Title

by

Name Surname

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Abstract

Your dissertation abstract goes here. This should be a single paragraph. Try to keep it as brief as possible (less than 200 words — if this abstract page runs onto a second page, it needs shortening), while keeping in mind that it should touch on all the important aspects of your research — consider whether someone unfamiliar with your research area would be able to determine whether your research is relevant to them, or not. Keep in mind that the abstract may be the only thing someone reads before choosing to either discard your work, or keep reading. Also, make sure that there are no references in the abstract. The keywords list should include no more than ten keywords. Keywords may be single words, or multi-word terms (such as `neural networks` or `particle swarm optimisers`). When choosing keywords, consider terms that are descriptive of your research, and are likely to be used in search queries that should find your work.

Keywords: First keyword, second keyword, final keyword.

“We’re all mad here.”

Lewis Carol (1865)

Acknowledgements

If you wish to include any acknowledgements to anyone you feel was instrumental in the completion of the dissertation (or your continued survival through it's completion):

- First person (or institution) you'd like to thank, and reasons;
- Second person (or institution), and reasons;
- Final person (or institution), and reasons.

Contents

List of Figures

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List of Algorithms

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Chapter 1

Introduction

You may place a brief sketch of the scenario that inspired the research here (you may also choose to leave it out). For example, if you are writing about ACOs, you might write something about the simplicity and efficiency of an ant colony. This may be relatively informal (but not colloquial). Avoid references here. Refer to some of the dissertations on the CIRG website for some ideas on what you might include.

Place some very general background information here, setting the scene for where your work fits in tot he broader scheme of things.

For instance, give a very broad overview of the field of CI-based function optimisation. You should already provide some references (here's an example of a reference [1].

1.1 Motivation

Provide a more specific background to your specific approach or focus area. Give specific references. Explain why this area justifies investigation (this would probably include a description of shortcomings or gaps in the field).

1.2 Objectives

Introduce the research objectives of your work. It is quite likely that these may only become clear after you have completed the rest of the dissertation, so revisit this list once you have finished everything else. Include broad objectives, like `conduct a survey of available techniques in the field of \ldots'', or`present practical case studies in the realm of . . . ". You should use a bulleted list, as follows:

1. First objective here.
2. Then, second objective here.
3. Third objective here, and so on.

1.3 Contributions

Enumerate the novel contributions that your work sets out to make to the field. Include specific novel contributions to the field, such as taxonomies, or empirical results. These will be quite closely related to the objectives listed in Section~1.2. You may also use a bulleted list here.

1.4 Dissertation Outline

Introduce a list of the remaining chapters of your work, in which a brief (two to three line) description of the material covered in each is included:

1. **Chapter~2** focusses on . . . .
2. **Chapter~??** focusses on . . . .
3. **Chapter~??** focusses on . . . .

After you have discussed the chapters, provide a brief introduction for the list of appendices:

1. **Appendix~??** describes ....
2. **Appendix~??** describes ....
3. **Appendix~??** describes ....

If you provide an index, you may provide a page reference here, indicating that it begins on page~**??** of the text.

Chapter 2

Chapter One

This is a chapter which can contain subsections, subsubsections, subsubsubsections, as well as LaTeX hidden subsections or whatever else you want.

In here you can also cite authors from your bibtex using RefManageR like so [1]. There are lots of ways to cite with RefManageR you can find out more information on this by pulling up the help files for the packages in RStudio with `?Cite`.

In paragraphs you can draw emphasis to certain words with *italic*, **bold**, *italic*, or **bold**.

2.1 Basic Markdown Features

This is a subsection. In a subsection you can include many things including lists, equations (referenced), output from blocks of R code, R plots, etc.

This is a list ...

1. Item 1
2. Item 2
3. Item 3
    - Item 3a
    - Item 3b

this is a block quote ...

> Let's get schwifty

and this is a horizontal rule ...

---

and this is a LaTeX equations ...

$$a + b = c \tag{2.1}$$

which can be referenced in line Equation 2.1.

Equations can also be done inline without referencing $e = mc^2$

2.1.1 Running inline R Code

R code outputs can be integrated directly into your dissertation.

