations, Theorems and algorithms, exhibit code listings, etc.

2.6 Example glossary, acronyms, and symbols

A Short LATEX Tutorial with Examples

This Chapter aims at exemplifying how to do common stuff with IATEX. We also show some stuff which is not that common! ;)

Please, use these examples as a starting point, but you should always consider using the *Big Oracle* (aka, Google, your best friend) to search for additional information or alternative ways for achieving similar results.

3.1 Document Structure

3.2 Dealing with Bibliography

Citing something online [4, 7, 9].

3.3 Inserting Tables

3.4 Importing Images

3.5 Floats, Figures and Captions

Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetuer id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.

Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi. Morbi ac orci et nisl hendrerit mollis. Suspendisse ut massa. Cras nec ante. Pellentesque a nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorper vestibulum turpis. Pellentesque cursus luctus mauris.

Nulla malesuada porttitor diam. Donec felis erat, congue non, volutpat at, tincidunt tristique, libero. Vivamus viverra fermentum felis. Donec nonummy pellentesque ante. Phasellus adipiscing semper elit. Proin fermentum massa ac quam. Sed diam turpis, molestie vitae, placerat a, molestie nec, leo. Maecenas lacinia. Nam ipsum ligula, eleifend at, accumsan nec, suscipit a, ipsum. Morbi blandit ligula feugiat magna. Nunc eleifend consequat lorem. Sed lacinia nulla vitae enim. Pellentesque tincidunt purus vel magna. Integer non enim. Praesent euismod nunc eu purus. Donec bibendum quam in tellus. Nullam cursus pulvinar lectus. Donec et mi. Nam vulputate metus eu enim. Vestibulum pellentesque felis eu massa.

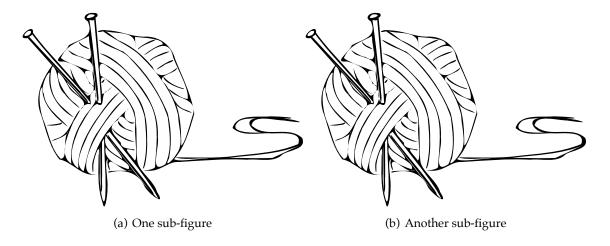


Figure 3.1: A figure with two sub-figures!

And this is a small text that references the Figure 3.1 and its Subfigures 3.1(a) and 3.1(b).

Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetuer id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.

Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi. Morbi ac orci et nisl hendrerit mollis. Suspendisse ut massa. Cras nec ante. Pellentesque a nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorper vestibulum turpis. Pellentesque cursus luctus mauris.

Nulla malesuada porttitor diam. Donec felis erat, congue non, volutpat at, tincidunt tristique, libero. Vivamus viverra fermentum felis. Donec nonummy pellentesque ante. Phasellus adipiscing semper elit. Proin fermentum massa ac quam. Sed diam turpis, molestie vitae, placerat a, molestie nec, leo. Maecenas lacinia. Nam ipsum ligula, eleifend at, accumsan nec, suscipit a, ipsum. Morbi blandit ligula feugiat magna. Nunc eleifend consequat lorem. Sed lacinia nulla vitae enim. Pellentesque tincidunt purus vel magna. Integer non enim. Praesent euismod nunc eu purus. Donec bibendum quam in tellus. Nullam cursus pulvinar lectus. Donec et mi. Nam vulputate metus eu enim. Vestibulum pellentesque felis eu massa.

3.6 Text Formatting

3.7 Generating PDFs from LATEX

3.7.1 Generating PDFs with pdflatex

You may create PDF files either by using latex to generate a DVI file, and then use one of the many DVI-2-PDF converters, such as dvipdfm.

Alternatively, you may use pdflatex, which will immediately generate a PDF with no intermediate DVI or PS files. In some systems, such as Apple, PDF is already the default format for LATEX. I strongly recommend you to use this approach, unless you have a very good argument to go for latex + dvipdfm.

A typical pass for a document with figures, cross-references and a bibliography would be:

```
$ pdflatex template
$ bibtex template
$ pdflatex template
$ pdflatex template
```

You will notice that there is a new PDF file in the working directory called template.pdf. Simple:)

Please note that, to be sure all table of contents, cross-references and bibliographic citations are up-to-date, you must run latex once, then bibtex, and then latex twice.

3.7.2 Dealing with Images

You may process the same source files with both latex or pdflatex. But, if your text include images, you must be careful. latex and pdflatex accept images in different (exclusive) formats. For latex you may use EPS ou PS figures. For pdflatex you may use JPG, PNG or PDF figures. I strongly recommend you to use PDF figures in vectorial format (do not use bitmap images unless you have no other choice).

3.7.3 **Dealing with Citations**

Para fazer citações, deverá usar-se a chave da referência no ficheiro BibTeX. Se for uma única referência [2], usar um "~" para ligar o \cite{...} à palavra que o precede (...referência~\cite{Art Caso queira fazer múltiplas citações [12, 13, 6], deverá agrupá-las dentro de um úinico \cite{...}.

Note que o ficheiro de bibliografia pode ter tantas entradas quantas quiser. Apenas aquelas cuja chave seja referenciada no texto é que serão incluidas na listagem de bibliografia.

3.7.4 Footnotes

Footnotes¹ will be numbered and shown in the bottom of the page.

3.7.5 **Tables**

The Table 3.1 illustrates some important concepts associated with table construction:

- i) Do not use vertical lines;
- ii) The caption should be above the table;
- iii) Use the macros \toprule, \midrule and \bottomrule to make the top, inner and bottom horizontal lines, respectively.

Test	Anomalies	Warnings	Correct	Categories	Missed
Connection [3]	2	2	1	С	1
Coordinates'03 [1]	1	4	1	2B, 1C	0
Local Variable [1]	1	2	1	A	0
NASA [1]	1	1	1	_	0
Coordinates'04 [2]	1	4	1	3C	0

0

0

1

1

Table 3.1: Test results summary.

1

0

Buffer [2]

Double-Check [2]

StringBuffer [8]

Account [14]

2

0

1

0

0

0

1

2A, 1B, 2C, 2D

1A, 1B

¹This is a simple footnote.

Jigsaw [14]	1	2	1	С	0
Over-reporting [14]	0	2	0	1A, 1C	0
Under-reporting [14]	1	1	1	_	0
Allocate Vector [10]	1	2	1	C	0
Knight Moves [3]	1	3	1	2 <i>B</i>	0
Total	12	33	10	5A, 6B, 10C, 2D	2

3.7.6 Figures

The images inserted in the document must be of good quality, preferably in vector format (vector PDF) and not in *bitmap* (PNG, JPG, etc.). *bitmap* images (Figure 3.2) do not scale well and have negative effects on the quality of your document. On the other hand, *vector* images Figure 3.3 scale as much as necessary without degrading the quality of the image.

