

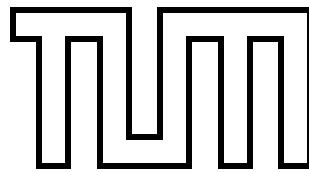
SCHOOL OF COMPUTATION, INFORMATION
AND TECHNOLOGY

DER TECHNISCHEN UNIVERSITÄT MÜNCHEN

Bachelor's Thesis in Informatics

**E cient Bayesian Inference of
Hydrological Model Parameters:
Implementation of a Parallel Markov
Chain Monte Carlo Approach**

Chengjie Zhou



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Bachelor's Thesis in Informatics

E cient Bayesian Inference of Hydrological Model Parameters: Implementation of a Parallel Markov Chain Monte Carlo Approach

Ein sehr cooler Titel

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Date: Date of Submission

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

Munich, Date of Submission

Chengjie Zhou

Acknowledgements

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Abstract

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Zusammenfassung

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Part I.

Introduction and Background

1. Introduction

2. Introduction to Markov Chain Monte Carlo

3. Introduction

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

3.1. Tips

3.1.1. How to Describe

When listing several points you have three basic options:

- | | | |
|---|--|--|
| <ul style="list-style-type: none">• itemize• enumerate• description | <ol style="list-style-type: none">1. itemize2. enumerate3. description | <p>itemize short, unordered
enumerate short ordered
description listing of descriptions. Also nice for longer ones.</p> |
|---|--|--|

3.1.2. 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 3.
- Footnotes for url or further notes: `\footnote{\url{https://www.top500.org}}` ¹

3.1.3. How to Math

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

$$1 + 1 \leq 3 \tag{3.1}$$

$$\left(\frac{10}{1}\right) - 9 = 1 \tag{3.2}$$

¹<https://www.top500.org>

3.2. Environments

3.2.1. How to Figure

Anything can also be put in multiple columns.

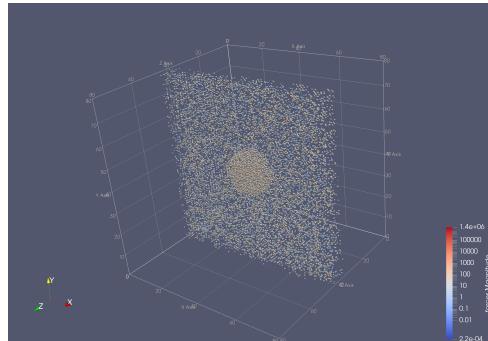


Figure 3.1.: Some Caption. Always also include a source if it wasn't created by you!
Source: [Gra17]

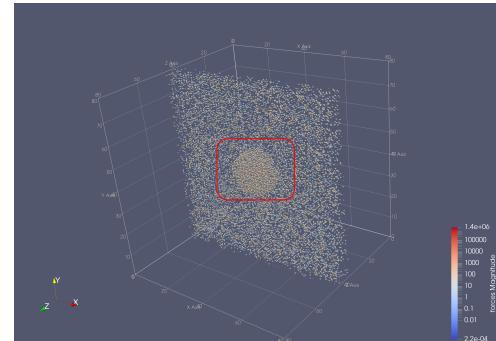


Figure 3.2.: Figures can be drawn on or completely generated with tikz.

Sub gures If grouping of several pictures seems reasonable, think about using sub gures. This often comes in handy with plots.

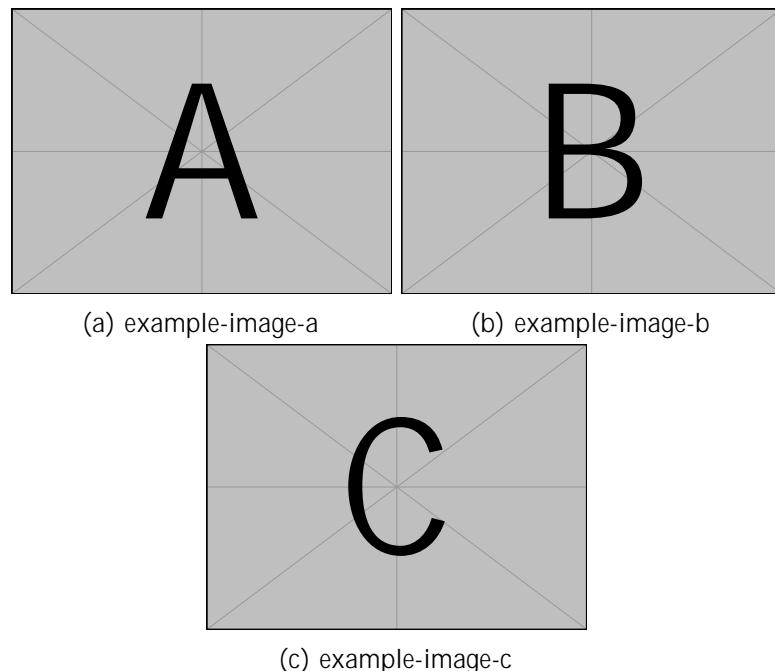


Figure 3.3.: One caption to describe them all.

3.2.2. 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  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 3.4.: some description what is happening

3.2.3. How to Code

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

Listing 3.1: General form of a typical runner() function.

3.2.4. 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 3.1.: Fancy table that can contain line breaks and extended cells.

Part II.

Appendix

A. Some more stu

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

List of Figures

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List of Tables

3.1. Some Table

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.