

Foreword

From Quality of Service to User Perception

Over the last 15 years, multimedia systems and communication have made great progress in investigating mechanisms, policies in our operating systems, distributed systems, networks to support different types of distributed multimedia applications and their Quality of Service (QoS) parameters such as throughput, end-to-end delay, loss rate, and others. However, as it was shown in many multimedia publications including books, research papers, and reports, satisfying QoS only is not enough to achieve the full user acceptance of developed multimedia services. QoS provisioning is a necessary but not a sufficient condition in the end-to-end acceptance of multimedia. Researchers in human-computer interfaces (HCI), machine learning, database, and other user-driven research domains indicated through many venues the need of transition from QoS to user perception, and the close connection between QoS and user perception. The results are there, but they are spread across different workshops, conferences, and journals of many disciplines such as systems, networks, vision, speech, and HCI. For example, looking back at the IFIP/IEEE International Workshop on Quality of Service (IWQoS), a leading working conference in QoS, only a few user perception papers relating QoS to user perception appeared over the last 10 years.

Hence, it is great to see the effort of this book, *Digital Multimedia Perception and Design*, which concentrates the various aspects of user perception in one place. The book provides a very broad view on multimedia perception and design, making user perception its focal point. The presented book nicely ties the QoS and user perception; gives a clean summarization of the mathematics of perception to support personaliza-

tion of queries to multimedia databases; brings cognitive science into the picture to derive cognitive states of users and detect individual differences; stresses the need for visualization of multi-dimensional auditory information; explores affective computing to recognize user's happiness and wellbeing; includes user studies to understand the influence of multimedia senses such as smell, touch, sight, and sound, with respect to user perception in multimedia design; shows the differences in user perception if we take into account hand preferences between left- and right-handed users; explores theoretically and experimentally the usage of machine learning in multimedia design and perception; and investigates user perception when personalizing different types of multimedia content such as Web-based multimedia content, multimedia databases, video-on-demand, and others.

I expect that this book will be of great assistance to many researchers and developers involved in multimedia design and understanding of user perception at the multimedia human-computer interface. Furthermore, I am certain it will be very useful to many researchers and developers in the area of distributed multimedia systems and applications, since this book will assist in a better understanding of how to make the difficult transition from QoS to user perception. I congratulate the editors and the authors for their worthwhile and successful endeavor, and wish the readers, especially multimedia designers, a productive usage of this interesting material.

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