

*Commenced Publication in 1973*

Founding and Former Series Editors:

Gerhard Goos, Juris Hartmanis, and Jan van Leeuwen

## Editorial Board

David Hutchison

*Lancaster University, UK*

Takeo Kanade

*Carnegie Mellon University, Pittsburgh, PA, USA*

Josef Kittler

*University of Surrey, Guildford, UK*

Jon M. Kleinberg

*Cornell University, Ithaca, NY, USA*

Friedemann Mattern

*ETH Zurich, Switzerland*

John C. Mitchell

*Stanford University, CA, USA*

Moni Naor

*Weizmann Institute of Science, Rehovot, Israel*

Oscar Nierstrasz

*University of Bern, Switzerland*

C. Pandu Rangan

*Indian Institute of Technology, Madras, India*

Bernhard Steffen

*University of Dortmund, Germany*

Madhu Sudan

*Massachusetts Institute of Technology, MA, USA*

Demetri Terzopoulos

*New York University, NY, USA*

Doug Tygar

*University of California, Berkeley, CA, USA*

Moshe Y. Vardi

*Rice University, Houston, TX, USA*

Gerhard Weikum

*Max-Planck Institute of Computer Science, Saarbruecken, Germany*

Yo-Sung Ho Hyoung Joong Kim (Eds.)

# Advances in Multimedia Information Processing – PCM 2005

6th Pacific-Rim Conference on Multimedia  
Jeju Island, Korea, November 13-16, 2005  
Proceedings, Part I

## Volume Editors

Yo-Sung Ho

Gwangju Institute of Science and Technology (GIST)

1 Oryong-dong buk-gu, Gwangju, 500-712, Korea

E-mail: hoyo@gist.ac.kr

Hyoung Joong Kim

Kangwon National University

Department of Control and Instrumentation Engineering

Kangwondaehakgil, Chunchon, Kangwondo, 200-701, Korea

E-mail: khj@kangwon.ac.kr

Library of Congress Control Number: 2005935481

CR Subject Classification (1998): H.5.1, H.3, H.5, C.2, H.4, I.3, K.6, I.7, I.4

ISSN 0302-9743

ISBN-10 3-540-30027-9 Springer Berlin Heidelberg New York

ISBN-13 978-3-540-30027-4 Springer Berlin Heidelberg New York

This work is subject to copyright. All rights are reserved, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, re-use of illustrations, recitation, broadcasting, reproduction on microfilms or in any other way, and storage in data banks. Duplication of this publication or parts thereof is permitted only under the provisions of the German Copyright Law of September 9, 1965, in its current version, and permission for use must always be obtained from Springer. Violations are liable to prosecution under the German Copyright Law.

Springer is a part of Springer Science+Business Media

[springeronline.com](http://springeronline.com)

© Springer-Verlag Berlin Heidelberg 2005

Printed in Germany

Typesetting: Camera-ready by author, data conversion by Scientific Publishing Services, Chennai, India

Printed on acid-free paper SPIN: 11581772 06/3142 5 4 3 2 1 0

## Preface

We are delighted to welcome readers to the proceedings of the 6th Pacific-Rim Conference on Multimedia (PCM). The first PCM was held in Sydney, Australia, in 2000. Since then, it has been hosted successfully by Beijing, China, in 2001, Hsinchu, Taiwan, in 2002, Singapore in 2003, and Tokyo, Japan, in 2004, and finally Jeju, one of the most beautiful and fantastic islands in Korea.

This year, we accepted 181 papers out of 570 submissions including regular and special session papers. The acceptance rate of 32% indicates our commitment to ensuring a very high-quality conference. This would not be possible without the full support of the excellent Technical Committee and anonymous reviewers that provided timely and insightful reviews. We would therefore like to thank the Program Committee and all reviewers.

The program of this year reflects the current interests of the PCM's. The accepted papers cover a range of topics, including, all aspects of multimedia, both technical and artistic perspectives and both theoretical and practical issues. The PCM 2005 program covers tutorial sessions and plenary lectures as well as regular presentations in three tracks of oral sessions and a poster session in a single track. We have tried to expand the scope of PCM to the artistic papers which need not to be strictly technical. Since we are living in the age of convergence, we believe that convergence of technology and art is also highly needed. However, we realize that bridging the gap between them has not been easy due to the lack of mutual understanding and lack of fair evaluation criteria. Of course, a few papers widen the horizon of the PCM 2005. Traditional topics of multimedia, such as multimedia communications, audio-visual compressions, multimedia security, image and signal processing techniques, multimedia data processing, and other important works are balanced in the PCM 2005.

We give a special thanks to Prof. Jae-Kyoon Kim, General Chair, for his brilliant leadership in organizing this conference. This was an important work which was dealt with very efficiently and harmoniously. Our thanks must go to all the Organizing Committee members for their precious time and enthusiasm. They did their best in financing, publicity, proceedings, registration, Web and local arrangement. We cannot forget Victoria Kim for her professionalism in managing and assisting us as a Conference Secretary. We express our thanks to the sponsors including the Ministry of Information and Communication, the Institute of Information Technology Assessment, Korea National Tourism Organization, and Korea Society of Broadcast Engineers.

