

Erfindungen der nahen Zukunft

Durch innovative Traumdeutungen dem Klimawandel entgegenwirken.

Bachelorarbeit

zur Erlangung des akademischen Grades

Bachelor of Science in Engineering (BSc)

eingereicht am

Fachhochschul-Studiengang Software Design

FH JOANNEUM (University of Applied Sciences), Kapfenberg

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

Kapfenberg, September 2017

[TODO: Remove this comment. Add your signature!]

Markus Wunderlich



Zusammenfassung Zusammenfassung. (Sollte das gesamte Werk enthalten, also das spannende Problem, den gewählten –neuartigen– Lösungsansatz und natürlich vor allem die erreichten Resultate).

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Abbildungsverzeichnis

| 1 1 | Logo at the train engine. | | | | | | | | | | | | | | | | | | | |
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| 1.1 | Logo at the train engine. | | | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |

Tabellenverzeichnis

| 1.1 | Olive green heading used for this fancy table | 4 |
|-----|--|---|
| 1.2 | A more or less simple grey table. Better try to put tables and figures | |
| | at top[t] or bottom[b] (optional use whole page[p]) of a page. Avoid | |
| | location specifier <i>here</i> [h] | 4 |



Infos About LATEX / Your Thesis

"Research is formalised curiosity. It is poking and prying with a purpose."

[Zora Neale Hurston]

Each chapter should start with a short explanation what is inside the upcoming chapter and why it has been included (at this position) in your work: This template shall provide some considerations¹ and text examples for your Bachelor's or Master's thesis.

1.1 About this chapter

Selected LATEX examples.

1.1.1 Examples for named paragraphs

Background. Describe the background, the prerequisites for your work ...

Objective. The aim of this master's thesis is ...

Terms and definitions. Technical terms ... abbreviations are summarised at the end (in Chapter 7 "Acronyms"), e.g. application binary interface (ABI) or man-in-the-

¹In addition to the references at the end of this chapter, consider recommended ways of writing learnt in the lecture *Scientific Writing*. Find the official requirement-documents as well as supporting material at the E-Learning platform.

middle (MITM). If ABI is referenced again, only the acronym is printed (as hyperlink though).

1.1.2 About Research Resources

For literature research² use e.g. *ACM Digital Library* (ACM, Inc. (Association for Computing Machinery), 2014) or *IEEE Xplore Digital Library* (IEEE (Institute of Electrical and Electronics Engineers), 2017) as available from the FH JOANNEUM Library web page.

1.1.3 About Citation Styles

Harvard citation style is implemented in this template. For information about a topic like RFID paraphrased in your own words (cf. Batina u. a., 2012, pg 317) do not forget to use cf. and – if available the relevant page numbers – along with citep. Direct quotations would not need the cf. If you need to use the title of a reference, for example the RFID Authentication Protocol by Fernàndez-Mir u. a. (2012) you might use citet. For references without parentheses (find more in Li u. a., 2008) just use citet.

Note the use of *ibid* (in German *ebd* or *ebenda*) for referencing (several pages of) the same resource subsequently. For example, see (cf. Batina u. a., 2012, pg 317) and (cf. ebd., pg 321) (cf. ebd., pg 399).

You might cite URLs, e.g. about (tools for checking) Accessibility (cf. Google Inc., 2016, 2017), as online resources with a date of your last visit.

1.2 Some more LATEX

This section is a *really very short* summary of LAT_EX features. Do not forget to remove it after finishing your thesis.

Here you have an included graphic (Figure 1.1). Note the short title used for the list of figures.

²You might start your search at URL http://dl.acm.org/ or http://ieeexplore.ieee.org/.



Abbildung 1.1: Note the logo attached to the train engine spotted in Kapfenberg main station.

Code listings require the *listings* package which, in turn, requires some settings³; see command \lstset{} in preamble of this template. Additionally the package *courier* should be used because the defaults do not provide for proper syntax highlighting.

```
void main(int argc, char *argv[])

printf("Hello world!");
}
```

Listing 1.1: Listing subtitles could and should contain whole sentences describing the important aspect of the listing.

In order to see what's possible – here are two fancy tables, see Table 1.1 and Table 1.2 which show

View also the preamble of this file for explanations.

³...because the defaults do not fit all purposes

| | Version | Description | Author(s) | Date |
|---|---------|------------------------------|-----------|--------------------|
| | 1.0 | Initial | Ohrt | July 15, 2014 |
| | 1.1 | Filled section "Open Issues" | Ohrt | July 16, 2014 |
| ĺ | 1.2 | Added section "Restrictions" | Ohrt | September 15, 2014 |

Tabelle 1.1: Olive green heading used for this fancy table.

| Error | Solution |
|--|-------------------------------|
| Java.lang.OutOfMemoryError: PermGen space | -XX:MaxPermSize=1024M |
| (32-/64-bit issue) | |
| Error occurred during initialization of VM or | increase or remove -Xms value |
| Could not reserve enough space for object heap | e.gXms128m -Xmx512m |
| | (Eclipse default: |
| | -Xms40m -Xmx512m) |

Tabelle 1.2: A more or less simple grey table. Better try to put tables and figures at top[t] or bottom[b] (optional use whole page[p]) of a page. Avoid location specifier here[h].

