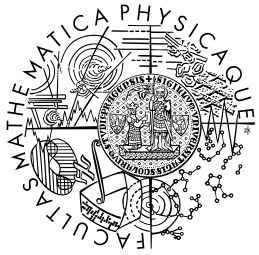

FACULTY
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BACHELOR THESIS

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Evolutionary optimization of machine learning workflows

Department of Theoretical Computer Science and Mathematical Logic

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Study programme:	Computer Science
Study branch:	General Computer Science

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Dedication.

Title: Evolutionary optimization of machine learning workflows

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Contents

Introduction **2**

1 Preliminaries **3**
1.1 Machine learning 3
1.1.1 Model ensembles 3

2 Title of the second chapter **4**
2.1 Title of the first subchapter of the second chapter 4
2.2 Title of the second subchapter of the second chapter 4

Conclusion **5**

Bibliography **6**

List of Figures **7**

List of Tables **8**

List of Abbreviations **9**

A Attachments **10**
A.1 First Attachment 10

Introduction

1. Preliminaries

What we will talk about, theory

1.1 Machine learning

The field of machine learning encompasses a broad range of algorithms and statistical methods for data processing. In his book on machine learning, Flach provides the following general definition:

"Machine learning is the systematic study of algorithms and systems that improve their knowledge or performance with experience." (Flach [2012])

More precisely, a machine learning problem is the task of using previously gained knowledge to solve a similar problem. This procedure can be repeated as to improve the overall 'experience'.

The exact meaning of knowledge and performance varies with different tasks. Some examples of knowledge of an algorithm include labeled training data, rewards for previous decisions and many others. The performance usually takes the form of some score — which is in some cases accordance with the 'ground truth', i.e. labeled training data, in other cases the success of an action or an error measure.

With growing 'experience', the performance may increase as well. *Define overfitting, generalization error, how to avoid. Bias vs variance.*

1.1.1 Model ensembles

2. Title of the second chapter

2.1 Title of the first subchapter of the second chapter

2.2 Title of the second subchapter of the second chapter

Conclusion

Bibliography

Peter Flach. *Machine Learning: The Art and Science of Algorithms That Make Sense of Data*. Cambridge University Press, New York, NY, USA, 2012. ISBN 1107422221, 9781107422223.

List of Figures

List of Tables

List of Abbreviations

A. Attachments

A.1 First Attachment