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# University of Waterloo E-Thesis Template for LATEX

by

Pat Neugraad

A thesis
presented to the University of Waterloo
in fulfillment of the
thesis requirement for the degree of
Doctor of Philosophy
in
Philosophy of Zoology

Waterloo, Ontario, Canada, 2020

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#### **Examining Committee Membership**

The following served on the Examining Committee for this thesis. The decision of the Examining Committee is by majority vote.

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#### **Author's Declaration**

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

#### Abstract

This is the abstract.

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#### Acknowledgements

I would like to thank all the little people who made this thesis possible.

#### Dedication

This is dedicated to the one I love.

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# List of Tables

### Chapter 1

### Introduction

In the beginning, there was  $\pi$ :

$$e^{\pi i} + 1 = 0 \tag{1.1}$$

A computer could compute  $\pi$  all day long. In fact, subsets of digits of  $\pi$ 's decimal approximation would make a good source for psuedo-random vectors,  $\mathbf{v}$ .

#### 1.1 State of the Art

See equation 5.1 on page 11.1

#### 1.2 Some Meaningless Stuff

The credo of the American Association of Amateur Astronomers and Zoologists (AAAAZ) was, for several years, several paragraphs of gibberish, until the dingledorf responsible for the AAAAZ Web site realized his mistake:

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<sup>&</sup>lt;sup>1</sup>A famous equation.

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### Chapter 2

### Observations

This would be a good place for some figures and tables.

Some notes on figures and photographs...

- A well-prepared PDF should be
  - 1. Of reasonable size, *i.e.* photos cropped and compressed.
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- Photos must be bit maps, and so are not scaleable by definition. TIFF and BMP are uncompressed formats, while JPEG is compressed. Most photos can be compressed without losing their illustrative value.
- Drawings that you make should be scalable vector graphics, not bit maps. Some scalable vector file formats are: EPS, SVG, PNG, WMF. These can all be converted into PNG or PDF, that pdflatex recognizes. Your drawing package can probably export to one of these formats directly. Otherwise, a common procedure is to print-to-file through a Postscript printer driver to create a PS file, then convert that to EPS (encapsulated PS, which has a bounding box to describe its exact size rather than a whole page). Programs such as GSView (a Ghostscript GUI) can create both EPS and PDF from PS files. Appendix ?? shows how to generate properly sized Matlab plots and save them as PDF.
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loss of resolution. And scaling down drawings may cause any text annotations to become too small.

For more information on LATEX see these course notes. <sup>1</sup>

The classic book by Leslie Lamport [3], author of Lamber TeX, is worth a look too, and the many available add-on packages are described by Goossens et al [1].

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### Chapter 3

### Introduction

In the beginning, there was  $\pi$ :

$$e^{\pi i} + 1 = 0 \tag{3.1}$$

A computer could compute  $\pi$  all day long. In fact, subsets of digits of  $\pi$ 's decimal approximation would make a good source for psuedo-random vectors,  $\mathbf{v}$ .

#### 3.1 State of the Art

See equation 5.1 on page 11.1

#### 3.2 Some Meaningless Stuff

The credo of the AAAAZ was, for several years, several paragraphs of gibberish, until the dingledorf responsible for the AAAAZ Web site realized his mistake:

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<sup>&</sup>lt;sup>1</sup>A famous equation.

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### Chapter 5

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### References

- [1] Michel Goossens, Frank Mittelbach, and Alexander Samarin. *The LATEX Companion*. Addison-Wesley, Reading, Massachusetts, 1994.
- [2] Donald Knuth. The TeXbook. Addison-Wesley, Reading, Massachusetts, 1986.
- [3] Leslie Lamport. partial TEX A Document Preparation System. Addison-Wesley, Reading, Massachusetts, second edition, 1994.

# **APPENDICES**

### Glossary

This document is incomplete. The external file associated with the glossary 'main' (which should be called thesis.gls) hasn't been created.

Check the contents of the file thesis.glo. If it's empty, that means you haven't indexed any of your entries in this glossary (using commands like \gls or \glsadd) so this list can't be generated. If the file isn't empty, the document build process hasn't been completed.

You may need to rerun LaTeX. If you already have, it may be that TeX's shell escape doesn't allow you to run makeindex. Check the transcript file thesis.log. If the shell escape is disabled, try one of the following:

- Run the external (Lua) application: makeglossaries-lite "thesis"
- Run the external (Perl) application: makeglossaries "thesis"

Then rerun LaTeX on this document.

### Abbreviations

This document is incomplete. The external file associated with the glossary 'abbreviations' (which should be called thesis.gls-abr) hasn't been created.

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### Nomenclature

This document is incomplete. The external file associated with the glossary 'nomenclature' (which should be called thesis.nomenclature-gls) hasn't been created.

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Then rerun LaTeX on this document.

### List of Symbols

This document is incomplete. The external file associated with the glossary 'symbols' (which should be called thesis.symbols-gls) hasn't been created.

Check the contents of the file thesis.symbols-glo. If it's empty, that means you haven't indexed any of your entries in this glossary (using commands like \gls or \glsadd) so this list can't be generated. If the file isn't empty, the document build process hasn't been completed.

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