

## A Representative Thesis Outline<sup>1</sup>

Title Page

Declaration of Academic Honesty

Zusammenfassung

Abstract

Acknowledgments

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### 1. Introduction

... should include the following:

- *motivation* (why is this problem interesting? offer examples)
- *research challenge* (what is the obstacle to be overcome?)
- *novelty* (was this problem already solved?)
- *anticipated impact* (how does solving this problem impact our world?)

### 2. Scientific Background

... should include the following:

- *definitions / technical terms*
- *theoretical foundations / principles*
- *descriptions* of algorithms, hardware, software, and/or systems *employed*

### 3. Research Problem

... should include the following:

- a succinct, precise, and unambiguous *statement of the research problem* or question to be solved
- *goals* and *subproblems* that will be explored, including the *scope* of the thesis (i.e., what is in and out of scope)

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<sup>1</sup> **Note:** Chapters 3-5 are the *core* of the thesis, whereas Chapters 1, 2, 6, and 7 provide *context*. The major contributions of the scientific work should be in Chapters 4 and 5. **Please note that this structure solely serves as a guideline and should be customized accordingly.** In particular, the generic chapter titles should be replaced with more specific ones, where appropriate (e.g., Chapter 4).

#### 4. The Specific Solution Approach

... should include the following:

- *research methodology* (e.g., prototype and experiments, case study, literature survey, theoretical analysis)
- *derivations* and *descriptions* of algorithms, hardware, software, and/or systems developed

#### 5. Experimental (and/or Analytical) Evaluation

##### 5.1 Experimental Setup

... should include the following:

- define experimental data and workload(s)
- discussion about the selection and interpretation of the evaluation metrics
- discussion about the computing environment, including hardware, software, tools

##### 5.X For each Experiment Class X: Design and an Interpretation of the Results

... should include the following:

- which experiments will be conducted and why?
- for each experiment, what are objectives, baselines, and expected results?
- description and an interpretation of the experimental results
- explain any anomalies or any unexpected behavior

#### 6. Related Work

... should include the following:

- *state-of-the-art solutions to the problem*
- *related work* and a *differentiation of your contributions to the related work*

#### 7. Conclusion

... should include the following:

- problem restated and a brief summary of the methodology
- *student contributions* (e.g., survey, open-source software, journal publication)
- a brief summary of the *findings and results*
- *limitations* and *generalizability* of the findings and results
- *lessons learned*
- recommendations for *future research*

#### Bibliography

Use the *ACM Bibliography Style* (<https://www.bibtex.com/s/bibliography-style-base-acm/>) to list the set of reference sources.

#### Appendix A. Further Details on the Solution Approach

#### Appendix B. Extended Version of the Experimental Results