Yo-Sung Ho  
Hyoung Joong Kim

# **Committee List**

## **Technical Program Committee Members**

Masao Aizu (Canon, Japan)  
John Apostolopoulos (Hewlett-Packard, USA)  
Yasuo Ariki (Kobe University, Japan)  
Goh Wooi Boon (Nanyang Technological University, Singapore)  
Nozha Boujemaa (INRIA Rocquencourt, France)  
Hye Ran Byun (Yonsei University, Korea)  
Long-Wen Chang (National Tsing Hua University, Taiwan)  
Yung-Chang Chen (National Tsing Hua University, Taiwan)  
Liang-Tien Chia (Nanyang Technological University, Singapore)  
Yoon Sik Choe (Yonsei University, Korea)  
Song Chong (KAIST, Korea)  
Alberto Del Bimbo (University of Florence, Italy)  
Chabane Djeraba (Laboratoire d' Informatique Fondamentale de Lille, France)  
Toshiaki Fujii (Nagoya University, Japan)  
Patrick Gioia (France Telecom R&D, France)  
Yihong Gong (NEC Laboratories America, USA)  
Patrick Gros (IRISA-CNRS, France)  
William Grosky (University of Michigan - Dearborn, USA)  
Irene H. Y. Gu (Chalmers, Sweden)  
Ling Guan (Ryerson University, Canada)  
Anthony T. S. Ho (Nanyang Technological University, Singapore)  
Yo-Sung Ho (GIST, Korea)  
Min Cheol Hong (Soongsil University, Korea)  
Xian-Sheng Hua (Microsoft, China)  
Jenq-Neng Hwang (University of Washington, USA)  
Ichiro Ide (Nagoya University, Japan)  
Alejandro Jaimes (FX Pal Japan, Fuji Xerox, USA)  
R. C. Jain (Birla Institute of Science and Technology, India)  
Kyeong Hoon Jung (Kookmin University, Korea)  
Mohan S. Kankanhalli (National University of Singapore, Singapore)  
Aggelos Katsaggelos (Northwestern University, USA)  
Jiro Katto (Waseda University, Japan)  
Roichi Kawada (KDDI R&D Laboratories Inc., Japan)  
Dong In Kim (Simon Fraser University, Canada)  
Hae Kwang Kim (Sejong University, Korea)  
Hae Yong Kim (University of São Paulo, Brazil)  
Hong Kook Kim (GIST, Korea)

Hyoung Joong Kim (Kangwon National University, Korea)  
Jong Won Kim (GIST, Korea)  
Man Bae Kim (Kangwon National University, Korea)  
Asanobu Kitamoto (National Institute of Informatics, Japan)  
Hitoshi Kiya (Tokyo Metropolitan University, Japan)  
Sung-Jea Ko (Korea University, Korea)  
Ki Ryong Kwon (Pusan University of Foreign Studies, Korea)  
Chil Woo Lee (Chonnam National University, Korea)  
Jeong A. Lee (Chosun University, Korea)  
Jong Weon Lee (Sejong University, Korea)  
Kwan Heng Lee (GIST, Korea)  
Yoon Joon Lee (KAIST, Korea)  
Yung Lyul Lee (Sejong University, Korea)  
Riccardo Leonardi (Università degli Studi di Brescia, Italy)  
Jin Jang Leou (National Chung Cheng University, Taiwan)  
Michael Lew (University of Leiden, The Netherlands)  
Chung Sheng Li (IBM, USA)  
Kin Li (Microsoft, USA)  
Mingjing Li (Microsoft Research Asia, China)  
Rainer Lienhart (University of Augsburg, Germany)  
Chia Wen Lin (National Chung Cheng University, Taiwan)  
David Lin (National Chiao Tung University, Taiwan)  
Weisi Lin (Agency for Science, Technology and Research, Singapore)  
Wanquan Liu (Curtin University of Technology, Australia)  
Kai Kuang Ma (Nanyang Technological University, Singapore)  
Wei Ying Ma (Microsoft Research Asia, China)  
Young Shik Moon (Hanyang University, Korea)  
Chong Wah Ngo (City University of Hong Kong, Hong Kong)  
Vincent Oria (New Jersey Institute of Technology, USA)  
Rae Hong Park (Sogang University, Korea)  
Peter Pyun (Hewlett-Packard, USA)  
Anthony Reeves (Cornell University, USA)  
Kang Hyeon Rhee (Chosun University, Korea)  
Takahiro Saito (Kanagawa University, Japan)  
Philippe Salembier (Universitat Politècnica de Catalunya, Spain)  
Peter Schelkens (Vrije Universiteit Brussel, Belgium)  
Nicu Sebe (University of Amsterdam, The Netherlands)  
Timothy K. Shih (Tamkang University, Taiwan)  
Dong Gyu Sim (Kwangwoon University, Korea)  
John R. Smith (IBM T. J. Watson Research Center, USA)  
Lifeng Sun (Tsinghua University, China)  
Luis Torres (Universitat Politècnica de Catalunya, Spain)  
Hsiao-Rong Tyan (Chung Yuan Christian University, Taiwan)  
Shekhar Verma (Indian Institute of Information Technology, India)  
Chee Sun Won (Dongguk University, Korea)

You Jip Won (Hanyang University, Korea)  
Lingda Wu (National University of Defense Technology, China)  
Changsheng Xu (Agency for Science, Technology and Research, Singapore)  
Youngjun Francis Yoo (Texas Instruments, USA)  
Lu Yu (Zhe Jiang University, China)  
Ley Zhang (Microsoft Research Asia, China)  
Xiao-Ping Zhang (Ryerson University, Canada)