This can be done inline e.g. the iris dataset has 150 rows and 5 columns.

Or we can run the R code as a chunk and just include text outputs ...

```
##   Sepal.Length    Sepal.Width     Petal.Length    Petal.Width
##  Min.   :4.300   Min.   :2.000   Min.   :1.000   Min.   :0.100
##  1st Qu.:5.100   1st Qu.:2.800   1st Qu.:1.600   1st Qu.:0.300
##  Median :5.800   Median :3.000   Median :4.350   Median :1.300
##  Mean   :5.843   Mean   :3.057   Mean   :3.758   Mean   :1.199
##  3rd Qu.:6.400   3rd Qu.:3.300   3rd Qu.:5.100   3rd Qu.:1.800
##  Max.   :7.900   Max.   :4.400   Max.   :6.900   Max.   :2.500
##        Species
##  setosa    :50
```

Table 2.1: This is a table with info

colname	colname	colname
Info	info	info
Info	info	info
Info	info	info

```
##  versicolor:50
##  virginica :50
##
##
##
```

or plot outputs (with captions, labels, and sizes) ...

2.1.1.1 Subsubsubsection

We can also include LaTeXcomponents such as tables ...

We can also include figures into the document ...

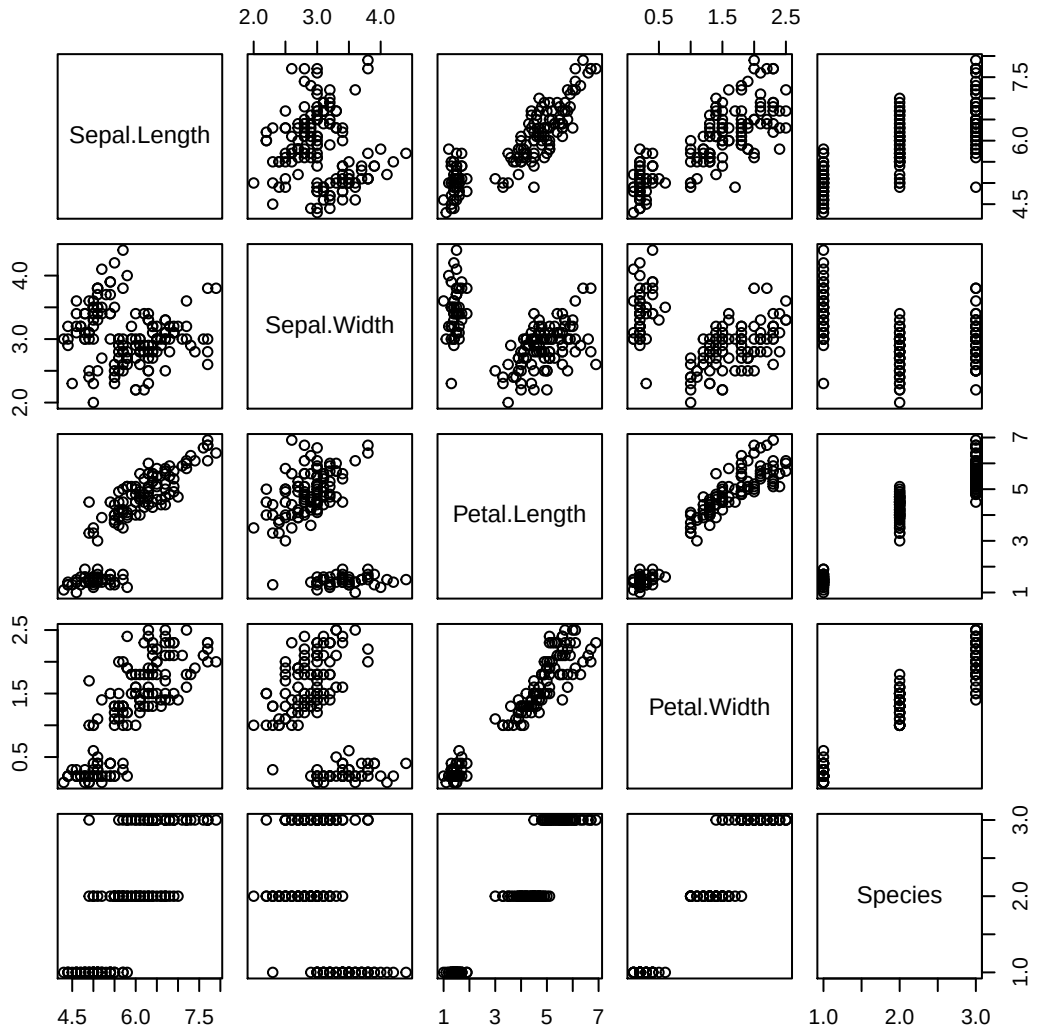

Figure 2.1: A caption.

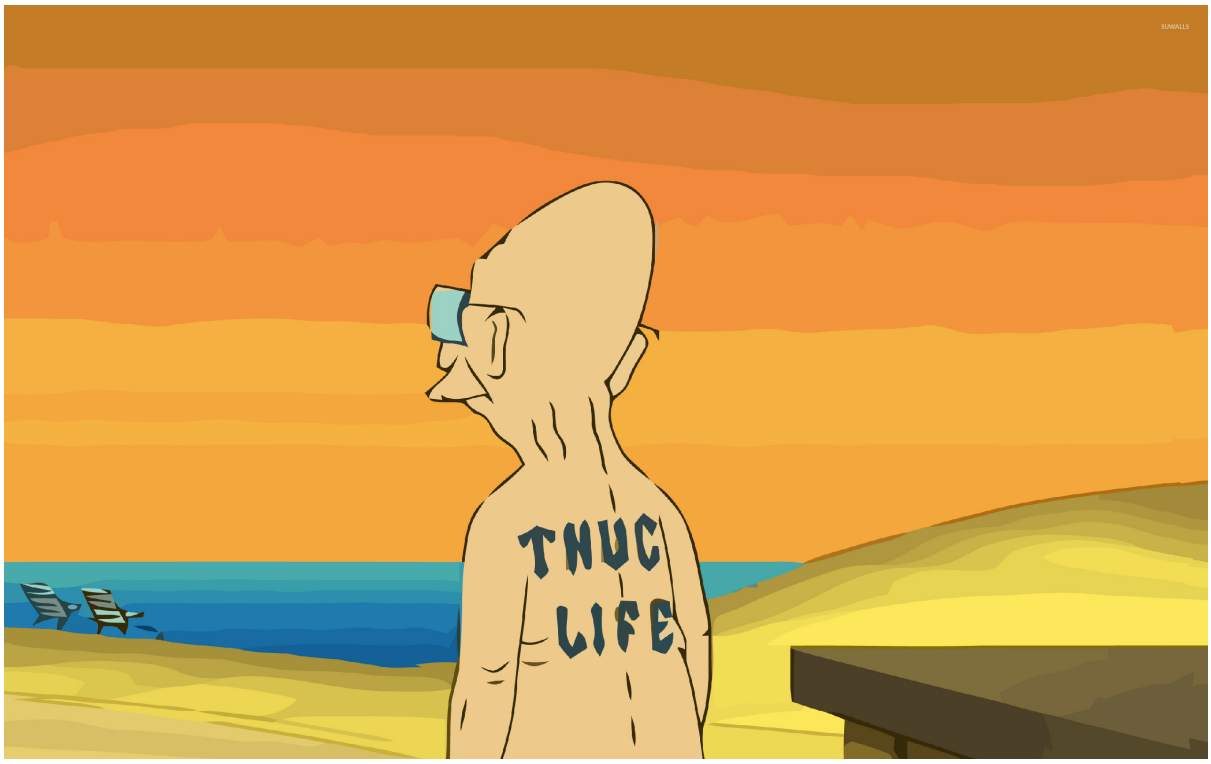

Figure 2.2: This is a caption.

Bibliography

[1] A. P. Engelbrecht. *Computational Intelligence: An Introduction*. Chichester, England: John Wiley & Sons, Dec. 2002.