



SCHOOL OF COMPUTATION, INFORMATION  
AND TECHNOLOGY

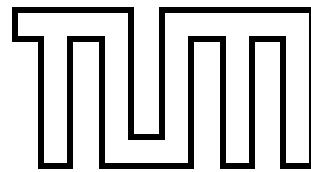
DER TECHNISCHEN UNIVERSITÄT MÜNCHEN

Bachelor's Thesis in Informatics

**A very cool Title**

Your Name





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**Ein sehr cooler Titel**

Author: Your Name

Supervisor: Univ.-Prof. Dr. Hans-Joachim Bungartz

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

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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{gratl17task}` = [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.

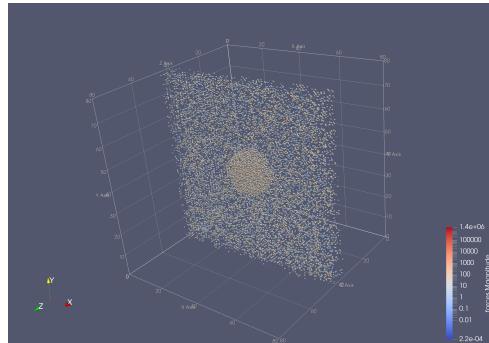


Figure 1.1.: Some Caption. Always also include a source if it wasn't created by you!  
Source: [Gra17]

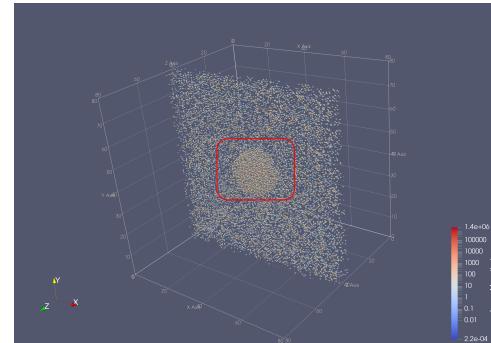


Figure 1.2.: Figures can be drawn on or completely generated with tikz.

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

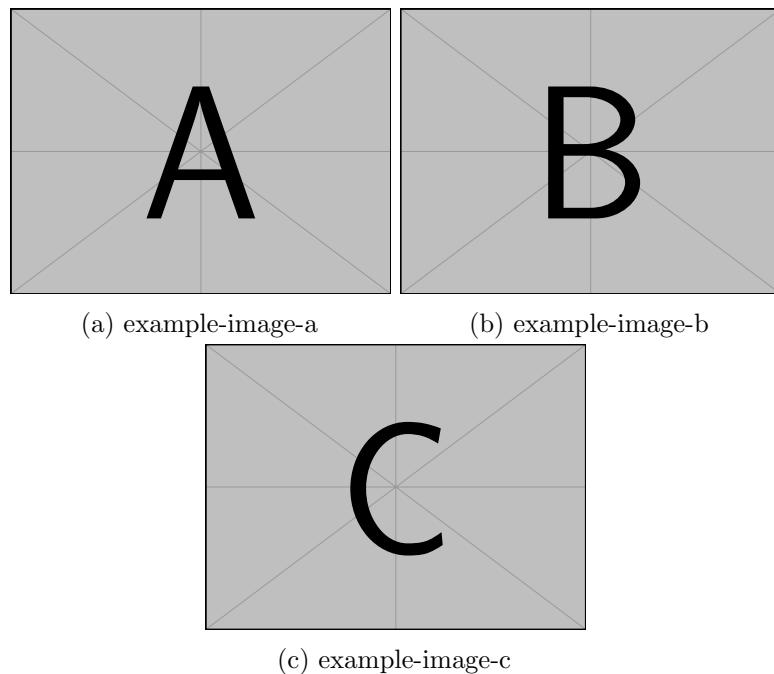


Figure 1.3.: One caption to describe them all.

### 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<br>over two lines            | bla right              |
| bla left | bla centered<br>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.