Hochschule Konstanz
Fakultät Informatik
Institut für Optische Systeme

Eingereicht von
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Bachelor Thesis
Is it Possible to Write a Sexy Thesis with LaTeX?

Konstanz, 01. April 2018

Hochschule Konstanz
Department of Computer Science

Bachelor Thesis

Is it Possible to Write a Sexy Thesis with LaTeX?

zur Erlangung des akademischen Grades

Bachelor of Science (B. Sc.)

an der

Hochschule Konstanz
Technik, Wirtschaft und Gestaltung

Fakultät Informatik
Studiengang Angewandte Informatik

Bachelorkandidat: Max Mustermann
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1. Prüfer: Betreuer A
2. Prüfer: Betreuer B

Ausgabedatum: 01.04.2019
Abgabedatum: 01.10.2019

Abstract

Thema:	Is it Possible to Write a Sexy Thesis with LaTeX?
Bachelorkandidat:	Max Mustermann
Betreuer:	Hochschule für Technik, Wirtschaft und Gestaltung HTWG Konstanz, Institut für Optische Systeme Betreuer A Betreuer B
Abgabedatum:	01.10.2019
Schlagworte:	Deep learning, Machine Vision

Abstract .....

Extended Abstract

Thema:	Is it Possible to Write a Sexy Thesis with LaTeX?
Bachelorkandidat:	Max Mustermann
Betreuer:	Hochschule für Technik, Wirtschaft und Gestaltung HTWG Konstanz, Institut für Optische Systeme Betreuer A, Betreuer B

Extended Abstract über 2 Seiten. Beispielhafte Texte aus anderen Teamprojekten oder Abschlussarbeiten können aus dem verlinkten Dokument entnommen werden http://www.ios.htwg-konstanz.de/sites/default/files/jb/annualreport17.pdf.

Dieser Text soll als Dokumentation des Teamprojekts für den zukünftigen Jahresbericht des Institut für Optische Systeme dienen. Gerne können auch Bilder eingefügt werden. Ebenso wichtig ist es auch die Referenzen aufzulisten wie z.B. [Geim2001]. Die Referenzen werden mit Biber erstellt.

Ehrenwörtliche Erklärung

Hiermit erkläre ich Max Mustermann, geboren am 01.01.1990 in Konstanz, dass ich

(1) meine Bachelorarbeit mit dem Titel

Is it Possible to Write a Sexy Thesis with LaTeX?

bei der Hochschule für Technik, Wirtschaft und Gestaltung HTWG Konstanz, Institut für Optische Systeme unter Anleitung von Betreuer A selbständig und ohne fremde Hilfe angefertigt und keine anderen als die angeführten Hilfen benutzt habe;

(2) die Übernahme wörtlicher Zitate, von Tabellen, Zeichnungen, Bildern und Programmen aus der Literatur oder anderen Quellen (Internet) sowie die Verwendung der Gedanken anderer Autoren an den entsprechenden Stellen innerhalb der Arbeit gekennzeichnet habe.

(3) dass die eingereichten Abgabe-Exemplare in Papierform und im PDF-Format vollständig übereinstimmen.

Ich bin mir bewusst, dass eine falsche Erklärung rechtliche Folgen haben wird.

Konstanz, 01.10.2019

_____

(Unterschrift)

Contents

1

Introduction

This document is intended to be both an example of the HTWG Konstanz LaTeX template for reports and theses, as well as a short introduction to its use. It is not intended to be a general introduction to LaTeX itself,[1] and we will assume the reader to be familiar with the basics of creating and compiling documents.

1.1. Document Structure

Since a report, and especially a thesis, might be a substantial document, it is convenient to break it up into smaller pieces. In this template we therefore give every chapter its own file. The chapters (and appendices) are gathered together in `report.tex`, which is the master file describing the overall structure of the document. `report.tex` starts with the line

```
\documentclass{htwg-report}
```

which loads the HTWG Konstanz report template. The template is based on the LaTeX `book` document class and stored in `tudelft-report.cls`. The document class accepts several comma-separated options. The default language is English, but this can be changed to Dutch (e.g., for bachelor theses) by specifying the `dutch` option:

```
\documentclass[german]{htwg-report}
```

[1] We recommend http://en.wikibooks.org/wiki/LaTeX as a reference and a starting point for new users.