You should only use *screenshots* for your plots, charts, etc, if you absolutely have no other alternative. Instead of generating a *screenshot*, try using a virtual PDF printer and printing to a PDF file. As a general rule, you will get a vector PDF. Even if your PDF contains images, they will always be of higher or equal quality than what you would get with a *screenshot*.

To combine several figures into a single one... You can then reference the set as Figure 3.4 or the sub-figures separately as 3.7.6 and 3.7.6.

3.8 Equations

LaTeX is a powerful tool for writing in a mathematical style. It allows you to insert formulas into the text, such as this: $ax^2 + bx + c = 0$. It also allows formulas to be highlighted on a separate line and centered on the page.

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

or numbererd

$$e = mc^2 (3.1)$$

which can latter be referenced as equation 3.1

3.9 Test for algorithms

Uncomment the algorithms source below and add the following to file "5_packages.tex"

\usepackage{algorithm2e}
\RestyleAlgo{ruled}

and uncomment

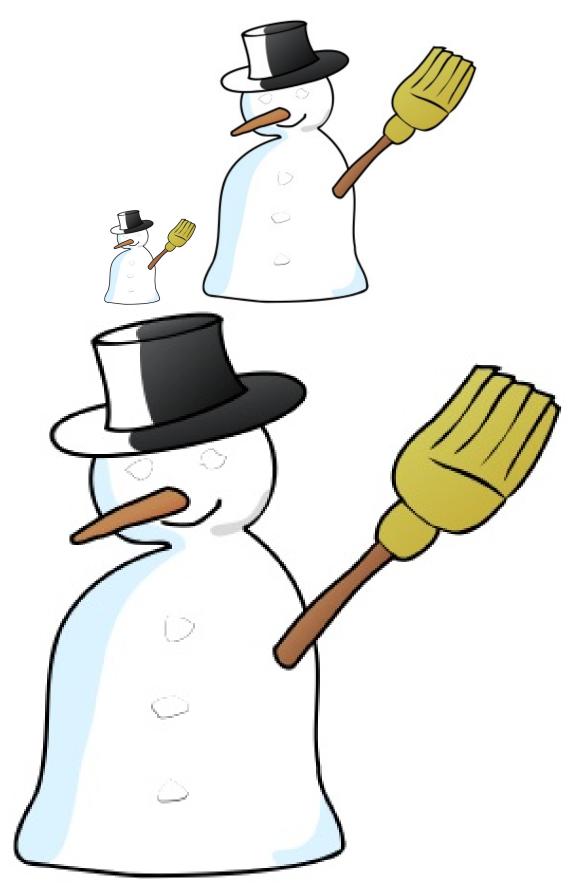


Figure 3.2: Bitmap image (JPG/PNG)



Figure 3.3: Vectorial image (PDF)

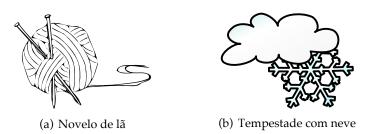


Figure 3.4: Exemplo de utilização de *subbottom*

\ntaddlistof{listofalgorithms}

in file "8_list_og.tex".

Adding Support to a New School (work in progress)

My advice to customize the **novothesis** template to another School/University/Department/Degree is to browse the existing supported degrees to find one that is *close enough*, and depart from there!

```
--- nova
| +-- Images
| +-- fct
| | \-- Images
| +-- ims
| | \-- Images
| ...
|
\-- uminho
| +-- Images
| +-- ea
| \-- Images
| --- ec
| \-- Images
...
```

The directory uminho contains the customization for all Schools of Universidade do Minho. This university is an example of the case where the regulations are defined at University level and all the schools apply the same thesis layout and organization. So, the all the customization is done in the file uminho/uminho-defaults.ldf, except the definition of the name and logo of each individual school.

As another example, the directory nova contains the customization for all Schools from NOVA University Lisbon. This university grants a lot of freedom in the definition of the thesis layouts. In some cases, they are defined at the School level (e.g., NOVA FCT), while is some other cases they are defined separately for each degree (e.g., NOVA IMS).

- 1. Try all the already supported schools and check which one is closer to your needs;
 - a) Edit Config/1_novathesis.tex and near line 28 uncomment the line with key \ntsetup{school=<SOMETHING>};
 - b) For each school supported (see the comment), replace <SOMETHING> with the school name, e.g., make it \ntsetup{school=ulisboa/fmv}
 - c) Recompile and check the document. Particularly, check the cover layout, the front-page (second cover) layout, the front-matter contents, the bibliography style;
 - d) Repeat for the next school, until you find one close enough.

2.

Bibliography

- [1] C. Artho, K. Havelund, and A. Biere. *High-Level Data Races*. 2003. url: citeseer. ist.psu.edu/artho03highlevel.html (cit. on p. 20).
- [2] C. Artho, K. Havelund, and A. Biere. "Using Block-Local Atomicity to Detect Stale-Value Concurrency Errors". In: *ATVA*. Ed. by F. Wang. Vol. 3299. Lecture Notes in Computer Science. Springer, 2004, pp. 150–164. isbn: 3-540-23610-4 (cit. on pp. xxiii, 20).
- [3] N. E. Beckman, K. Bierhoff, and J. Aldrich. "Verifying Correct Usage of Atomic Blocks and Typestate". In: *SIGPLAN Not.* 43.10 (2008), pp. 227–244. issn: 0362-1340. doi: http://doi.acm.org/10.1145/1449955.1449783 (cit. on pp. 20, 21).
- [4] W. contributors. Shunting-yard algorithm Wikipedia, The Free Encyclopedia. 2017-03. url: https://en.wikipedia.org/w/index.php?title=Shunting-yard_algorithm&oldid=817901155 (visited on 2018-03-01) (cit. on p. 17).
- [5] R. J. Dias et al. "Verification of Snapshot Isolation in Transactional Memory Java Programs". In: *Proceedings of the 26th European conference on Object-oriented programming (ECOOP'12)*. Springer-Verlag, 2012-06 (cit. on p. 37).
- [6] J. Eliot and B. Moss. *Nested transactions: an approach to reliable distributed computing*. Cambridge, MA, USA: Massachusetts Institute of Technology, 1985. isbn: 0-262-13200-1 (cit. on p. 20).
- [7] Fast Lexical Analyser. url: https://github.com/westes/flex (visited on 2020-07-26) (cit. on p. 17).
- [8] C. Flanagan and S. N. Freund. "Atomizer: a dynamic atomicity checker for multi-threaded programs". In: *POPL '04: Proceedings of the 31st ACM SIGPLAN-SIGACT symposium on Principles of programming languages*. Venice, Italy: ACM, 2004, pp. 256–267. isbn: 1-58113-729-X. doi: http://doi.acm.org/10.1145/964001.964023 (cit. on p. 20).
- [9] Gnu Bison. url: https://www.gnu.org/software/bison/(visited on 2020-07-26) (cit. on p. 17).

