Multimedia Systems and Applications

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Multimedia Tools and Applications for Environmental & Biodiversity Informatics

Springer

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Multimedia Systems and Applications
ISBN 978-3-319-76444-3 ISBN 978-3-319-76445-0 (eBook)
https://doi.org/10.1007/978-3-319-76445-0

Library of Congress Control Number: 2018943131

The authors would like to dedicate this book to the citizen scientists all around the world who invest their time, capacity and knowledge to develop research projects with the scientific community. Several research results presented in this book could not have been reached without a large and massive investment of citizens: this is why the authors would like to thank, in the broad sense, the citizen scientist community.

Preface

The recent and rapid advancements of digital technologies have resulted in a great increase of multimedia data production worldwide. This is also the case for multimedia data that characterize our environment and the earth biodiversity and reflect their status, behavior, change as well as human interests and concerns. Such data become more and more crucial for understanding environmental issues and phenomena. Therefore, there is an increasing need for the development of advanced methods, techniques and tools for collecting, managing, analysing, understanding and modelling environmental and biodiversity data. This edited volume focuses on the last and most impactful advancements of this field. It provides important recommendations for the implementation of computational platforms dedicated to environmental monitoring or citizen science observatories. It gives innovative and detailed architectures and specifications for the development of real-time, highly scalable, detection systems. Finally, it demonstrates the effectiveness of computational intelligence approaches in the analysis and modelling of relevant data.

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Acronyms

CNN	Convolutional Neural Network. 162
FCM	Flat Classification Model. 158, 160, 162–164, 166, 167
H1K	Herbaria1K. 156–158
HD-CNN	Hierarchical Deep CNN. 155
I	ImageNet. 157
MCM	Multi-Task Classification Model. 160, 161, 163, 165–167
PRELU	Parametric REctified Linear Unit. 160