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Petra Perner

Data Mining on Multimedia Data

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Series Editors

Gerhard Goos, Karlsruhe University, Germany
Juris Hartmanis, Cornell University, NY, USA
Jan van Leeuwen, Utrecht University, The Netherlands

Author

Petra Perner
Institute of Computer Vision and Applied Computer Sciences
August-Bebel-Str. 16-20
04275 Leipzig
Germany
E-mail: ibaiperner@aol.com

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Preface

The increasing use of computer technology in many areas of economic, scientific, and social life is resulting in large collections of digital data. The amount of data which is created on and stored in computers is growing from day to day. Electronic database facilities are common everywhere and can now be considered a standard technology. Beyond that arises the question: What is the next higher quality that can be derived from these electronic data pools? The next logical step would be the analysis of these data in order to derive useful information that is not easily accessible to humans. Here data mining comes into play. By using such technology it is possible to automatically derive new knowledge, new concepts, or knowledge structures from these digital data. It is a young discipline but has already seen enormous knowledge growth.

Whereas the early work was done on numerical data, multimedia applications now drive the need to develop data mining methods that can work on all kinds of data, such as documents, images, and signals. The book is devoted to this requirement.

It is written for students, experts from industry and medicine, and scientists who want to get into the field of mining multimedia data. We describe the basic concepts as well as various applications in order to inspire people to use data mining technology in practice wherever it is applicable.

In the first part of the book we introduce some basic concepts: how information pieces can be extracted from images and signals, and the way they have to be represented in the system.

In the second part of the book we introduce the basic concepts of data mining in a fundamental way so that the reader gets a good understanding of these.

The third part of the book examines real applications of how these concepts work on real data.

I would like to thank Prof. Atsushi Imiya from the Multimedia Technology Division at Chiba University, Japan for the time he spent on studying the manuscript for this book and his valuable comments on improving it. For his inspiring discussions on the topic of data mining of multimedia data and his constant interest in the progress of this manuscript I would like to thank Prof. George Nagy from Rensselaer Polytechnic Institute, Troy, USA.

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