- [10] *IBM's Concurrency Testing Repository* (cit. on p. 21).
- [11] J. M. Lourenço. *The NOVAthesis LATEX Template User's Manual*. NOVA University Lisbon. 2021. url: https://github.com/joaomlourenco/novathesis/raw/main/template.pdf (cit. on pp. 2, 10).
- [12] N. Shavit and D. Touitou. "Software transactional memory". In: *PODC '95: Proceedings of the fourteenth annual ACM symposium on Principles of distributed computing*. Ottowa, Ontario, Canada: ACM, 1995, pp. 204–213. isbn: 0-89791-710-3. doi: http://doi.acm.org/10.1145/224964.224987 (cit. on p. 20).
- [13] A. Silberschatz, H. F. Korth, and S. Sudarshan. *Database System Concepts*. Fifth. McGraw-Hill, 2006. isbn: 007-124476-X (cit. on p. 20).
- [14] C. von Praun and T. R. Gross. "Static Detection of Atomicity Violations in Object-Oriented Programs". In: *Journal of Object Technology*. 2003, p. 2004 (cit. on pp. 20, 21).

A

NOVAthesis covers showcase

This Appendix shows examples of covers for some of the supported Schools. When the Schools have very similar covers (e.g., all the schools from Universidade do Minho), just one cover is shown. If the covers for MSc dissertations and PhD thesis are considerable different (e.g., for FCT-NOVA and UMinho), then both are shown.

Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetuer id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.

Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi. Morbi ac orci et nisl hendrerit mollis. Suspendisse ut massa. Cras nec ante. Pellentesque a nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorper vestibulum turpis. Pellentesque cursus luctus mauris.

Nulla malesuada porttitor diam. Donec felis erat, congue non, volutpat at, tincidunt tristique, libero. Vivamus viverra fermentum felis. Donec nonummy pellentesque ante. Phasellus adipiscing semper elit. Proin fermentum massa ac quam. Sed diam turpis, molestie vitae, placerat a, molestie nec, leo. Maecenas lacinia. Nam ipsum ligula, eleifend at, accumsan nec, suscipit a, ipsum. Morbi blandit ligula feugiat magna. Nunc eleifend consequat lorem. Sed lacinia nulla vitae enim. Pellentesque tincidunt purus vel magna. Integer non enim. Praesent euismod nunc eu purus. Donec bibendum quam in tellus. Nullam cursus pulvinar lectus. Donec et mi. Nam vulputate metus eu enim. Vestibulum

pellentesque felis eu massa.

Quisque ullamcorper placerat ipsum. Cras nibh. Morbi vel justo vitae lacus tincidunt ultrices. Lorem ipsum dolor sit amet, consectetuer adipiscing elit. In hac habitasse platea dictumst. Integer tempus convallis augue. Etiam facilisis. Nunc elementum fermentum wisi. Aenean placerat. Ut imperdiet, enim sed gravida sollicitudin, felis odio placerat quam, ac pulvinar elit purus eget enim. Nunc vitae tortor. Proin tempus nibh sit amet nisl. Vivamus quis tortor vitae risus porta vehicula.

Fusce mauris. Vestibulum luctus nibh at lectus. Sed bibendum, nulla a faucibus semper, leo velit ultricies tellus, ac venenatis arcu wisi vel nisl. Vestibulum diam. Aliquam pellentesque, augue quis sagittis posuere, turpis lacus congue quam, in hendrerit risus eros eget felis. Maecenas eget erat in sapien mattis porttitor. Vestibulum porttitor. Nulla facilisi. Sed a turpis eu lacus commodo facilisis. Morbi fringilla, wisi in dignissim interdum, justo lectus sagittis dui, et vehicula libero dui cursus dui. Mauris tempor ligula sed lacus. Duis cursus enim ut augue. Cras ac magna. Cras nulla. Nulla egestas. Curabitur a leo. Quisque egestas wisi eget nunc. Nam feugiat lacus vel est. Curabitur consectetuer.

Suspendisse vel felis. Ut lorem lorem, interdum eu, tincidunt sit amet, laoreet vitae, arcu. Aenean faucibus pede eu ante. Praesent enim elit, rutrum at, molestie non, nonummy vel, nisl. Ut lectus eros, malesuada sit amet, fermentum eu, sodales cursus, magna. Donec eu purus. Quisque vehicula, urna sed ultricies auctor, pede lorem egestas dui, et convallis elit erat sed nulla. Donec luctus. Curabitur et nunc. Aliquam dolor odio, commodo pretium, ultricies non, pharetra in, velit. Integer arcu est, nonummy in, fermentum faucibus, egestas vel, odio.

Sed commodo posuere pede. Mauris ut est. Ut quis purus. Sed ac odio. Sed vehicula hendrerit sem. Duis non odio. Morbi ut dui. Sed accumsan risus eget odio. In hac habitasse platea dictumst. Pellentesque non elit. Fusce sed justo eu urna porta tincidunt. Mauris felis odio, sollicitudin sed, volutpat a, ornare ac, erat. Morbi quis dolor. Donec pellentesque, erat ac sagittis semper, nunc dui lobortis purus, quis congue purus metus ultricies tellus. Proin et quam. Class aptent taciti sociosqu ad litora torquent per conubia nostra, per inceptos hymenaeos. Praesent sapien turpis, fermentum vel, eleifend faucibus, vehicula eu, lacus.

Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Donec odio elit, dictum in, hendrerit sit amet, egestas sed, leo. Praesent feugiat sapien aliquet odio. Integer vitae justo. Aliquam vestibulum fringilla lorem. Sed neque lectus, consectetuer at, consectetuer sed, eleifend ac, lectus. Nulla facilisi. Pellentesque eget lectus. Proin eu metus. Sed porttitor. In hac habitasse platea dictumst. Suspendisse eu lectus. Ut mi mi, lacinia sit amet, placerat et, mollis vitae, dui. Sed ante tellus, tristique ut, iaculis eu, malesuada ac, dui. Mauris nibh leo, facilisis non, adipiscing quis, ultrices a, dui.

Morbi luctus, wisi viverra faucibus pretium, nibh est placerat odio, nec commodo wisi enim eget quam. Quisque libero justo, consectetuer a, feugiat vitae, porttitor eu, libero. Suspendisse sed mauris vitae elit sollicitudin malesuada. Maecenas ultricies eros

sit amet ante. Ut venenatis velit. Maecenas sed mi eget dui varius euismod. Phasellus aliquet volutpat odio. Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia Curae; Pellentesque sit amet pede ac sem eleifend consectetuer. Nullam elementum, urna vel imperdiet sodales, elit ipsum pharetra ligula, ac pretium ante justo a nulla. Curabitur tristique arcu eu metus. Vestibulum lectus. Proin mauris. Proin eu nunc eu urna hendrerit faucibus. Aliquam auctor, pede consequat laoreet varius, eros tellus scelerisque quam, pellentesque hendrerit ipsum dolor sed augue. Nulla nec lacus.

