

# Digital Multimedia Perception and Design

Gheorghita Ghinea, Brunei University, UK

Sherry Y. Chen, Brunei University, UK



**IDEA GROUP PUBLISHING**

Hershey • London • Melbourne • Singapore

# Digital Multimedia Perception and Design

## Table of Contents

<b>Foreword</b> .....	<b>vi</b>
<i>Klara Nahrstedt, University of Illinois at Urbana-Champaign, USA</i>	
<b>Preface</b> .....	<b>viii</b>

### Section I: Perceptual Modeling in Multimedia

<b>Chapter I</b>	
<b>Perceptual Semantics</b> .....	<b>1</b>
<i>Andrea Cavallaro, Queen Mary University of London, UK</i>	
<i>Stefan Winkler, National University of Singapore and Genista Corporation, Singapore</i>	

<b>Chapter II</b>	
<b>The Mathematics of Perception: Statistical Models and Algorithms for Image Annotation and Retrieval</b> .....	<b>21</b>
<i>Edward Y. Chang, University of California, USA</i>	

<b>Chapter III</b>	
<b>Feature-Based Multimedia Semantics: Representational Forms for Instructional Multimedia Design</b> .....	<b>47</b>
<i>Michael May, LearningLab DTU, Technical University of Denmark, Denmark</i>	

<b>Chapter IV</b>	
<b>Incorporating and Understanding the User Perspective.....</b>	<b>81</b>
<i>Stephen R...Gulliver, Brunei University, UK</i>	

## Section II: Multimedia and the Five Senses

<b>Chapter V</b>	
<b>Multimodal Expressions: E-Motional and Non-Verbal Behaviour.....</b>	<b>110</b>
<i>Lesley Axelrod, Brunei University, UK</i>	
<i>Kate Hone, Brunei University, UK</i>	

<b>Chapter VI</b>	
<b>Learning Science Concepts with Haptic Feedback.....</b>	<b>132</b>
<i>Linda D. Bussell, Kinder Magic Software, USA</i>	

<b>Chapter VII</b>	
<b>Perceptual-Based Visualization of Auditory Information Using Visual Texture ....</b>	<b>152 .</b>
<i>Kostas Giannakis, Society for Excellence and Innovation in Interactive Experience Design, Greece</i>	

<b>Chapter VIII</b>	
<b>Using Real-Time Physiological Monitoring for Assessing Cognitive States.....</b>	<b>170</b>
<i>Martha E. Crosby, University of Hawaii, USA</i>	
<i>Curtis S. Ikehara, University of Hawaii, USA</i>	

## Section III: Human Factors

<b>Chapter IX</b>	
<b>Perceptual Multimedia: A Cognitive Style Perspective.....</b>	<b>187</b>
<i>Gheorghita Ghinea, Brunei University, UK</i>	
<i>Sherry Y. Chen, Brunei University, UK</i>	

<b>Chapter X</b>	
<b>Expert-Novice Differences and Adaptive Multimedia.....</b>	<b>206</b>
<i>Slava Kalyuga, University of New South Wales, Australia</i>	

<b>Chapter XI</b>	
<b>Issues of Hand Preference in Computer Presented Information and Virtual Realities.....</b>	<b>224</b>
<i>Adam Tilinger, University of Veszprem, Hungary</i>	
<i>Cecilia Sik-Ldnyi, University of Veszprem, Hungary</i>	

## Section IV: Multimedia Communication and Adaptation

<b>Chapter XII</b>	
<b>Incorporating User Perception in Adaptive VideoStreamingSystems.....</b>	<b>244</b>
<i>Nicola Cranley, University College Dublin, Ireland</i>	
<i>Liam Murphy, University College Dublin, Ireland</i>	
<b>ChapterXIII</b>	
<b>A Three-Layer Framework for QoS-Aware Service Design.....</b>	<b>266</b>
<i>Greger Wikstrand, Umea University, Sweden</i>	
<b>ChapterXIV</b>	
<b>Adaptation and Personalization of Web-Based Multimedia Content.....</b>	<b>284</b>
<i>Panagiotis Germanakos, National Kapodistrian University of Athens, Greece</i>	
<i>Constantinos Mourlas, National Kapodistrian University of Athens, Greece</i>	
<b>About</b>	<b>the</b>
	<b>Authors</b> _____
	<b>305</b>
<b>Index.....</b>	<b>311</b>