

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.

Abstrakt

Tato zpráva pojednává o ...

Klíčová slova:

slovo1, slovo2, ...

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}
$\text{cond } \mathbf{A}$	Condition number of matrix \mathbf{A}
$\text{rank } \mathbf{A}$	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. *Preliminary 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 ...

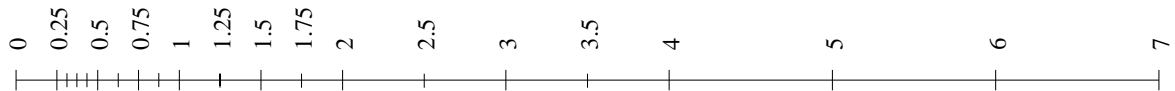


Figure 3.1: Distribution of the floating point numbers. This figure shows a distribution of a sample floating point number set with a precision $t = 3$, and $e_{min} = -1$ and $e_{max} = 3$.

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

Preliminary Results

4.1 Preliminary Result 1

4.2 Preliminary Result 2

4.3 Preliminary 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.

Publications of the Author

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

The article has been cited in:

- Š. Nováků. *Carpathian Castle Revealed*, International Symposium on Carpathian Legends, 1:319–323, 2010.
- [A.2] R. Gortz *Another publication*. 36th International Conference on ..., pp. 19-24, Štrbské pleso, Slovak Republic, 2010.

Appendix A

...

A.1 ...

Section not in the Table of Contents