Suspendisse vitae elit. Aliquam arcu neque, ornare in, ullamcorper quis, commodo eu, libero. Fusce sagittis erat at erat tristique mollis. Maecenas sapien libero, molestie et, lobortis in, sodales eget, dui. Morbi ultrices rutrum lorem. Nam elementum ullamcorper leo. Morbi dui. Aliquam sagittis. Nunc placerat. Pellentesque tristique sodales est. Maecenas imperdiet lacinia velit. Cras non urna. Morbi eros pede, suscipit ac, varius vel, egestas non, eros. Praesent malesuada, diam id pretium elementum, eros sem dictum tortor, vel consectetuer odio sem sed wisi.

Sed feugiat. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Ut pellentesque augue sed urna. Vestibulum diam eros, fringilla et, consectetuer eu, nonummy id, sapien. Nullam at lectus. In sagittis ultrices mauris. Curabitur malesuada erat sit amet massa. Fusce blandit. Aliquam erat volutpat. Aliquam euismod. Aenean vel lectus. Nunc imperdiet justo nec dolor.

Etiam euismod. Fusce facilisis lacinia dui. Suspendisse potenti. In mi erat, cursus id, nonummy sed, ullamcorper eget, sapien. Praesent pretium, magna in eleifend egestas, pede pede pretium lorem, quis consectetuer tortor sapien facilisis magna. Mauris quis magna varius nulla scelerisque imperdiet. Aliquam non quam. Aliquam porttitor quam a lacus. Praesent vel arcu ut tortor cursus volutpat. In vitae pede quis diam bibendum placerat. Fusce elementum convallis neque. Sed dolor orci, scelerisque ac, dapibus nec, ultricies ut, mi. Duis nec dui quis leo sagittis commodo.

Aliquam lectus. Vivamus leo. Quisque ornare tellus ullamcorper nulla. Mauris porttitor pharetra tortor. Sed fringilla justo sed mauris. Mauris tellus. Sed non leo. Nullam elementum, magna in cursus sodales, augue est scelerisque sapien, venenatis congue nulla arcu et pede. Ut suscipit enim vel sapien. Donec congue. Maecenas urna mi, suscipit in, placerat ut, vestibulum ut, massa. Fusce ultrices nulla et nisl.

Etiam ac leo a risus tristique nonummy. Donec dignissim tincidunt nulla. Vestibulum rhoncus molestie odio. Sed lobortis, justo et pretium lobortis, mauris turpis condimentum augue, nec ultricies nibh arcu pretium enim. Nunc purus neque, placerat id, imperdiet sed, pellentesque nec, nisl. Vestibulum imperdiet neque non sem accumsan laoreet. In hac habitasse platea dictumst. Etiam condimentum facilisis libero. Suspendisse in elit quis nisl aliquam dapibus. Pellentesque auctor sapien. Sed egestas sapien nec lectus. Pellentesque vel dui vel neque bibendum viverra. Aliquam porttitor nisl nec pede. Proin mattis libero vel turpis. Donec rutrum mauris et libero. Proin euismod porta felis. Nam lobortis, metus quis elementum commodo, nunc lectus elementum mauris, eget vulputate ligula tellus eu neque. Vivamus eu dolor.

Nulla in ipsum. Praesent eros nulla, congue vitae, euismod ut, commodo a, wisi. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Aenean nonummy magna non leo. Sed felis erat, ullamcorper in, dictum non, ultricies ut, lectus. Proin vel arcu a odio lobortis euismod. Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia Curae; Proin ut est. Aliquam odio. Pellentesque massa turpis, cursus eu, euismod nec, tempor congue, nulla. Duis viverra gravida mauris. Cras tincidunt. Curabitur eros ligula, varius ut, pulvinar in, cursus faucibus, augue.

Nulla mattis luctus nulla. Duis commodo velit at leo. Aliquam vulputate magna et leo. Nam vestibulum ullamcorper leo. Vestibulum condimentum rutrum mauris. Donec id mauris. Morbi molestie justo et pede. Vivamus eget turpis sed nisl cursus tempor. Curabitur mollis sapien condimentum nunc. In wisi nisl, malesuada at, dignissim sit amet, lobortis in, odio. Aenean consequat arcu a ante. Pellentesque porta elit sit amet orci. Etiam at turpis nec elit ultricies imperdiet. Nulla facilisi. In hac habitasse platea dictumst. Suspendisse viverra aliquam risus. Nullam pede justo, molestie nonummy, scelerisque eu, facilisis vel, arcu.

Curabitur tellus magna, porttitor a, commodo a, commodo in, tortor. Donec interdum. Praesent scelerisque. Maecenas posuere sodales odio. Vivamus metus lacus, varius quis, imperdiet quis, rhoncus a, turpis. Etiam ligula arcu, elementum a, venenatis quis, sollicitudin sed, metus. Donec nunc pede, tincidunt in, venenatis vitae, faucibus vel, nibh. Pellentesque wisi. Nullam malesuada. Morbi ut tellus ut pede tincidunt porta. Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Etiam congue neque id dolor.

Donec et nisl at wisi luctus bibendum. Nam interdum tellus ac libero. Sed sem justo, laoreet vitae, fringilla at, adipiscing ut, nibh. Maecenas non sem quis tortor eleifend fermentum. Etiam id tortor ac mauris porta vulputate. Integer porta neque vitae massa. Maecenas tempus libero a libero posuere dictum. Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia Curae; Aenean quis mauris sed elit commodo placerat. Class aptent taciti sociosqu ad litora torquent per conubia nostra, per inceptos hymenaeos. Vivamus rhoncus tincidunt libero. Etiam elementum pretium justo. Vivamus est. Morbi a tellus eget pede tristique commodo. Nulla nisl. Vestibulum sed nisl eu sapien cursus rutrum.

Nulla non mauris vitae wisi posuere convallis. Sed eu nulla nec eros scelerisque pharetra. Nullam varius. Etiam dignissim elementum metus. Vestibulum faucibus, metus sit amet mattis rhoncus, sapien dui laoreet odio, nec ultricies nibh augue a enim. Fusce in ligula. Quisque at magna et nulla commodo consequat. Proin accumsan imperdiet sem. Nunc porta. Donec feugiat mi at justo. Phasellus facilisis ipsum quis ante. In ac elit eget ipsum pharetra faucibus. Maecenas viverra nulla in massa.

Nulla ac nisl. Nullam urna nulla, ullamcorper in, interdum sit amet, gravida ut, risus. Aenean ac enim. In luctus. Phasellus eu quam vitae turpis viverra pellentesque. Duis feugiat felis ut enim. Phasellus pharetra, sem id porttitor sodales, magna nunc aliquet nibh, nec blandit nisl mauris at pede. Suspendisse risus risus, lobortis eget, semper at, imperdiet sit amet, quam. Quisque scelerisque dapibus nibh. Nam enim. Lorem ipsum

dolor sit amet, consectetuer adipiscing elit. Nunc ut metus. Ut metus justo, auctor at, ultrices eu, sagittis ut, purus. Aliquam aliquam.