Furthermore, hyperlinks are shown in blue, which is convenient when reader the report on a computer, but can be expensive when printing. They can be turned black with the `print` option. This will also turn the headers black instead of cyan.

If the document becomes large, it is easy to miss warnings about the layout in the LaTeX output. In order to locate problem areas, add the `draft` option to the `\documentclass` line. This will display a vertical bar in the margins next to the paragraphs that require attention. Finally, the `nativefonts` option can be used to override the automatic font selection (see below).

This template has the option to automatically generate a cover page with the `\makecover` command. See the next section for a detailed description.

The contents of the report are included between the `\begin{document}` and `\end` commands, and split into three parts by

1. `\frontmatter`, which uses Roman numerals for the page numbers and is used for the title page and the table of contents;
2. `\mainmatter`, which uses Arabic numerals for the page numbers and is the style for the chapters;
3. `\appendix`, which uses letters for the chapter numbers, starting with 'A'.

The title page is defined in a separate file, e.g., `title.tex`, and included verbatim with `\input{title}`.[2] Additionally, it is possible to include a preface, containing, for example, the acknowledgements. An example can be found in `preface.tex`. The table of contents is generated automatically with the `\tableofcontents` command. Chapters are included after `\mainmatter` and appendices after `\appendix`. For example, `\input{chapter-1}` includes `chapter-1.tex`, which contains this introduction.

1.2. Bibliography

The bibliography, finally, is generated automatically with

```
\printbibliography[heading=bibintoc]
```

from `bib/report.bib`. The bibliography style is specified in `htwg-report.cls`. As an example, we cite the paper by Nobel Prize winner Andre Geim and his pet hamster [Geim2001]. If you need to use a different style, change

```
%% BIB
\RequirePackage[
```

[2] Note that it is not necessary to specify the file extension.

```
        backend=biber,
        style=alphabetic,
        sorting=ynt
]{biblatex}
\DefineBibliographyStrings{english}{%
  bibliography = {References},
}
```

As compiler, use `biber` to compile and generate the bibliography.

1.3. Cover and Title Page

This template will automatically generate a cover page if you issue the `\makecover` command. However, before generating the cover, you need to provide the information to put on it. This can be done with the following commands:

```
%% 'reporttype' add background elements to the cover / front page
%% possible values are:
%% bachelor     --> B S C
%% master       --> M S C
%% other                --> none
\reporttype{bachelor}

\reporttypetext{Bachelor Thesis}
```

1.4. Chapters

Each chapter has its own file. For example, the LaTeX source of this chapter can be found in `chapter-1.tex`. A chapter starts with the command

```
\chapter{Chapter title}
```

This starts a new page, prints the chapter number and title and adds a link in the table of contents. If the title is very long, it may be desirable to use a shorter version in the page headers and the table of contents. This can be achieved by specifying the short title in brackets:

```
\chapter[Short title]{Very long title with many words
which could not possibly fit on one line}
```

Unnumbered chapters, such as the preface, can be created with `\chapter*{Chapter title}`. Such a chapter will not show up in the table of contents or in the page header. To create a table of contents entry anyway, add

```
\addcontentsline{toc}{chapter}{Chapter title}
```

after the `\chapter` command. To print the chapter title in the page header, add

```
\setheader{Chapter title}
```

Chapters are subdivided into sections, subsections, subsubsections, and, optionally, paragraphs and subparagraphs. All can have a title, but only sections and subsections are numbered. As with chapters, the numbering can be turned off by using `\section*{…}` instead of `\section{…}`, and similarly for the subsection.

1.5. \section{...}

1.5.1. \subsection{...}

\subsubsection{...}
\paragraph{...} Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

1.6. Fonts and Colors

If you want to use the HTWG house style font `Swiss 721` it is necessary to put the font as `.ttf` file under `fonts`. As fallback font `Arial` is used. For more informations to the HTWG house style font see https://www.htwg-konstanz.de/hochschule/einrichtungen/stabsstelle-kommunikation/corporate-design-logo/.