## **Additional Reviewer List**

Jeong-Hwan Ahn (Samsung AIT, Korea)  
Hee Jun An (Seoul National University of Technology, Korea)  
Jaakko Astola (Tampere University of Technology, Finland)  
Marcos Avilés Rodríguez (Universidad Politécnica de Madrid, Spain)  
Konsung Bae (Kyungpook National University, Korea)  
Joong-Hwan Baek (Hankuk Aviation University, Korea)  
Hyokyung Bahn (Ewha Womans University, Korea)  
Raphaële Balter (France Telecom R&D, France)  
Gaspard Breton (France Telecom R&D, France)  
David Cailliere (France Telecom R&D, France)  
Kyung-Ae Cha (Daegu University, Korea)  
Ching-Han Chen (I-Shou University, Taiwan)  
Adrian David Cheok (National University of Singapore, Singapore)  
Hoyong Choi (Chungbuk National University, Korea)  
Jong-Soo Choi (Chung-Ang University, Korea)  
Sumi Choi (Sejong University, Korea)  
Ho-Yong Choi (Chungbuk National University, Korea)  
Ki Dong Chung (Pusan National University, Korea)  
Thomas Di Giacomo (University of Geneva, Switzerland)  
Jean-Pierre Evain (European Broadcasting Union, France)  
V́ctor Ferńandez (UAM (ES), Spain)  
Masaaki Fujiyoshi (Tokyo Metropolitan University, Japan)  
Wen Gao (Joint Research & Development Laboratory, China)  
Takayuki Hamamoto (Tokyo University of Science, Japan)  
JungHyun Han (Korea University, Korea)  
Mahnjin Han (Samsung AIT, Korea)  
Dongsoo Har (GIST, Korea)  
Jun Heo (Konkuk University, Korea)  
HyunKi Hong (Chung-Ang University, Korea)  
Jin-Woo Hong (ETRI, Korea)  
Ki-Sang Hong (POSTECH, Korea)  
Eenjun Hwang (Korea University, Korea)  
Euee S. Jang (Hanyang University, Korea)  
Ju-wook Jang (Sogang University, Korea)  
Byeongwoo Jeon (Sung Kyun Kwan University, Korea)

Jechang Jeong (Hanyang University, Korea)  
Xiaoyue Jiang (Northwestern Polytechnical University, China)  
Xiaogang Jin (Zhejiang University, China)  
Nam Ik Joe (Seoul National University, Korea)  
Inwhee Joe (Hanyang University, Korea)  
Jae Hak Jung (Inha University, Korea)  
Soon Ki Jung (Kyungpook National University, Korea)  
Sung-Hwan Jung (Changwon National University, Korea)  
Dong Wook Kang (Kookmin University, Korea)  
Hong-Goo Kang (Yonsei University, Korea)  
Hyun-Soo Kang (Chungbuk National University, Korea)  
Mun Gi Kang (Yonsei University, Korea)  
Sooyong Kang (Hanyang University, Korea)  
Mohan Kankanhalli (National University of Singapore, Singapore)  
Hirokazu Kato (Osaka University, Japan)  
Stefan Katzenbeisser (Technische Universität München, Germany)  
Bo Yon Kim (Kangwon National University, Korea)  
Chong-kwon Kim (Seoul National University, Korea)  
Changick Kim (ICU, Korea)  
Doh-Suk Kim (Lucent Technologies, USA)  
Gerard Jounghyun Kim (POSTECH, Korea)  
HyungJun Kim (Korea University, Korea)  
Jaejoon Kim (Daegu University, Korea)  
Jong-Nam Kim (Pukyong National University, Korea)  
JongWeon Kim (Sangmyung University, Korea)  
Keunho Kim (Samsung AIT, Korea)  
Laehyun Kim (KIST, Korea)  
Mun Chul Kim (ICU, Korea)  
Sangwook Kim (Kyungpook National University, Korea)  
Sang-Wook Kim (Samsung AIT, Korea)  
Weon-Goo Kim (Kunsan National University, Korea)  
Whoi-Yul Yura Kim (Hanyang University, Korea)  
Won-Ha Kim (Kyung Hee University, Korea)  
Wook-Joong Kim (ETRI, Korea)  
Yong Kuk Kim (Sejong University, Korea)  
Young Yong Kim (Yonsei University, Korea)  
Youngseop Kim (Dankook University, Korea)  
Hideaki Kimata (NTT Advanced Technology, Japan)  
Lisimachos P. Kondi (State University of New York, USA)  
Alex C. Kot (Nanyang Technological University, Singapore)  
Sunil Kumar (Clarkson University, USA)  
No-Yoon Kwak (Cheonan University, Korea)  
Gauthier Lafruit (IMEC-DESICS-Multimedia, Belgium)  
Chulhee Lee (Yonsei University, Korea)  
Haeyoung Lee (Hongik University, Korea)