A.1 A section here

Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetuer id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.

Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi. Morbi ac orci et nisl hendrerit mollis. Suspendisse ut massa. Cras nec ante. Pellentesque a nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorper vestibulum turpis. Pellentesque cursus luctus mauris.

Nulla malesuada porttitor diam. Donec felis erat, congue non, volutpat at, tincidunt tristique, libero. Vivamus viverra fermentum felis. Donec nonummy pellentesque ante. Phasellus adipiscing semper elit. Proin fermentum massa ac quam. Sed diam turpis, molestie vitae, placerat a, molestie nec, leo. Maecenas lacinia. Nam ipsum ligula, eleifend at, accumsan nec, suscipit a, ipsum. Morbi blandit ligula feugiat magna. Nunc eleifend consequat lorem. Sed lacinia nulla vitae enim. Pellentesque tincidunt purus vel magna. Integer non enim. Praesent euismod nunc eu purus. Donec bibendum quam in tellus. Nullam cursus pulvinar lectus. Donec et mi. Nam vulputate metus eu enim. Vestibulum pellentesque felis eu massa.

Quisque ullamcorper placerat ipsum. Cras nibh. Morbi vel justo vitae lacus tincidunt ultrices. Lorem ipsum dolor sit amet, consectetuer adipiscing elit. In hac habitasse platea dictumst. Integer tempus convallis augue. Etiam facilisis. Nunc elementum fermentum wisi. Aenean placerat. Ut imperdiet, enim sed gravida sollicitudin, felis odio placerat quam, ac pulvinar elit purus eget enim. Nunc vitae tortor. Proin tempus nibh sit amet nisl. Vivamus quis tortor vitae risus porta vehicula.

Fusce mauris. Vestibulum luctus nibh at lectus. Sed bibendum, nulla a faucibus semper, leo velit ultricies tellus, ac venenatis arcu wisi vel nisl. Vestibulum diam. Aliquam pellentesque, augue quis sagittis posuere, turpis lacus congue quam, in hendrerit risus eros eget felis. Maecenas eget erat in sapien mattis porttitor. Vestibulum porttitor. Nulla facilisi. Sed a turpis eu lacus commodo facilisis. Morbi fringilla, wisi in dignissim interdum, justo lectus sagittis dui, et vehicula libero dui cursus dui. Mauris tempor ligula sed lacus. Duis cursus enim ut augue. Cras ac magna. Cras nulla. Nulla egestas. Curabitur a leo. Quisque egestas wisi eget nunc. Nam feugiat lacus vel est. Curabitur consectetuer.

Suspendisse vel felis. Ut lorem lorem, interdum eu, tincidunt sit amet, laoreet vitae, arcu. Aenean faucibus pede eu ante. Praesent enim elit, rutrum at, molestie non, nonummy vel, nisl. Ut lectus eros, malesuada sit amet, fermentum eu, sodales cursus, magna. Donec eu purus. Quisque vehicula, urna sed ultricies auctor, pede lorem egestas dui, et convallis elit erat sed nulla. Donec luctus. Curabitur et nunc. Aliquam dolor odio, commodo pretium, ultricies non, pharetra in, velit. Integer arcu est, nonummy in, fermentum faucibus, egestas vel, odio.

Sed commodo posuere pede. Mauris ut est. Ut quis purus. Sed ac odio. Sed vehicula hendrerit sem. Duis non odio. Morbi ut dui. Sed accumsan risus eget odio. In hac habitasse platea dictumst. Pellentesque non elit. Fusce sed justo eu urna porta tincidunt. Mauris felis odio, sollicitudin sed, volutpat a, ornare ac, erat. Morbi quis dolor. Donec pellentesque, erat ac sagittis semper, nunc dui lobortis purus, quis congue purus metus ultricies tellus. Proin et quam. Class aptent taciti sociosqu ad litora torquent per conubia nostra, per inceptos hymenaeos. Praesent sapien turpis, fermentum vel, eleifend faucibus, vehicula eu, lacus.

Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Donec odio elit, dictum in, hendrerit sit amet, egestas sed, leo. Praesent feugiat sapien aliquet odio. Integer vitae justo. Aliquam vestibulum fringilla lorem. Sed neque lectus, consectetuer at, consectetuer sed, eleifend ac, lectus. Nulla facilisi. Pellentesque eget lectus. Proin eu metus. Sed porttitor. In hac habitasse platea dictumst. Suspendisse eu lectus. Ut mi mi, lacinia sit amet, placerat et, mollis vitae, dui. Sed ante tellus, tristique ut, iaculis eu, malesuada ac, dui. Mauris nibh leo, facilisis non, adipiscing quis, ultrices a, dui.

Morbi luctus, wisi viverra faucibus pretium, nibh est placerat odio, nec commodo wisi enim eget quam. Quisque libero justo, consectetuer a, feugiat vitae, porttitor eu, libero. Suspendisse sed mauris vitae elit sollicitudin malesuada. Maecenas ultricies eros sit amet ante. Ut venenatis velit. Maecenas sed mi eget dui varius euismod. Phasellus aliquet volutpat odio. Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia Curae; Pellentesque sit amet pede ac sem eleifend consectetuer. Nullam elementum, urna vel imperdiet sodales, elit ipsum pharetra ligula, ac pretium ante justo a nulla. Curabitur tristique arcu eu metus. Vestibulum lectus. Proin mauris. Proin eu nunc eu urna hendrerit faucibus. Aliquam auctor, pede consequat laoreet varius, eros tellus scelerisque quam, pellentesque hendrerit ipsum dolor sed augue. Nulla nec lacus.

Suspendisse vitae elit. Aliquam arcu neque, ornare in, ullamcorper quis, commodo eu, libero. Fusce sagittis erat at erat tristique mollis. Maecenas sapien libero, molestie et, lobortis in, sodales eget, dui. Morbi ultrices rutrum lorem. Nam elementum ullamcorper leo. Morbi dui. Aliquam sagittis. Nunc placerat. Pellentesque tristique sodales est.

Maecenas imperdiet lacinia velit. Cras non urna. Morbi eros pede, suscipit ac, varius vel, egestas non, eros. Praesent malesuada, diam id pretium elementum, eros sem dictum tortor, vel consectetuer odio sem sed wisi.

Sed feugiat. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Ut pellentesque augue sed urna. Vestibulum diam eros, fringilla et, consectetuer eu, nonummy id, sapien. Nullam at lectus. In sagittis ultrices mauris. Curabitur malesuada erat sit amet massa. Fusce blandit. Aliquam erat volutpat. Aliquam euismod. Aenean vel lectus. Nunc imperdiet justo nec dolor.