Here is a reference to Listing 1.1. Note the line numbers. Referenced listings, tables and figures are written in uppercase first letter: Listing X, Table Y and Figure Z.

1.2.1 Prototype

Find in Listing 1.2 an example of the JavaScript closure. Only parts of the original source code have been included. That allows to extract and display parts of working code!

Mathematical expressions are rendered beautifully by LATEX. Now enjoy the first Maxwell equation $\operatorname{rot} \vec{H} = \vec{J} + \frac{\partial \vec{D}}{\partial t}$.

Selected resources about scientific working:

- Writing for Computer Science: ... elements of good writing clarity, simplicity, accuracy, and organization ... by Zobel, 2004.
- Case Study Research: ... offers comprehensive coverage of the design and use of the case study method as a valid research tool ... by Yin, 2013.
- The Elements of Style: ... first edition about 1935; includes a list of valuable recommendations: be clear, do not overwrite ... by Strunk und White, 2000.
- How to Design and Report Experiments: ... Planning an Experiment, Experimental Designs, Descriptive Statistics, Inferential Statistics ... Answering the

```
print("we go in for closures now :)")
3 function nextNumber() {
4
          var startWith=222;
5
           function nxt() {
6
                   startWith+=1 // !!
7
                   return startWith
8
9
           return nxt
10|}
11 var nn = nextNumber()
12|print( nn() )
13 print ( nn () )
```

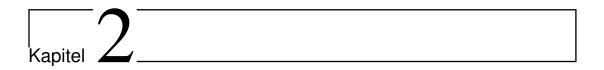
Listing 1.2: Demo implementation of a JavaScript *Closure*.

Question 'So What?' ... by Field und Hole, 2003.

- The Craft of Research: ... What Is Research? Creating a Relationship with Your Reader: Your Role, Finding a Good Research Problem ... by Booth, Colomb und Williams, 2008.
- The Craft of Scientific Writing: ... your writing is the principle way in which people learn about your work. When you communicate well, you receive credit for your ... by Alley, 1998.
- Wie man eine wissenschaftliche Abschlussarbeit schreibt: Doktor-, Diplom- und Magisterarbeit in den Geistes- und Sozialwissenschaften: ... Warum muss man eine wissenschaftliche Abschlussarbeit schreiben und was ist sie? ... by Eco, 2010.
- Writer's Handbook: ... you will find many instructional materials we've developed for our Writing Center teaching: Planning and Writing Research Papers, Creating an Argument, ... by The Writing Center, 2004.

Finally, before starting to write you might take a look at some of these references.

Final note: at the end of each chapter you might sum up the contents of the chapter in a sentence or two. Then you might tell the reader what will be presented in the upcoming section (to make her/him curious).



Introduction

Your text here (what is the problem? what does not work well at the moment? what do people need?) ...

2.1 Problem Statement

Your text here (what is the overall problem? give examples. motivate, why does someone needs (better/faster/different) solution to the problem described?) ...

2.2 Research Questions

Your text here (focus on two to four main research questions and detail on them) ...

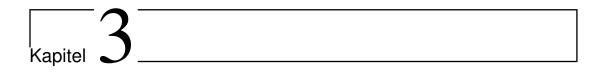
2.3 Hypthesis

Your text here (a hypothesis – a rough idea – of how you think a solution might look like. How to possibly solve a given problem)...

2.4 Method

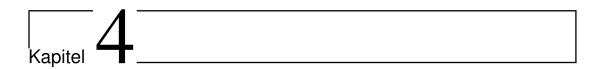
Your text here (your structured, academic approach¹ to find a solution) . . .

¹Find an extensive explanation of how to write a *Method* section at http://www.mrcophth.com/publishorperish/methods.html.



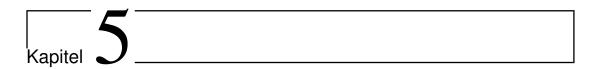
Related Work

Your text here (describe other research related to your work, state what is different to your solution) ...



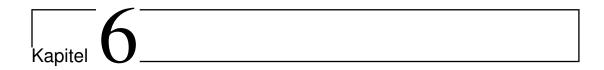
Concept

Your text here (describe an overall concept of a solution, which could possibly solve a given problem, design a novel solution) . . .



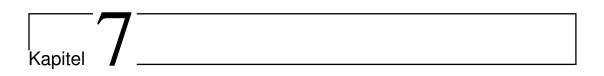
Implementation

Your text here (describe what is relevant and special about your working prototype, state how the single features help to solve the given problem) ...



Evaluation

Your text here (describe, how you could prove, that your implementation really solved the stated problem. I.e. accept or reject your hypotheses) . . .



Conclusion and Outlook

Your text here (sum up the results achieved, state current limitations of your solution, suggest further research by explaining how others could built on your results) . . .

Acronyms

ABI application binary interface

ACL access control list

GUI graphical user interface

KISS keep it small and simple

MITM man-in-the-middle

OS operating system

UART universal asynchronous receiver/transmitter

UID unique identifier

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