Heung-Kyu Lee (KAIST, Korea)  
Jeong-Gun Lee (University of Cambridge, UK)  
MeeSuk Lee (ETRI, Korea)  
Minkyu Lee (Lucent Technologies, USA)  
Sang Hwa Lee (Seoul National University, Korea)  
Sang Wook Lee (Sogang University, Korea)  
Sangyoun Lee (Yonsei University, Korea)  
Seok-Pil Lee (KETI, Korea)  
Seong-Won Lee (Kangwon National University, Korea)  
Si-Woong Lee (Hanbat National University, Korea)  
Suk-Hwan Lee (Tongmyong University, Korea)  
Yugyung Lee (University of Missouri, USA)  
Igor Lemberski (Transport and Telecommunication Institute, Latvia)  
Jae Hyuck Lim (Yonsei University, Korea)  
B. S. Manjunath (University of California Santa Barbara, USA)  
Yannick Maret (École Polytechnique Fédérale de Lausanne, Switzerland)  
Jeonghoon Mo (ICU, Korea)  
Sang Man Mo (Chosun University, Korea)  
Francisco Morán Burgos (Universidad Politécnica de Madrid, Spain)  
Hiroaki Morino (Shibaura Institute of Technology, Japan)  
Hiroshi Murase (Nagoya University, Japan)  
Jae Yul Nam (Keimyung University, Korea)  
Jeho Nam (ETRI, Korea)  
Yang-Hee Nam (Ewha Womans University, Korea)  
Tobias Oelbaum (Technische Universität München, Germany)  
Seoung-Jun Oh (Kangwon National University, Korea)  
Joonki Paik (Chung-Ang University, Korea)  
Sung Bum Pan (Chosun University, Korea)  
Zhigeng Pan (Zhejiang University, China)  
Raveendran Paramesran (University of Malaya, Malaysia)  
Changhan Park (Chung-Ang University, Korea)  
Changhoon Park (University of Tokyo, Japan)  
Dong-Kwon Park (Ubix System Inc., Korea)  
HyunWook Park (KAIST, Korea)  
Jong-Il Park (Hanyang University, Korea)  
Seung Kwon Park (Hanyang University, Korea)  
In Kyu Park (Inha University, Korea)  
Fernando Pereira (IST(PT), Portugal)  
Sylvain Prat (France Telecom R&D, France)  
Marius Preda (Institut National des Télécommunications, France)  
Safavi-Naini Rei (University of Wollongong, Australia)  
Kyung Hyune Rhee (PuKyong National University, Korea)  
Yong Man Ro (ICU, Korea)  
Yeonseung Ryu (Myongji University, Korea)  
Shin'ichi Satoh (National Institute of Informatics, Japan)

Yong Duk Seo (Sogang University, Korea)  
Jaehong Shim (Chosun University, Korea)  
Seokjoo Shin (Chosun University, Korea)  
Jitae Shin (Sungkyunkwan University, Korea)  
Yoan Shin (Soongsil University, Korea)  
Kwang-Hoon Son (Yonsei University, Korea)  
Sung-Hoon Son (Sangmyung University, Korea)  
Wookho Son (ETRI, Korea)  
Hwangjun Song (POSTECH, Korea)  
June-hwa Song (KAIST, Korea)  
Po-Chyi Su (National Central University, Taiwan)  
Doug Young Suh (KyungHee University, Korea)  
Sanghoon Sull (Korea University, Korea)  
Huifang Sun (Mitsubishi Electric Research Labs, USA)  
Seyoon Tak (Samsung AIT, Korea)  
Tomokazu Takahashi (Nagoya University, Japan)  
Rin-ichiro Taniguchi (Kyushu University, Japan)  
Ronald M. Tol (Philips Applied Technologies, The Netherlands)  
Chun-Jen Tsai (National Chiao Tung University, Taiwan)  
Gi-Mun Um (ETRI, Korea)  
S. Verma (Indian Institute of Information Technology and Management, India)  
Semyung Wang (GIST, Korea)  
Lin Weisi (Institute for Infocomm Research, Singapore)  
Duminda Wijesekera (George Mason University, USA)  
Woontack Woo (GIST, Korea)  
Jeong-Hyu Yang (LG Electronics, Korea)  
Jianjun Ye (Harbin Institute of Technology, China)  
Changhoon Yim (Konkuk University, Korea)  
Naokazu Yokoya (Nara Institute of Science and Technology, Japan)  
Chuck Yoo (Korea University, Korea)  
Hui Zhang (Samsung AIT, China)

# Table of Contents – I

|                                                                                                                                                                                                                                 |     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| New Panoramic Image Generation Based on Modeling of Vignetting and Illumination Effects<br><i>Dong-Gyu Sim</i> .....                                                                                                            | 1   |
| Virtual Object Placement in Video for Augmented Reality<br><i>Jong-Seung Park, Mee Young Sung, Sung-Ryul Noh</i> .....                                                                                                          | 13  |
| Realtime Control for Motion Creation of 3D Avatars<br><i>Dong Hoon Kim, Mee Young Sung, Jong-Seung Park, Kyungkoo Jun, Sang-Rak Lee</i> .....                                                                                   | 25  |
| Environment Matting of Transparent Objects Based on Frequency-Domain Analysis<br><i>I-Cheng Chang, Tian-Lin Yang, Chung-Ling Huang</i> .....                                                                                    | 37  |
| Adaptation of Quadric Metric Simplification to MPEG-4 Animated Object<br><i>Marius Preda, Son Tran, Françoise Prêteux</i> .....                                                                                                 | 49  |
| Progressive Lower Trees of Wavelet Coefficients: Efficient Spatial and SNR Scalable Coding of 3D Models<br><i>Marcos Avilés, Francisco Morán, Narciso García</i> .....                                                          | 61  |
| An Adaptive Quantization Scheme for Efficient Texture Coordinate Compression in MPEG 3DMC<br><i>Sunyoung Lee, Byeongwook Min, Daiyong Kim, Eun-Young Chang, Namho Hur, Soo In Lee, Euee S. Jang</i> .....                       | 73  |
| Special Effects: Efficient and Scalable Encoding of the 3D Metamorphosis Animation with MESHGRID<br><i>Ioan Alexandru Salomie, Rudi Deklerck, Dan Cernea, Aneta Markova, Adrian Munteanu, Peter Schelkens, Jan Cornelis</i> ... | 84  |
| Hardware Accelerated Image-Based Rendering with Compressed Surface Light Fields and Multiresolution Geometry<br><i>Masaki Kitahara, Shinya Shimizu, Kazuto Kamikura, Yashima Yoshiyuki</i> .....                                | 96  |
| Adaptive Vertex Chasing for the Lossless Geometry Coding of 3D Meshes<br><i>Haeyoung Lee, Sujin Park</i> .....                                                                                                                  | 108 |

