Mathematical Theory of Advanced Computing

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Preface

This book is the English translation of Wolfgang W. Osterhage's *Mathematische Algorithmen und Computer-Performance*, Springer Vieweg, Heidelberg, 2016. It has been enhanced by the following items and sections:

- Chapter 5: Jump Transformations: Source code for computer art graphs and additional material in electronic form of 35 realizations of computer art
- Chapter 6: Data Management
- Chapter 7: Quantum Computers.

Initially this book originated from a collection of disparate papers all related to computer performance. Since a comprehensive work concerning performance had already been published (s. References), the challenge was to sort of compile a later supplement of these aspects and deliver it in an acceptable form. There are some special features in this book relating to two new algorithms and database theory, which have not yet been put to the test in the field. We hope to have called forth the interest of software and hardware architects alike.

On this occasion, I would like to express my special thanks to Martin Börger and Sophia Leonhard and their team for their patient support for this project.

Wachtberg-Niederbachem, Germany Wolfgang W. Osterhage

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