Etiam euismod. Fusce facilisis lacinia dui. Suspendisse potenti. In mi erat, cursus id, nonummy sed, ullamcorper eget, sapien. Praesent pretium, magna in eleifend egestas, pede pede pretium lorem, quis consectetuer tortor sapien facilisis magna. Mauris quis magna varius nulla scelerisque imperdiet. Aliquam non quam. Aliquam porttitor quam a lacus. Praesent vel arcu ut tortor cursus volutpat. In vitae pede quis diam bibendum placerat. Fusce elementum convallis neque. Sed dolor orci, scelerisque ac, dapibus nec, ultricies ut, mi. Duis nec dui quis leo sagittis commodo.

Aliquam lectus. Vivamus leo. Quisque ornare tellus ullamcorper nulla. Mauris porttitor pharetra tortor. Sed fringilla justo sed mauris. Mauris tellus. Sed non leo. Nullam elementum, magna in cursus sodales, augue est scelerisque sapien, venenatis congue nulla arcu et pede. Ut suscipit enim vel sapien. Donec congue. Maecenas urna mi, suscipit in, placerat ut, vestibulum ut, massa. Fusce ultrices nulla et nisl.

Etiam ac leo a risus tristique nonummy. Donec dignissim tincidunt nulla. Vestibulum rhoncus molestie odio. Sed lobortis, justo et pretium lobortis, mauris turpis condimentum augue, nec ultricies nibh arcu pretium enim. Nunc purus neque, placerat id, imperdiet sed, pellentesque nec, nisl. Vestibulum imperdiet neque non sem accumsan laoreet. In hac habitasse platea dictumst. Etiam condimentum facilisis libero. Suspendisse in elit quis nisl aliquam dapibus. Pellentesque auctor sapien. Sed egestas sapien nec lectus. Pellentesque vel dui vel neque bibendum viverra. Aliquam porttitor nisl nec pede. Proin mattis libero vel turpis. Donec rutrum mauris et libero. Proin euismod porta felis. Nam lobortis, metus quis elementum commodo, nunc lectus elementum mauris, eget vulputate ligula tellus eu neque. Vivamus eu dolor.

Nulla in ipsum. Praesent eros nulla, congue vitae, euismod ut, commodo a, wisi. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Aenean nonummy magna non leo. Sed felis erat, ullamcorper in, dictum non, ultricies ut, lectus. Proin vel arcu a odio lobortis euismod. Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia Curae; Proin ut est. Aliquam odio. Pellentesque massa turpis, cursus eu, euismod nec, tempor congue, nulla. Duis viverra gravida mauris. Cras tincidunt. Curabitur eros ligula, varius ut, pulvinar in, cursus faucibus, augue.

Nulla mattis luctus nulla. Duis commodo velit at leo. Aliquam vulputate magna et leo. Nam vestibulum ullamcorper leo. Vestibulum condimentum rutrum mauris. Donec id mauris. Morbi molestie justo et pede. Vivamus eget turpis sed nisl cursus tempor. Curabitur mollis sapien condimentum nunc. In wisi nisl, malesuada at, dignissim sit

amet, lobortis in, odio. Aenean consequat arcu a ante. Pellentesque porta elit sit amet orci. Etiam at turpis nec elit ultricies imperdiet. Nulla facilisi. In hac habitasse platea dictumst. Suspendisse viverra aliquam risus. Nullam pede justo, molestie nonummy, scelerisque eu, facilisis vel, arcu.

Curabitur tellus magna, porttitor a, commodo a, commodo in, tortor. Donec interdum. Praesent scelerisque. Maecenas posuere sodales odio. Vivamus metus lacus, varius quis, imperdiet quis, rhoncus a, turpis. Etiam ligula arcu, elementum a, venenatis quis, sollicitudin sed, metus. Donec nunc pede, tincidunt in, venenatis vitae, faucibus vel, nibh. Pellentesque wisi. Nullam malesuada. Morbi ut tellus ut pede tincidunt porta. Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Etiam congue neque id dolor.

Donec et nisl at wisi luctus bibendum. Nam interdum tellus ac libero. Sed sem justo, laoreet vitae, fringilla at, adipiscing ut, nibh. Maecenas non sem quis tortor eleifend fermentum. Etiam id tortor ac mauris porta vulputate. Integer porta neque vitae massa. Maecenas tempus libero a libero posuere dictum. Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia Curae; Aenean quis mauris sed elit commodo placerat. Class aptent taciti sociosqu ad litora torquent per conubia nostra, per inceptos hymenaeos. Vivamus rhoncus tincidunt libero. Etiam elementum pretium justo. Vivamus est. Morbi a tellus eget pede tristique commodo. Nulla nisl. Vestibulum sed nisl eu sapien cursus rutrum.

Nulla non mauris vitae wisi posuere convallis. Sed eu nulla nec eros scelerisque pharetra. Nullam varius. Etiam dignissim elementum metus. Vestibulum faucibus, metus sit amet mattis rhoncus, sapien dui laoreet odio, nec ultricies nibh augue a enim. Fusce in ligula. Quisque at magna et nulla commodo consequat. Proin accumsan imperdiet sem. Nunc porta. Donec feugiat mi at justo. Phasellus facilisis ipsum quis ante. In ac elit eget ipsum pharetra faucibus. Maecenas viverra nulla in massa.

Nulla ac nisl. Nullam urna nulla, ullamcorper in, interdum sit amet, gravida ut, risus. Aenean ac enim. In luctus. Phasellus eu quam vitae turpis viverra pellentesque. Duis feugiat felis ut enim. Phasellus pharetra, sem id porttitor sodales, magna nunc aliquet nibh, nec blandit nisl mauris at pede. Suspendisse risus risus, lobortis eget, semper at, imperdiet sit amet, quam. Quisque scelerisque dapibus nibh. Nam enim. Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Nunc ut metus. Ut metus justo, auctor at, ultrices eu, sagittis ut, purus. Aliquam aliquam.

В

Appendix 2 Lorem Ipsum

This is a test with citing something [5] in the appendix.

Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetuer id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.

Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi. Morbi ac orci et nisl hendrerit mollis. Suspendisse ut massa. Cras nec ante. Pellentesque a nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorper vestibulum turpis. Pellentesque cursus luctus mauris.

Nulla malesuada porttitor diam. Donec felis erat, congue non, volutpat at, tincidunt tristique, libero. Vivamus viverra fermentum felis. Donec nonummy pellentesque ante. Phasellus adipiscing semper elit. Proin fermentum massa ac quam. Sed diam turpis, molestie vitae, placerat a, molestie nec, leo. Maecenas lacinia. Nam ipsum ligula, eleifend at, accumsan nec, suscipit a, ipsum. Morbi blandit ligula feugiat magna. Nunc eleifend consequat lorem. Sed lacinia nulla vitae enim. Pellentesque tincidunt purus vel magna. Integer non enim. Praesent euismod nunc eu purus. Donec bibendum quam in tellus. Nullam cursus pulvinar lectus. Donec et mi. Nam vulputate metus eu enim. Vestibulum pellentesque felis eu massa.