|                                                                                                                                                                                                               |     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| Analysis and Performance Evaluation of Flexible Marcoblock Ordering for H.264 Video Transmission over Packet-Lossy Networks<br><i>Changhoon Yim, Wonjung Kim, Hyesook Lim</i> .....                           | 120 |
| Motion Perception Based Adaptive Quantization for Video Coding<br><i>Chih-Wei Tang</i> .....                                                                                                                  | 132 |
| Hybrid Deblocking Algorithm for Block-Based Low Bit Rate Coded Images<br><i>Kee-Koo Kwon, In-Su Jeon, Dong-Sun Lim</i> .....                                                                                  | 144 |
| A Cross-Resolution Leaky Prediction Scheme for In-Band Wavelet Video Coding with Spatial Scalability<br><i>Dongdong Zhang, Jizheng Xu, Feng Wu, Wenjun Zhang, Hongkai Xiong</i> .....                         | 156 |
| Efficient Intra Prediction Mode Decision for H.264 Video<br><i>Seong Soo Chun, Ja-Cheon Yoon, Sanghoon Sull</i> .....                                                                                         | 168 |
| Optimum Quantization Parameters for Mode Decision in Scalable Extension of H.264/AVC Video Codec<br><i>Seung-Hwan Kim, Yo-Sung Ho</i> .....                                                                   | 179 |
| A Metadata Model for Event Notification on Interactive Broadcasting Service<br><i>Kyunghee Ji, Nammee Moon, Jungwon Kang</i> .....                                                                            | 191 |
| Target Advertisement Service Using TV Viewers' Profile Inference<br><i>Munjo Kim, Sanggil Kang, Munchurl Kim, Jaegon Kim</i> .....                                                                            | 202 |
| Personalized TV Services and T-Learning Based on TV-Anytime Metadata<br><i>HeeKyung Lee, Seung-Jun Yang, Han-Kyu Lee, Jinwoo Hong</i> .....                                                                   | 212 |
| Metadata Generation and Distribution for Live Programs on Broadcasting-Telecommunication Linkage Services<br><i>Yuko Kon'ya, Hidetaka Kuwano, Tomokazu Yamada, Masahito Kawamori, Katsuhiko Kawazoe</i> ..... | 224 |
| Data Broadcast Metadata Based on PMCP for Open Interface to a DTV Data Server<br><i>Minsik Park, Yong Ho Kim, Jin Soo Choi, Jin Woo Hong</i> .....                                                            | 234 |
| Super-resolution Sharpening-Demosaicking with Spatially Adaptive Total-Variation Image Regularization<br><i>Takahiro Saito, Takashi Komatsu</i> .....                                                         | 246 |

|                                                                                                                                                                                                                                                                        |     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| Gradient Based Image Completion by Solving Poisson Equation<br><i>Jianbing Shen, Xiaogang Jin, Chuan Zhou</i> .....                                                                                                                                                    | 257 |
| Predictive Directional Rectangular Zonal Search for Digital Multimedia Processor<br><i>Soon-Tak Lee, Joong-Hwan Baek</i> .....                                                                                                                                         | 269 |
| Motion Field Refinement and Region-Based Motion Segmentation<br><i>Sun-Kyoo Hwang, Whoi-Yul Kim</i> .....                                                                                                                                                              | 280 |
| Motion Adaptive De-interlacing with Horizontal and Vertical Motions Detection<br><i>Chung-Chi Lin, Ming-Hwa Sheu, Huann-Keng Chiang, Chishyan Liaw</i> .....                                                                                                           | 291 |
| All-in-Focus Image Generation by Merging Multiple Differently Focused Images in Three-Dimensional Frequency Domain<br><i>Kazuya Kodama, Hiroshi Mo, Akira Kubota</i> .....                                                                                             | 303 |
| Free-Hand Stroke Based NURBS Surface for Sketching and Deforming 3D Contents<br><i>Jung-hoon Kwon, Han-wool Choi, Jeong-in Lee, Young-Ho Chai</i> ....                                                                                                                 | 315 |
| Redeeming Valleys and Ridges for Line-Drawing<br><i>Kyung Gun Na, Moon Ryul Jung, Jongwan Lee, Changgeun Song</i> ...                                                                                                                                                  | 327 |
| Interactive Rembrandt Lighting Design<br><i>Hongmi Joe, Kyoung Chin Seo, Sang Wook Lee</i> .....                                                                                                                                                                       | 339 |
| Image-Based Generation of Facial Skin Texture with Make-Up<br><i>Sang Min Kim, Kyoung Chin Seo, Sang Wook Lee</i> .....                                                                                                                                                | 350 |
| Responsive Multimedia System for Virtual Storytelling<br><i>Youngho Lee, Sejin Oh, Youngmin Park, Beom-Chan Lee, Jeung-Chul Park, Yoo Rhee Oh, Seokhee Lee, Han Oh, Jeha Ryu, Kwan H. Lee, Hong Kook Kim, Yong-Gu Lee, JongWon Kim, Yo-Sung Ho, Woontack Woo</i> ..... | 361 |
| Communication and Control of a Home Robot Using a Mobile Phone<br><i>Kuniya Shinozaki, Hajime Sakamoto, Takaho Tanaka, Ryohei Nakatsu</i> .....                                                                                                                        | 373 |
| Real-Time Stereo Using Foreground Segmentation and Hierarchical Disparity Estimation<br><i>Hansung Kim, Dong Bo Min, Kwanghoon Sohn</i> .....                                                                                                                          | 384 |

