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Computer Music Modeling and Retrieval

Sense of Sounds

4th International Symposium, CMMR 2007
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Revised Papers

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Preface

CMMR is an annual event focusing on important aspects of computer music. CMMR 2007 was the fourth event in this series and was co-organized by Aalborg University Esbjerg, Denmark (<http://www.aau.dk>) and Laboratoire de Mécanique et d'Acoustique, CNRS in Marseille, France (<http://www.lma.cnrs-mrs.fr>). The conference was held in Copenhagen during 27–31 August, 2007 jointly with the International Computer Music Conference 2007 (ICMC2007).

The first three editions of CMMR were a great success and gathered high-quality papers by prominent researchers from the field of computer music. The post-proceedings of these conferences were published by Springer in the *Lecture Notes in Computer Science* series (LNCS 2771, LNCS 3310, LNCS 3902). The current edition follows the lineage of the previous ones, including the collection of 33 papers specially reviewed and corrected for this post-proceedings volume.

The field of computer music is interdisciplinary by nature and closely related to a number of computer science and engineering areas such as information retrieval, programming, human-computer interaction, digital libraries, hypermedia, artificial intelligence, acoustics, and signal processing. In 2007, CMMR focussed on a challenging theme: “The Sense of Sounds.” Defining the notion of *sense of sounds* is intricate, since it refers to a very general concept that can be addressed through a large number of domains (philosophy, cognition, music analysis and musicology, perception, acoustics, signal processing). Nevertheless, this notion is familiar to all of us and our concern can be illustrated by questions like: Why do we easily distinguish a sound produced by a breaking glass from the sound produced by a shock on a metallic structure, although the spectral content of the two sounds is very close? Why do we easily accept the ersatz of a horse’s hooves made by a sound effects engineer knocking coco-nuts together? Why do some musical excerpts generate strong emotions? These questions clearly show both the complexity and the pragmatism behind the rather unknown concept of *sense of sounds*. CMMR 2007 mainly addressed this issue from the sound modeling and retrieval point of view, aiming at establishing relations between the structure of sounds and their impact on human beings as well as discussing new progresses in this field. In spite of a growing activity and interest by the international research community for this particular theme, CMMR2007 probably was the first international gathering devoted to this specific topic. It was partly supported by the French National Research Agency (ANR) within the project *senSons* (www.sensons.cnrs-mrs.fr).

The book is divided into two main chapters dealing with the understanding and the generation of *sense of sounds*. The chapter “Towards the Understanding of Sense of Sounds” addresses theoretical issues related to the perceptual and cognitive aspects of the sounds. Here, we made a distinction between feature

extraction and perceptual and cognitive aspects of music, and opened the field to multimodal aspects. In the chapter “Towards the Generation of Sense of sounds,” practical issues are addressed and both methods and tools to manipulate perceptual features are described. In addition, some musical applications are presented, showing the close relationship between art and *sense of sound*-related research areas.

We would like to thank the Program Committee members for their valuable paper reports and thank all the participants who made CMMR2007 “*sense of sounds*” a stimulating and unique event. Finally, we would like to thank Springer for accepting to publish the CMMR2007 post-proceedings in their LNCS series.

February 2008

Richard Kronland-Martinet
Sølvi Ystad
Kristoffer Jensen

Organization

CMMR2007 “*sense of sounds*” was jointly organized by Aalborg University Denmark, and Laboratoire de Mécanique et d’Acoustique, CNRS in Marseille, France.

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Re-New - Digital Arts Forum, Denmark

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