Quisque ullamcorper placerat ipsum. Cras nibh. Morbi vel justo vitae lacus tincidunt ultrices. Lorem ipsum dolor sit amet, consectetuer adipiscing elit. In hac habitasse platea dictumst. Integer tempus convallis augue. Etiam facilisis. Nunc elementum fermentum wisi. Aenean placerat. Ut imperdiet, enim sed gravida sollicitudin, felis odio placerat quam, ac pulvinar elit purus eget enim. Nunc vitae tortor. Proin tempus nibh sit amet nisl. Vivamus quis tortor vitae risus porta vehicula.

Fusce mauris. Vestibulum luctus nibh at lectus. Sed bibendum, nulla a faucibus semper, leo velit ultricies tellus, ac venenatis arcu wisi vel nisl. Vestibulum diam. Aliquam pellentesque, augue quis sagittis posuere, turpis lacus congue quam, in hendrerit risus eros eget felis. Maecenas eget erat in sapien mattis porttitor. Vestibulum porttitor. Nulla facilisi. Sed a turpis eu lacus commodo facilisis. Morbi fringilla, wisi in dignissim interdum, justo lectus sagittis dui, et vehicula libero dui cursus dui. Mauris tempor ligula sed lacus. Duis cursus enim ut

augue. Cras ac magna. Cras nulla. Nulla egestas. Curabitur a leo. Quisque egestas wisi eget nunc. Nam feugiat lacus vel est. Curabitur consectetuer.

Suspendisse vel felis. Ut lorem lorem, interdum eu, tincidunt sit amet, laoreet vitae, arcu. Aenean faucibus pede eu ante. Praesent enim elit, rutrum at, molestie non, nonummy vel, nisl. Ut lectus eros, malesuada sit amet, fermentum eu, sodales cursus, magna. Donec eu purus. Quisque vehicula, urna sed ultricies auctor, pede lorem egestas dui, et convallis elit erat sed nulla. Donec luctus. Curabitur et nunc. Aliquam dolor odio, commodo pretium, ultricies non, pharetra in, velit. Integer arcu est, nonummy in, fermentum faucibus, egestas vel, odio.

Sed commodo posuere pede. Mauris ut est. Ut quis purus. Sed ac odio. Sed vehicula hendrerit sem. Duis non odio. Morbi ut dui. Sed accumsan risus eget odio. In hac habitasse platea dictumst. Pellentesque non elit. Fusce sed justo eu urna porta tincidunt. Mauris felis odio, sollicitudin sed, volutpat a, ornare ac, erat. Morbi quis dolor. Donec pellentesque, erat ac sagittis semper, nunc dui lobortis purus, quis congue purus metus ultricies tellus. Proin et quam. Class aptent taciti sociosqu ad litora torquent per conubia nostra, per inceptos hymenaeos. Praesent sapien turpis, fermentum vel, eleifend faucibus, vehicula eu, lacus.

Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Donec odio elit, dictum in, hendrerit sit amet, egestas sed, leo. Praesent feugiat sapien aliquet odio. Integer vitae justo. Aliquam vestibulum fringilla lorem. Sed neque lectus, consectetuer at, consectetuer sed, eleifend ac, lectus. Nulla facilisi. Pellentesque eget lectus. Proin eu metus. Sed porttitor. In hac habitasse platea dictumst. Suspendisse eu lectus. Ut mi mi, lacinia sit amet, placerat et, mollis vitae, dui. Sed ante tellus, tristique ut, iaculis eu, malesuada ac, dui. Mauris nibh leo, facilisis non, adipiscing quis, ultrices a, dui.

Morbi luctus, wisi viverra faucibus pretium, nibh est placerat odio, nec commodo wisi enim eget quam. Quisque libero justo, consectetuer a, feugiat vitae, porttitor eu, libero. Suspendisse sed mauris vitae elit sollicitudin malesuada. Maecenas ultricies eros sit amet ante. Ut venenatis velit. Maecenas sed mi eget dui varius euismod. Phasellus aliquet volutpat odio. Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia Curae; Pellentesque sit amet pede ac sem eleifend consectetuer. Nullam elementum, urna vel imperdiet sodales, elit ipsum pharetra ligula, ac pretium ante justo a nulla. Curabitur tristique arcu eu metus. Vestibulum lectus. Proin mauris. Proin eu nunc eu urna hendrerit faucibus. Aliquam auctor, pede consequat laoreet varius, eros tellus scelerisque quam, pellentesque hendrerit ipsum dolor sed augue. Nulla nec lacus.

Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetuer id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.

Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi. Morbi ac orci et nisl hendrerit mollis. Suspendisse ut massa. Cras nec ante. Pellentesque a nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorper vestibulum turpis. Pellentesque cursus luctus mauris.

Nulla malesuada porttitor diam. Donec felis erat, congue non, volutpat at, tincidunt tristique, libero. Vivamus viverra fermentum felis. Donec nonummy pellentesque ante. Phasellus adipiscing semper elit. Proin fermentum massa ac quam. Sed diam turpis, molestie vitae, placerat a, molestie nec, leo. Maecenas lacinia. Nam ipsum ligula, eleifend at, accumsan nec, suscipit a, ipsum. Morbi blandit ligula feugiat magna. Nunc eleifend consequat lorem. Sed lacinia nulla vitae enim. Pellentesque tincidunt purus vel magna. Integer non enim. Praesent euismod nunc eu purus. Donec bibendum quam in tellus. Nullam cursus pulvinar lectus. Donec et mi. Nam vulputate metus eu enim. Vestibulum pellentesque felis eu massa.

Quisque ullamcorper placerat ipsum. Cras nibh. Morbi vel justo vitae lacus tincidunt ultrices. Lorem ipsum dolor sit amet, consectetuer adipiscing elit. In hac habitasse platea dictumst. Integer tempus convallis augue. Etiam facilisis. Nunc elementum fermentum wisi. Aenean placerat. Ut imperdiet, enim sed gravida sollicitudin, felis odio placerat quam, ac pulvinar elit purus eget enim. Nunc vitae tortor. Proin tempus nibh sit amet nisl. Vivamus quis tortor vitae risus porta vehicula.

Fusce mauris. Vestibulum luctus nibh at lectus. Sed bibendum, nulla a faucibus semper, leo velit ultricies tellus, ac venenatis arcu wisi vel nisl. Vestibulum diam. Aliquam pellentesque, augue quis sagittis posuere, turpis lacus congue quam, in hendrerit risus eros eget felis. Maecenas eget erat in sapien mattis porttitor. Vestibulum porttitor. Nulla facilisi. Sed a turpis eu lacus commodo facilisis. Morbi fringilla, wisi in dignissim interdum, justo lectus sagittis dui, et vehicula libero dui cursus dui. Mauris tempor ligula sed lacus. Duis cursus enim ut augue. Cras ac magna. Cras nulla. Nulla egestas. Curabitur a leo. Quisque egestas wisi eget nunc. Nam feugiat lacus vel est. Curabitur consectetuer.