|                                                                                                                                                                                                        |     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| Multi-view Video Coding Using Illumination Change-Adaptive Motion Estimation and 2-D Direct Mode<br><i>Yung-Lyul Lee, Yung-Ki Lee, Dae-Yeon Kim</i> .....                                              | 396 |
| Fast Ray-Space Interpolation with Depth Discontinuity Preserving for Free Viewpoint Video System<br><i>Gangyi Jiang, Liangzhong Fan, Mei Yu, Xien Ye, Rangding Wang, Yong-Deak Kim</i> .....           | 408 |
| Haptic Interaction with Depth Video Media<br><i>Jongeun Cha, Seung-man Kim, Ian Oakley, Jeha Ryu, Kwan H. Lee</i> .....                                                                                | 420 |
| A Framework for Multi-view Video Coding Using Layered Depth Images<br><i>Seung-Uk Yoon, Eun-Kyung Lee, Sung-Yeol Kim, Yo-Sung Ho</i> .....                                                             | 431 |
| A Proxy-Based Distributed Approach for Reliable Content Sharing Among UPnP-Enabled Home Networks<br><i>HyunRyong Lee, JongWon Kim</i> .....                                                            | 443 |
| Adaptive Distributed Video Coding for Video Applications in Ad-Hoc Networks<br><i>Ke Liang, Lifeng Sun, Yuzhuo Zhong</i> .....                                                                         | 455 |
| High Speed JPEG Coder Based on Modularized and Pipelined Architecture with Distributed Control<br><i>Fahad Ali Mujahid, Eun-Gu Jung, Dong-Soo Har, Jun-Hee Hong, Hoi-Jeong Lim</i> .....               | 466 |
| Efficient Distribution of Feature Parameters for Speech Recognition in Network Environments<br><i>Jae Sam Yoon, Gil Ho Lee, Hong Kook Kim</i> .....                                                    | 477 |
| Magnitude-Sign Split Quantization for Bandwidth Scalable Wideband Speech Codec<br><i>Ji-Hyuk You, Chul-Man Park, Jung-Il Lee, Chang-Beom Ahn, Seoung-Jun Oh, Hochong Park</i> .....                    | 489 |
| Self-timed Interconnect with Layered Interface Based on Distributed and Modularized Control for Multimedia SoCs<br><i>Eun-Gu Jung, Eon-Pyo Hong, Kyoung-Son Jhang, Jeong-A Lee, Dong-Soo Har</i> ..... | 500 |
| Enhanced Downhill Simplex Search for Fast Video Motion Estimation<br><i>Hwai-Chung Fei, Chun-Jen Chen, Shang-Hong Lai</i> .....                                                                        | 512 |

|                                                                                                                                                                                                                                         |     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| Camera Motion Detection in Video Sequences Using Motion Cooccurrences<br><i>Hyun-Ho Jeon, Andrea Basso, Peter F. Driessen</i> .....                                                                                                     | 524 |
| A Hybrid Motion Compensated 3-D Video Coding System for Blocking Artifacts Reduction<br><i>Cho-Chun Cheng, Wen-Liang Hwang, Zuowei Shen, Tao Xia</i> .....                                                                              | 535 |
| Fast Panoramic Image Generation Method Using Morphological Corner Detection<br><i>Jungho Lee, Woongho Lee, Ikhwan Cho, Dongseok Jeong</i> .....                                                                                         | 547 |
| Generation of 3D Building Model Using 3D Line Detection Scheme Based on Line Fitting of Elevation Data<br><i>Dong-Min Woo, Seung-Soo Han, Young-Kee Jung, Kyu-Won Lee</i> ...                                                           | 559 |
| Segmentation of the Liver Using the Deformable Contour Method on CT Images<br><i>Seong-Jae Lim, Yong-Yeon Jeong, Yo-Sung Ho</i> .....                                                                                                   | 570 |
| Radial Projection: A Feature Extraction Method for Topographical Shapes<br><i>Yong-Il Kwon, Ho-Hyun Park, Jixue Liu, Mario A. Nascimento</i> ....                                                                                       | 582 |
| A Robust Text Segmentation Approach in Complex Background Based on Multiple Constraints<br><i>Libo Fu, Weiqiang Wang, Yaowen Zhan</i> .....                                                                                             | 594 |
| Specularity-Free Projection on Nonplanar Surface<br><i>Hanhoon Park, Moon-Hyun Lee, Sang-Jun Kim, Jong-Il Park</i> .....                                                                                                                | 606 |
| Salient Feature Selection for Visual Concept Learning<br><i>Feng Xu, Lei Zhang, Yu-Jin Zhang, Wei-Ying Ma</i> .....                                                                                                                     | 617 |
| Contourlet Image Coding Based on Adjusted SPIHT<br><i>Haohao Song, Songyu Yu, Li Song, Hongkai Xiong</i> .....                                                                                                                          | 629 |
| Using Bitstream Structure Descriptions for the Exploitation of Multi-layered Temporal Scalability in H.264/AVC's Base Specification<br><i>Wesley De Neve, Davy Van Deursen, Davy De Schrijver, Koen De Wolf, Rik Van de Walle</i> ..... | 641 |
| Efficient Control for the Distortion Incurred by Dropping DCT Coefficients in Compressed Domain<br><i>Jin-Soo Kim, Jae-Gon Kim</i> .....                                                                                                | 653 |

