Master's thesis
Master's Programme in Data Science

Template for Master's thesis

Firstname Lastname

September 6, 2024

Supervisor(s): Professor X or Dr. Y

Examiner(s): Professor A
Dr. B

University of Helsinki
Faculty of Science

P. O. Box 68 (Pietari Kalmin katu 5)
00014 University of Helsinki

HELSINGIN YLIOPISTO — HELSINGFORS UNIVERSITET — UNIVERSITY OF HELSINKI

Tiedekunta — Fakultet — Faculty	Koulutusohjelma — Utbildningsprogram — Degree programme
Faculty of Science	Master's Programme in Data Science

Tekijä — Författare — Author

Firstname Lastname

Työn nimi — Arbetets titel — Title

Template for Master's thesis

Työn laji — Arbetets art — Level	Aika — Datum — Month and year	Sivumäärä — Sidantal — Number of pages
Master's thesis	September 6, 2024	??

Tiivistelmä — Referat — Abstract

Summary of the main contents of the work: topic, methodology and results.

Topics are classified according to the ACM Computing Classification System (CCS): check command `\classification{}`. A small set of paths (1-3) should be used, starting from any top nodes referred to bu the root term CCS leading to the leaf nodes. The elements in the path are separated by right arrow, and emphasis of each element individually can be indicated by the use of bold face for high importance or italics for intermediate level. The combination of individual boldface terms may give the reader additional insight.

ACM Computing Classification System (CCS):
General and reference → Document types → Surveys and overviews
Applied computing → Document management and text processing → Document management → Text editing

Avainsanat — Nyckelord — Keywords

layout, summary, list of references

Säilytyspaikka — Förvaringsställe — Where deposited

Muita tietoja — Övriga uppgifter — Additional information

Contents

1. Introduction

The thesis should have an introduction chapter. Other chapters can be named according to the topic. In the end, some summary chapter is needed; see Chapter **??** for an example.

2. Figures and Tables

2.1 Figures

Figure ?? gives an example how to add figures to the document. Remember always to cite the figure in the main text. There are many ways to cite, for example: University of Helsinki has a nice logo (see Fig. ??).

Figure 2.1: University of Helsinki flame-logo for Faculty of Science.

2.2 Tables

Table ?? gives an example how to report experimental results. Remember always to cite the table in the main text. There are many ways to cite, for example: The results are as expected (see Table ??).

Table 2.1: Experimental results.

Koe	1	2	3
A	2.5	4.7	-11
B	8.0	-3.7	12.6
$A + B$	10.5	1.0	1.6

3. Citations

3.1 Citations to literature

References are listed in a separate .bib-file. In this case it is named `bibliography.bib` with the following content:

```
@article{einstein,
    author =       "Albert Einstein",
    title =        "{Zur Elektrodynamik bewegter K{\"o}rper}. ({German})
        [{On} the electrodynamics of moving bodies]",
    journal =      "Annalen der Physik",
    volume =       "322",
    number =       "10",
    pages =        "891--921",
    year =         "1905",
    DOI =          "http://dx.doi.org/10.1002/andp.19053221004"
}

@book{latexcompanion,
    author    = "Michel Goossens and Frank Mittelbach and Alexander Samarin",
    title     = "The \LaTeX\ Companion",
    year      = "1993",
    publisher = "Addison-Wesley",
    address   = "Reading, Massachusetts"
}

@misc{knuthwebsite,
    author    = "Donald Knuth",
    title     = "Knuth: Computers and Typesetting",
    url       = "http://www-cs-faculty.stanford.edu/%7Eknuth/abcde.html"
}
```

In the last reference url field the code `%7E` will translate into ~ once clicked in the final pdf.

References are created using command `\cite{einstein}`, showing as [?]. Other examples: [?, ?].

Citations should be arranged in alphabetical order by author, using the default style `abbrv`.

3.2 Crossreferences

Appendix ?? on page ?? contains a code example.

4. From tex to pdf

In Linux, run `pdflatex filename.tex` and `bibtex filename` repeatedly until no more warnings are shown. You should use `pdflatex` when compiling your document.

5. Conclusions

It is good to conclude with some insightful discussion.

Appendix A. Code example

Program code can be added as appendix:

```
#!/bin/bash
text="Hello World!"
echo $text
```