DESCRIPTION

A comprehensive presentation of the video communication techniques and systems, this book examines 4G wireless systems which are set to revolutionise ubiquitous multimedia communication. 4G Wireless Video Communications covers the fundamental theory and looks at systems’ descriptions with a focus on digital video. It addresses the key topics associated with multimedia communication on 4G networks, including advanced video coding standards, error resilience and error concealment techniques, as well as advanced content-analysis and adaptation techniques for video communications, cross-layer design and optimization frameworks and methods. It also provides a high-level overview of the digital video compression standard MPEG-4 AVC/H.264 that is expected to play a key role in 4G networks.

Material is presented logically allowing readers to turn directly to specific points of interest. The first half of the book covers fundamental theory and systems, while the second half moves onto advanced techniques and applications. This book is a timely reflection of the latest advances in video communications for 4G wireless systems.

• One of the first books to study the latest video communications developments for emerging 4G wireless systems

• Considers challenges and techniques in video delivery over 4G wireless systems

• Examines system architecture, key techniques and related standards of advanced wireless multimedia applications

• Written from both the perspective of industry and academia
ABOUT THE AUTHOR

Haohong Wang received the B.S. degree in computer science and the M.Eng. degree in computer & its application both from Nanjing University, the M.S. degree in computer science from University of New Mexico, and the Ph.D. degree in Electrical and computer engineering from Northwestern University. He is currently a Senior System Architect and Manager at Marvell Semiconductors at Santa Clara, California. Prior to joining Marvell, he held various technical positions at AT&T, Catapult Communications, and Qualcomm. Dr. Wang’s research involves the areas of multimedia communications, graphics and image/video analysis and processing. He has published more than 40 articles in peer-reviewed journals and International conferences. He is the inventor of more than 40 U.S. patents and pending applications. He is the co-author of 4G Wireless Video Communications (John Wiley & Sons, 2009), and Computer Graphics (1997). Dr. Wang is the Associate Editor-in-Chief of the Journal of Communications, Editor-in-Chief of the IEEE MMTC E-Letter, an Associate Editor of the Journal of Computer Systems, Networks, and Communications and a Guest Editor of the IEEE Transactions on Multimedia. He served as a Guest Editor of the IEEE Communications Magazine, Wireless Communications and Mobile Computing, and Advances in Multimedia. Dr. Wang is the Technical Program Chair of IEEE GLOBECOM 2010 (Miami). He served as the General Chair of the 17th IEEE International Conference on Computer Communications and Networks (ICCCN 2008) (US Virgin Island), and the Technical Program Chair of many other International conferences including IEEE ICCCN 2007 (Honolulu), IMAP 2007 (Honolulu), ISMW 2006 (Vancouver), and the ISMW 2005 (Maui). He is the Founding Steering Committee Chair of the annual International Symposium on Multimedia over Wireless (2005–). He chairs the TC Promotion & Improvement Sub-Committee, as well as the Cross-layer Communications SIG of the IEEE Multimedia Communications Technical Committee. He is also an elected member of the IEEE Visual Signal Processing and Communications Technical Committee (2005–), and IEEE Multimedia and Systems Applications Technical Committee (2006–).

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Ajay Luthra received his B.E. (Hons) from BITS, Pilani, India in 1975, M.Tech. in Communications Engineering from IIT Delhi in 1977 and Ph.D. from Moore School of Electrical Engineering, University of Pennsylvania in 1981. From 1981 to 1984 he was a Senior Engineer at Interspec Inc., where he was involved in digital signal and image processing for bio-medical applications. From
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Song Ci is an Assistant Professor of computer and electronics engineering at the University of Nebraska-Lincoln. He received his B.S. from Shandong University, Jinan, China, in 1992, M.S. from the Chinese Academy of Sciences, Beijing, China, in 1998, and a Ph.D. from the University of Nebraska-Lincoln in 2002, all in Electrical Engineering. He also worked with China Telecom (Shandong) as a telecommunications engineer from 1992 to 1995, and with the Wireless Connectivity Division of 3COM Cooperation, Santa Clara, CA, as a R&D Engineer in 2001. Prior to joining the University of Nebraska Lincoln, he was an Assistant Professor of computer science at the University of Massachusetts Boston and the University of Michigan-Flint. He is the founding director of the Intelligent Ubiquitous Computing Laboratory (iUbiComp Lab) at the Peter Kiewit Institute of the University of Nebraska. His research interests include cross-layer design for multimedia wireless communications, intelligent network management, resource allocation and scheduling in various wireless networks and power-aware multimedia embedded networked sensing system design and development. He has published more than 60 research papers in referred journals and at international conferences in those areas. Dr Song Ci serves currently as Associate Editor on the Editorial Board of Wiley Wireless Communications and Mobile Computing (WCMC) and Guest Editor of IEEE Network Magazine Special Issue on Wireless Mesh Networks: Applications, Architectures and Protocols, Editor of Journal of Computer Systems, Networks, and Communications and an Associate Editor of the Wiley Journal of Security and Communication Networks. He also serves as the TPC co-Chair of IEEE ICCCN 2007, TPC co-Chair of IEEE WLN 2007, TPC co-Chair of the Wireless Applications track at IEEE VTC 2007 Fall, the session Chair at IEEE MILCOM 2007 and as a reviewer for numerous referred journals and technical committee members at many international conferences. He is the Vice Chair of Communications Society of IEEE Nebraska Section, Senior Member of the IEEE and Member of the ACM and the ASHRAE.
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