

Preface

Data mining, machine learning as well as data networks and communication are the key areas of information technology—a field in which massive changes and challenges have occurred within the last few years while significantly influencing other areas of daily life. Progress is made not only in designated, separate research areas, but also by interdisciplinary influences among them. Of course, these rapid developments in research and daily life came about by the massive utilisation of the Internet, which enables to create and store an already huge and permanently growing pile of (raw) data generated by millions of users from different locations. Obtaining knowledge or wisdom from them becomes an increasingly tedious task and depends on the opportunities to combine user activities and requests with the data representing the requested information from the right locations at desired times. If the necessary network and data mining activities can successfully be carried out, great achievements for businesses, governments and academia can be realised on the one hand, but on the other hand dangers for people and society at large may arise.

The chapters of this book contain the main, well-selected and reviewed contributions of scientists who met at the 12th International Conference on Computing and Information Technology in recognition of the importance to expand and improve the current technologies. There are three main sections in this book representing the three main directions in the recent developments of data mining and computer networking.

Since most activities originate are made on behalf of or directly controlled by users, and since 80 % of all contents in the World Wide Web are text-based, aspects of User Centric Data Mining and Text Processing are the topic of the first chapter, besides classical text-mining, picture and video processing, handwriting recognition and audio processing methods, which become more and more important in our multimedia world.

Data Mining Algorithms and Their Application constitute the key technology to elicit desired information in a reasonable amount of time and stand, and therefore become the focus of this book's considerations. Applications from industry,

business, medicine and engineering give an idea of the always-present and everything-penetrating character of these technologies.

Finally, as the big breakthrough of information technology has been caused by the Internet and modern communication technologies, which allow to access data anywhere in the world in extremely short times, Optimisation of Complex Networks must ensure that the required speed of data access and transfer can be also guaranteed in the future. In this context, Cloud Computing and Security are the central issues of recent developments and need to be understood and applied in a right and efficient manner.

With going through the chapters of this book, we hope that readers, especially researchers, will be able to find novel contributions on state-of-the-art technologies for data mining, machine learning and data networking. Beginners or research students should be able to grasp basic ideas, as well as to gain fundamental knowledge.

The book was prepared with the combined effort of the staff of the Faculty of Information Technology at King Mongkut's University of Technology North Bangkok. We also would like to thank Ms. Watchareewan Jitsakul, whose work has been very valuable to the success of the publishing process. Finally, we are grateful to Springer-Verlag for the support provided and for agreeing to publish this book.

Bangkok, Thailand
March 2016

Phayung Meesad
Sirapat Boonkrong
Herwig Unger

Recent Advances in Information and Communication
Technology 2016

Proceedings of the 12th International Conference on
Computing and Information Technology (IC2IT)

Meesad, P.; Boonkrong, S.; Unger, H. (Eds.)

2016, XIII, 334 p. 118 illus., Softcover

ISBN: 978-3-319-40414-1