

Preface

During the last decades, plenty of new ways have emerged to process, store, distribute and access audiovisual information. Media, information and telecommunications technology sectors have already converged in this context. Other sectors such as automotive, industrial and health applications are also requiring technology such as image, video and audio analysis in a connected systems approach. By capabilities of digital processing, audiovisual media have been changing, are becoming mobile, multimodal, interactive, pervasive, can be used from anywhere, are giving freedom to play with, and are entering everyday life. Multimedia communication establishes new forms of communication between people, between people and machines, as well as machine-to-machine communication, either using signals directly, or feature parameters extracted from them. Intelligent media interfaces are becoming increasingly important, and machine assistance in accessing media, in acquiring, organizing, distributing, manipulating and consuming audiovisual information has become vital.

Based on my lectures in topics of multimedia communication systems held over many years at RWTH Aachen University, this book, along with another that had appeared one year ago, represents a substantially upgraded version of my textbook ‘Multimedia Communication Technology’ of 2004. Whereas the topic of the last year’s book is ‘Multimedia Signal Compression and Transmission’ (MSCT), the current book’s topic is identification and recognition of multimedia signals. Both books (as well as the two lectures they are based upon) are self-contained and therefore not to be understood as volume 1 and 2 of a package. However, due to commonalities between coding and content analysis (both based on concepts from signal processing and information theory), it is not surprising that the reader will frequently find cross references to MSCT.

Since the above-mentioned 2004 release, the progress that was made in content analysis of audiovisual data has again been breath-taking. Nowadays, multimedia content recognition evolves to become mature enough for allowing fully automatic and reliable autonomous applications. Though some of the example methods introduced in the book may become outdated by the advent of even better ones in the near future, the main emphasis of the book is about understanding the principles behind, and enable the reader to become involved in the development of such systems himself.

Most chapters are supplemented by homework problems, for which solutions are made available from <http://www.ient.rwth-aachen.de>.

I would like to express my sincere thanks to all who contributed in making this book possible, in particular the many students of my lectures who gave extremely valuable hints for improvements over draft versions that I had provided as lecture notes during the past years.

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