Czech Technical University in Prague
Faculty of Information Technology
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DOCTORAL STUDY REPORT TITLE

by

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Abstract

This report deals with...

Keywords:
keyword1, keyword2, keyword3, keyword4, keyword5.

Acknowledgement

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Abbreviations

Number Sets

$\mathbb{N}$	Set of non-negative integers
$\mathbb{Z}$	Integer numbers set
$\mathbb{Z}_m$	Least nonzero residue number set with a module of m
$\mathbb{S}_m$	Symmetric residue number set with a module of m
$\mathbb{Q}$	Rational numbers set
$\mathbb{F}_t$	Floating point numbers set with a precision of t
$\mathbb{R}$	Real numbers set

Common Mathematical Functions and Operators

10_2	Numbers' radices are designated with a subscript
$\mathbf{b}$	Vector $\mathbf{b}$
b_i	the i^{th} element of vector $\mathbf{b}$
$\|\|\mathbf{b}\|\|$	Norm of vector $\mathbf{b}$
$\dim \mathbf{b}$	Dimension of vector $\mathbf{b}$
$\mathbf{A}$	Matrix $\mathbf{A}$
$a_{i,\,j}$	Element of matrix $\mathbf{A}$ at the i^{th} row, and the j^{th} column
$\mathbf{A}^{-1}$	Inverse matrix to matrix $\mathbf{A}$
$\mathbf{A}^{T}$	Transposed matrix to matrix $\mathbf{A}$
$\|\|\mathbf{A}\|\|$	Norm of matrix $\mathbf{A}$
$\operatorname{cond} \mathbf{A}$	Condition number of matrix $\mathbf{A}$
$\operatorname{rank} \mathbf{A}$	Rank of matrix $\mathbf{A}$ — how many independent rows/columns it has
$\max\{a,\, b\}$	Maximum of a and b, a when $a \geq b$, b when $a < b$
$\min\{a,\, b\}$	Minimum of a and b, a when $a \leq b$, b when $a > b$
$O(x)$	The big O notation
$\Theta(x)$	The big Θ notation

Mathematical Terminology

Q	Number of prime number modules
M	A product of individual modules $M = \prod_{i=1}^{Q} m_i$
...	...
...	...
...	...
...	...

Miscellaneous Abbreviations

FPU	Floating Point Unit
...	...
...	...
...	...
...	...

Chapter 1

Introduction

1.1 Motivation

...

1.2 Problem Statement

Brief description of the topic of the report. A complete explanation of the topic shall be described within chapter 2 at page 4.

1.3 Related Work/Previous Results

Briefly.

1.4 Structure of the Report

The report is organized into ... chapters as follows:

1. *Introduction*: Describes the motivation behind our efforts together with our goals. There is also a list of contributions of this report.
2. *Background and State-of-the-Art*: Introduces the reader to the necessary theoretical background and surveys the current state-of-the-art.
3. *Overview of Our Approach*: ...
4. *Prelimitary Results*: ...
5. *Conclusions*: Summarizes the results of our research, suggests possible topics of your doctoral thesis and further research, and concludes the report.

Chapter 2

Background and State-of-the-Art

...

2.1 Theoretical Background

2.2 Previous Results and Related Work

Chapter 3

Overview of Our Approach

The sample Fig. 3.1 shows ...

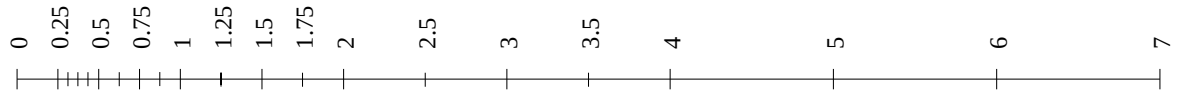

Figure 3.1: Distribution of the floating point numbers. This figure shows a distribution of a sample floating point number set with a precision $t = 3$, and $e_{min} = -1$ and $e_{max} = 3$.

There are two basic floating point data types , as defined by the IEEE 754-2008 [1] standard, are shown in Tab. 3.1.

	Sign [b]	**Exponent** [b]	**Mantissa** [b]	**Prec.** [dig]	**Total** [b]
binary32	1	8	24	8	32
binary64	1	11	53	16	64

Table 3.1: Basic floating point data types.

Chapter 4

Prelimitary Results

4.1 Prelimitary Result 1

4.2 Prelimitary Result 2

4.3 Prelimitary Result 3

4.4 Discussion

4.5 Summary

Chapter 5

Conclusions

5.1 Proposed Doctoral Thesis

Title of the thesis:
TITLE
The author of the report suggests to present the following:

5.1.1 Topic 1

5.1.2 Topic 2

5.1.3 Topic 3

Bibliography

[1] IEEE Computer Society Standards Committee. *IEEE Standard for Floating-Point Arithmetic*. ANSI/IEEE STD 754-2008. The Institute of Electrical and Electronics Engineers, Inc., 2008.

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[A.1] R. Gortz, F. Tölökö. *On the Carpathian Castle*. Transylvanian Journal of ..., Werst, Romania, 2010.

The paper has been cited in:

- Š. Nováků. *Carpathian Castle Revealed*, International Symposium on Carpathian Legends, 1:319–323, 2010.

[A.2] R. Gortz *Another publication*. 36$^{\text{th}}$ International Conference on ..., pp. 19-24, Štrbské pleso, Slovak Republic, 2010.

Appendix A

...

A.1 ...

Section not in the Table of Contents