|                                                                                                                                                                                       |     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| Kalman Filter Based Error Resilience for H.264 Motion Vector Recovery<br><i>Ki-Hong Ko, Seong-Whan Kim</i> .....                                                                      | 664 |
| High Efficient Context-Based Variable Length Coding with Parallel Orientation<br><i>Qiang Wang, Debin Zhao, Wen Gao, Siwei Ma</i> .....                                               | 675 |
| Texture Coordinate Compression for 3-D Mesh Models Using Texture Image Rearrangement<br><i>Sung-Yeol Kim, Young-Suk Yoon, Seung-Man Kim, Kwan-Heng Lee, Yo-Sung Ho</i> .....          | 687 |
| Classification of Audio Signals Using Gradient-Based Fuzzy c-Means Algorithm with Divergence Measure<br><i>Dong-Chul Park, Duc-Hoai Nguyen, Seung-Hwa Beack, Sancho Park</i> .....    | 698 |
| Variable Bit Quantization for Virtual Source Location Information in Spatial Audio Coding<br><i>Sang Bae Chon, In Yong Choi, Jeongil Seo, Koeng-Mo Sung</i> .....                     | 709 |
| The Realtime Method Based on Audio Scenegrph for 3D Sound Rendering<br><i>Jeong-Seon Yi, Suk-Jeong Seong, Yang-Hee Nam</i> .....                                                      | 720 |
| Dual-Domain Quantization for Transform Coding of Speech and Audio Signals<br><i>Jun-Seong Hong, Jong-Hyun Choi, Chang-Beom Ahn, Chae-Bong Sohn, Seoung-Jun Oh, Hochong Park</i> ..... | 731 |
| A Multi-channel Audio Compression Method with Virtual Source Location Information<br><i>Han-gil Moon, Jeong-il Seo, Seungkwon Beak, Koeng-Mo Sung</i> .....                           | 742 |
| A System for Detecting and Tracking Internet News Event<br><i>Zhen Lei, Ling-da Wu, Ying Zhang, Yu-chi Liu</i> .....                                                                  | 754 |
| A Video Summarization Method for Basketball Game<br><i>Eui-Jin Kim, Gwang-Gook Lee, Cheolkon Jung, Sang-Kyun Kim, Ji-Yeun Kim, Whoi-Yul Kim</i> .....                                 | 765 |
| Improvement of Commercial Boundary Detection Using Audiovisual Features<br><i>Jun-Cheng Chen, Jen-Hao Yeh, Wei-Ta Chu, Jin-Hau Kuo, Ja-Ling Wu</i> .....                              | 776 |

|                                                                                                                                                                                     |     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| Automatic Dissolve Detection Scheme Based on Visual Rhythm Spectrum<br><i>Seong Jun Park, Kwang-Deok Seo, Jae-Gon Kim, Samuel Moon-Ho Song</i> .....                                | 787 |
| A Study on the Relation Between the Frame Pruning and the Robust Speaker Identification with Multivariate $t$ -Distribution<br><i>Younjeong Lee, Joohun Lee, Hernsoo Hahn</i> ..... | 799 |
| Auto-summarization of Multimedia Meeting Records Based on Accessing Log<br><i>Weisheng He, Yuanchun Shi, Xin Xiao</i> .....                                                         | 809 |
| Towards a High-Level Audio Framework for Video Retrieval Combining Conceptual Descriptions and Fully-Automated Processes<br><i>Mbarek Charhad, Mohammed Belkhatir</i> .....         | 820 |
| A New Concept of Security Camera Monitoring with Privacy Protection by Masking Moving Objects<br><i>Kenichi Yabuta, Hitoshi Kitazawa, Toshihisa Tanaka</i> .....                    | 831 |
| Feature Fusion-Based Multiple People Tracking<br><i>Junhaeng Lee, Sangjin Kim, Daehee Kim, Jeongho Shin, Joonki Paik</i> .....                                                      | 843 |
| Extracting the Movement of Lip and Tongue During Articulation<br><i>Hanhoon Park, Seung-Wook Hong, Jong-Il Park, Sung-Kyun Moon, Hyeongseok Ko</i> .....                            | 854 |
| A Scheme for Ball Detection and Tracking in Broadcast Soccer Video<br><i>Dawei Liang, Yang Liu, Qingming Huang, Wen Gao</i> .....                                                   | 864 |
| A Shape-Based Retrieval Scheme for Leaf Images<br><i>Yunyoung Nam, Eenjun Hwang</i> .....                                                                                           | 876 |
| Lung Detection by Using Geodesic Active Contour Model Based on Characteristics of Lung Parenchyma Region<br><i>Chul-Ho Won, Seung-Ik Lee, Dong-Hun Kim, Jin-Ho Cho</i> .....        | 888 |
| Improved Automatic Liver Segmentation of a Contrast Enhanced CT Image<br><i>Kyung-Sik Seo, Jong-An Park</i> .....                                                                   | 899 |
| Automated Detection of Tumors in Mammograms Using Two Segments for Classification<br><i>Mahmoud R. Hejazi, Yo-Sung Ho</i> .....                                                     | 910 |

