



SCHOOL OF COMPUTATION, INFORMATION  
AND TECHNOLOGY

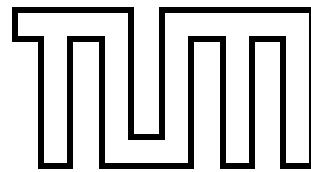
DER TECHNISCHEN UNIVERSITÄT MÜNCHEN

Bachelor's Thesis in Informatics

**A very cool Title**

Your Name





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**Ein sehr cooler Titel**

Author: Your Name

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Advisor: Fabio Alexander Gratl, M.Sc.

Date: Date of Submission



I confirm that this bachelor's thesis is my own work and I have documented all sources and material used.

Munich, Date of Submission

Your Name



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## Acknowledgements

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## **Abstract**

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## Zusammenfassung

Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi. Morbi ac orci et nisl hendrerit mollis. Suspendisse ut massa. Cras nec ante. Pellentesque a nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorper vestibulum turpis. Pellentesque cursus luctus mauris.



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## **Part I.**

# **Introduction and Background**

# 1. Introduction

Write some useful intro. Here are tips along the way:

## 1.1. Tips

### 1.1.1. How to Describe

When listing several points you have three basic options:

- |               |                |  |
|---------------|----------------|--|
| • itemize     | 1. itemize     | <b>itemize</b> short, unordered  |
| • enumerate   | 2. enumerate   | <b>enumerate</b> short ordered   |
| • description | 3. description | <b>description</b> listing of descriptions. Also nice for longer ones. |

### 1.1.2. How to Quote

”This is a quote!”

- Citations to a source can be made like this `\cite{grat117task}` = [Gra17]  
Always join text and the citation with a non-breaking space: `text~\cite{foo}`.
- Referencing Sections, Figures, Tables, Formulas: `\autoref{sec:intro}` = Chapter 1.
- Footnotes for url or further notes: `\footnote{\url{https://www.top500.org}}` <sup>1</sup>

### 1.1.3. How to Math

Use the align environment for equations especially if you want to align them somehow.

$$1 + 1 \neq 3 \tag{1.1}$$

$$\left(\frac{10}{1}\right) - 9 = 1 \tag{1.2}$$

---

<sup>1</sup><https://www.top500.org>

## 1.2. Environments

### 1.2.1. How to Figure

Anything can also be put in multiple columns.

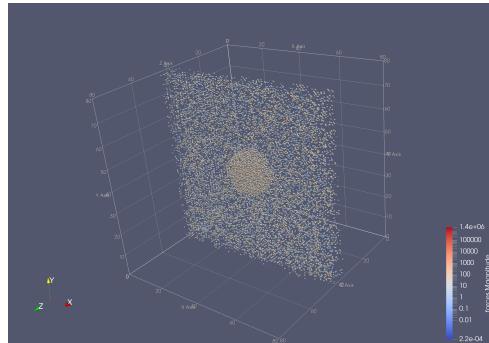


Figure 1.1.: Some Caption. Always also include a source if it wasn't created by you!  
Source: [Gra17]

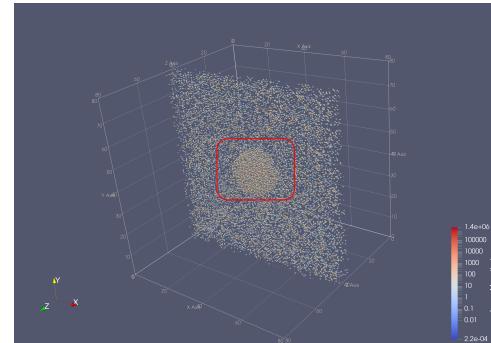
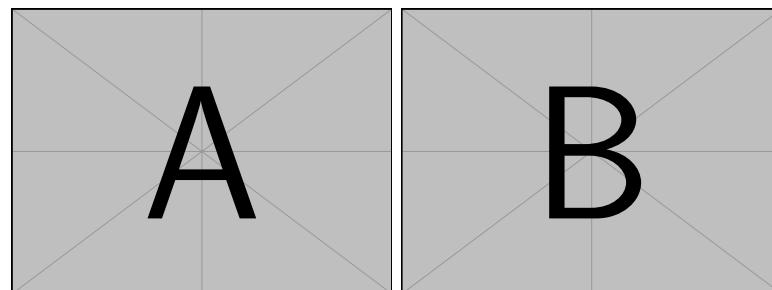


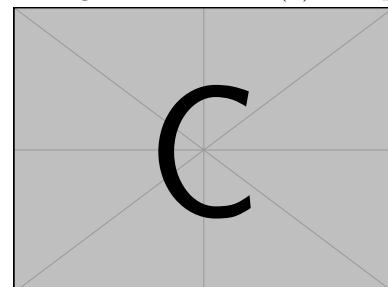
Figure 1.2.: Figures can be drawn on or completely generated with tikz.

**Subfigures** If grouping of several pictures seems reasonable, think about using subfigures. This often comes in handy with plots.



(a) example-image-a

(b) example-image-b



(c) example-image-c

Figure 1.3.: One caption to describe them all.

### 1.2.2. How to Algorithm

---

**Algorithm 1:** Bogosort

---

**Input:** data array  
**Output:** data sorted

// Checks if array is sorted

1 **Function** is\_sorted(*data*):  
2   **for** *i*  $\leftarrow$  0 **to** *data.size()* - 1 **do**  
3     **if** *data*[*i*] > *data*[*i*+1] **then**  
4       **return** false  
5   **return** true

// actual algorithm

6 **Function** bogosort(*data*):  
7   **while** not is\_sorted(*data*) **do**  
8     random.shuffle(*data*)

---

Figure 1.4.: some description what is happening

### 1.2.3. How to Code

```
1 void runner(int type, void *data){  
2     switch(type)  
3     {  
4         case taskType1:  
5             // do stuff using data  
6         case taskType2:  
7             // do other stuff using data  
    }
```

Listing 1.1: General form of a typical runner() function.

### 1.2.4. How to Table

bla left	bla centered over two lines	bla right
bla left	bla centered cell spanning two columns	cell spanning two rows

Table 1.1.: Fancy table that can contain line breaks and extended cells.

**Part II.**

**Appendix**

## **A. Some more stuff**

For everything that does not really belong in the thesis but is good to mention.

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# Bibliography

[Gra17] Fabio Alexander Gratl. Task based parallelization of the fast multipole method implementation of ls1-mardyn via quicksched. Master's thesis, Institut für Informatik 5, Technische Universität München, Garching, November 2017.