Suspendisse vel felis. Ut lorem lorem, interdum eu, tincidunt sit amet, laoreet vitae, arcu. Aenean faucibus pede eu ante. Praesent enim elit, rutrum at, molestie non, nonummy vel, nisl. Ut lectus eros, malesuada sit amet, fermentum eu, sodales cursus, magna. Donec eu purus. Quisque vehicula, urna sed ultricies auctor, pede lorem egestas dui, et convallis elit erat sed nulla. Donec luctus. Curabitur et nunc. Aliquam dolor odio, commodo pretium, ultricies non, pharetra in, velit. Integer arcu est, nonummy in, fermentum faucibus, egestas vel, odio.

Sed commodo posuere pede. Mauris ut est. Ut quis purus. Sed ac odio. Sed vehicula hendrerit sem. Duis non odio. Morbi ut dui. Sed accumsan risus eget odio. In hac habitasse platea dictumst. Pellentesque non elit. Fusce sed justo eu urna porta tincidunt. Mauris felis odio, sollicitudin sed, volutpat a, ornare ac, erat. Morbi quis dolor. Donec pellentesque, erat ac sagittis semper, nunc dui lobortis purus, quis congue purus metus ultricies tellus. Proin et quam. Class aptent taciti sociosqu ad litora torquent per conubia nostra, per inceptos hymenaeos. Praesent sapien turpis, fermentum vel, eleifend faucibus, vehicula eu, lacus.

Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Donec odio elit, dictum in, hendrerit sit amet, egestas sed, leo. Praesent feugiat sapien aliquet odio. Integer vitae justo. Aliquam vestibulum fringilla lorem. Sed neque lectus, consectetuer at, consectetuer sed, eleifend ac, lectus. Nulla facilisi. Pellentesque eget lectus. Proin eu metus. Sed porttitor. In hac habitasse platea dictumst. Suspendisse eu lectus. Ut mi mi, lacinia sit amet, placerat et, mollis vitae, dui. Sed ante tellus, tristique ut, iaculis eu, malesuada ac, dui. Mauris nibh leo, facilisis non, adipiscing quis, ultrices a, dui.

Morbi luctus, wisi viverra faucibus pretium, nibh est placerat odio, nec commodo wisi enim eget quam. Quisque libero justo, consectetuer a, feugiat vitae, porttitor eu, libero. Suspendisse sed mauris vitae elit sollicitudin malesuada. Maecenas ultricies eros sit amet ante. Ut venenatis velit. Maecenas sed mi eget dui varius euismod. Phasellus aliquet volutpat odio. Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia Curae; Pellentesque sit amet pede ac sem eleifend consectetuer. Nullam elementum, urna vel imperdiet sodales, elit ipsum pharetra ligula, ac pretium ante justo a nulla. Curabitur tristique arcu eu metus. Vestibulum lectus. Proin mauris. Proin eu nunc eu urna hendrerit faucibus. Aliquam auctor, pede consequat laoreet varius, eros tellus scelerisque quam, pellentesque hendrerit ipsum dolor sed augue. Nulla nec lacus.

Suspendisse vitae elit. Aliquam arcu neque, ornare in, ullamcorper quis, commodo eu, libero. Fusce sagittis erat at erat tristique mollis. Maecenas sapien libero, molestie et, lobortis in, sodales eget, dui. Morbi ultrices rutrum lorem. Nam elementum ullamcorper leo. Morbi dui. Aliquam sagittis. Nunc placerat. Pellentesque tristique sodales est. Maecenas imperdiet lacinia velit. Cras non urna. Morbi eros pede, suscipit ac, varius vel, egestas non, eros. Praesent malesuada, diam id pretium elementum, eros sem dictum tortor, vel consectetuer odio sem sed wisi.

Annex 1 Lorem Ipsum

Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetuer id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.

Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi. Morbi ac orci et nisl hendrerit mollis. Suspendisse ut massa. Cras nec ante. Pellentesque a nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorper vestibulum turpis. Pellentesque cursus luctus mauris.

Nulla malesuada porttitor diam. Donec felis erat, congue non, volutpat at, tincidunt tristique, libero. Vivamus viverra fermentum felis. Donec nonummy pellentesque ante. Phasellus adipiscing semper elit. Proin fermentum massa ac quam. Sed diam turpis, molestie vitae, placerat a, molestie nec, leo. Maecenas lacinia. Nam ipsum ligula, eleifend at, accumsan nec, suscipit a, ipsum. Morbi blandit ligula feugiat magna. Nunc eleifend consequat lorem. Sed lacinia nulla vitae enim. Pellentesque tincidunt purus vel magna. Integer non enim. Praesent euismod nunc eu purus. Donec bibendum quam in tellus. Nullam cursus pulvinar lectus. Donec et mi. Nam vulputate metus eu enim. Vestibulum pellentesque felis eu massa.

Quisque ullamcorper placerat ipsum. Cras nibh. Morbi vel justo vitae lacus tincidunt ultrices. Lorem ipsum dolor sit amet, consectetuer adipiscing elit. In hac habitasse platea dictumst. Integer tempus convallis augue. Etiam facilisis. Nunc elementum fermentum

wisi. Aenean placerat. Ut imperdiet, enim sed gravida sollicitudin, felis odio placerat quam, ac pulvinar elit purus eget enim. Nunc vitae tortor. Proin tempus nibh sit amet nisl. Vivamus quis tortor vitae risus porta vehicula.

Fusce mauris. Vestibulum luctus nibh at lectus. Sed bibendum, nulla a faucibus semper, leo velit ultricies tellus, ac venenatis arcu wisi vel nisl. Vestibulum diam. Aliquam pellentesque, augue quis sagittis posuere, turpis lacus congue quam, in hendrerit risus eros eget felis. Maecenas eget erat in sapien mattis porttitor. Vestibulum porttitor. Nulla facilisi. Sed a turpis eu lacus commodo facilisis. Morbi fringilla, wisi in dignissim interdum, justo lectus sagittis dui, et vehicula libero dui cursus dui. Mauris tempor ligula sed lacus. Duis cursus enim ut augue. Cras ac magna. Cras nulla. Nulla egestas. Curabitur a leo. Quisque egestas wisi eget nunc. Nam feugiat lacus vel est. Curabitur consectetuer.

Index

Bugs, 5 installation, 7 Disclaimer, 5 novathesis Donations, 5 Citation, 2 donations, 2 Recognition, 2 Feature Requests, 5 Suggestions, 5 GitHub project web page, 2 Template, 1 stars, 2 license, 1 Version, 1 Help, 4 Installation Using Local installation, 4 Local installation, 4 Overleaf, 2 Overleaf, 2