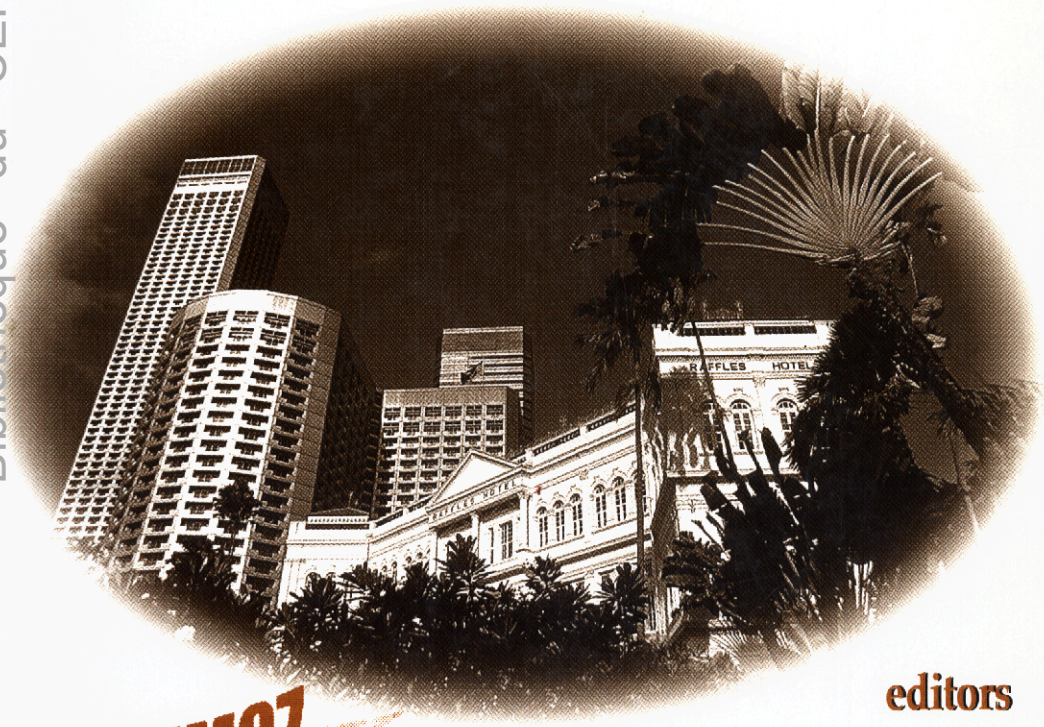
MULTIMEDIA MODELING

Modeling Multimedia Information and Systems



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editors

Pung Hung Keng

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Preface

The world is inherently complex and multimedia in nature. The development of computer systems to tackle real-world problems is an extremely difficult task. As computer technologies are becoming multimedia enabled, more powerful and complex computer systems capable of manipulating multimedia information are being developed and ultimately brought to the market place. To fully comprehend the complexity of such undertakings, proper modeling of multimedia information and systems must be carried out.

A model provides a high-level abstraction of the system on which the implementation is based upon. The model permits the desirable properties of the system to be extracted and analyzed. It also provides a uniform framework for integration between different systems, and for interactions between the system and human users.

Apart from multimedia system modeling, another challenging issue is the development of high-level model for information content. Up till now, multimedia technology has been focusing on processing the "atoms" (or "forms") of the media, rather than their semantic contents. Most of such systems emphasize the presentation, transmission, storage and processing of raw multimedia data, where everything is converted into streams of low-level bits and bytes. Such systems lack capabilities for users to perform high-level tasks on the media. The media used in this form are passive in nature. In contrast, an underlying model permits the media to be active, in which the users may interact and manipulate the media contents directly to carry out useful tasks such as the retrieval of additional information, and the control of real-world entities. The model also permits different medium information to be integrated and manipulated in a seamless manner.

This volume is devoted to the discussion of effective modeling of multimedia information and systems for a wide range of applications. It aims to provide common modeling frameworks for integrating the diverse fields of multimedia information. The volume contains 24 regular technical articles and 7 shorter papers. The articles are grouped into 7 chapters. The chapters include: Information modeling, storage and integration; Indexing and retrieval of multimedia information; Distributed multimedia systems and applications; Model-based graphics, video and virtual reality; Authoring and presentation of multimedia information; Topological and geometric modeling; and Hypermedia.

All the articles contained in this volume were selected, after vigorous peer reviews, for presentation at the fourth international conference on Multi-Media Modeling (MMM'97) held in Singapore on 17-20 November 1997. The conference brought together researchers from the fields of multimedia, computer graphics, computer vision, database, information retrieval and networking.

We are grateful to the authors for submitting the papers, and the reviewers for their considerable efforts in reviewing the papers on time. We would also like to acknowledge the support of our sponsors and co-organizers for making this conference possible. Finally, special thanks are due to the conference organizing committee and the conference secretariat - Mrs Veronica Ho - for helping to put this conference together.

H.K. Pung
T.S. Chua

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