Registration of Brain MR Images Using Feature Information of  
Structural Elements  
    *Jeong-Sook Chae, Hyung-Jea Cho* . . . . . 922

Cyber Surgery: Parameterized Mesh for Multi-modal Surgery  
Simulation  
    *Qiang Liu, Edmond C. Prakash* . . . . . 934

Image Retrieval Based on Co-occurrence Matrix Using Block  
Classification Characteristics  
    *Tae-Su Kim, Seung-Jin Kim, Kuhn-Il Lee* . . . . . 946

Automatic Generation of the Initial Query Set for CBIR on the Mobile  
Web  
    *Deok Hwan Kim, Chan Young Kim, Yoon Ho Cho* . . . . . 957

Classification of MPEG Video Content Using Divergence Measure with  
Data Covariance  
    *Dong-Chul Park, Chung-Nguyen Tran, Yunsik Lee* . . . . . 969

Image Retrieval Using Spatial Color and Edge Detection  
    *Chin-Chen Chang, Yung-Chen Chou, Wen-Chuan Wu* . . . . . 981

Understanding Multimedia Document Semantics for Cross-Media  
Retrieval  
    *Fei Wu, Yi Yang, Yueting Zhuang, Yunhe Pan* . . . . . 993

Multimedia Retrieval from a Large Number of Sources in a Ubiquitous  
Environment  
    *Gamhewage C. de Silva, T. Yamasaki, K. Aizawa* . . . . . 1005

**Author Index** . . . . . 1017

## Table of Contents – II

|                                                                                                                                                                                |     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| Efficient Cache Management for QoS Adaptive Multimedia Streaming Services<br><i>Taeseok Kim, Hyokyung Bahn, Kern Koh</i> .....                                                 | 1   |
| An Effective Failure Recovery Mechanism with Pipeline Computing in Clustered-Based VOD Servers<br><i>Dongmahn Seo, Joahyoung Lee, Dongkook Kim, Yoon Kim, Inbum Jung</i> ..... | 12  |
| Dynamic and Scalable Caching Algorithm of Proxy Server for Multiple Videos<br><i>Hyung Rai Oh, Hwangjun Song</i> .....                                                         | 24  |
| Dynamic Adaptive Architecture for Self-adaptation in VideoConferencing System<br><i>Chulho Jung, Sanghee Lee, Eunseok Lee</i> .....                                            | 36  |
| Scalable and Reliable Overlay Multicast Network for Live Media Streaming<br><i>Eunyong Park, Sunyoung Han, Sangjoon Ahn, Hyunje Park, Sangchul Shin</i> .....                  | 48  |
| Apollon : File System Level Support for QoS Augmented I/O<br><i>Taeseok Kim, Youjip Won, Doohan Kim, Kern Koh, Yong H. Shin</i> ..                                             | 59  |
| Seamless Video Streaming for Video on Demand Services in Vertical Handoff<br><i>Jae-Won Kim, Hye-Soo Kim, Jae-Woong Yun, Hyeong-Min Nam, Sung-Jea Ko</i> .....                 | 71  |
| MPEG-4 FGS Video Traffic Model and Its Application in Simulations for Layered Video Multicast<br><i>Hui Wang, Jichang Sha, Xiao Sun, Jun Tao, Wei He</i> .....                 | 83  |
| Dynamic Voltage Scaling for Real-Time Scheduling of Multimedia Tasks<br><i>Yeong Rak Seong, Min-Sik Gong, Ha Ryoung Oh, Cheol-Hoon Lee</i> .....                               | 94  |
| Class Renegotiating Mechanism for Guaranteed End-to-End QoS over DiffServ Networks<br><i>Dai-Boong Lee, Hwangjun Song</i> .....                                                | 105 |

|                                                                                                                                                                                                                   |     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| Secure and Efficient ID-Based Group Key Agreement Fitted for Pay-TV<br><i>Hyunjue Kim, Junghyun Nam, Seungjoo Kim, Dongho Won</i> . . . . .                                                                       | 117 |
| A Method of Generating Table of Contents for Educational Videos<br><i>Gwang-Gook Lee, Eui-Jin Kim, Jung Won Kang, Jae-Gon Kim, Whoi-Yul Kim</i> . . . . .                                                         | 129 |
| Study of Inter-effect and Behavior of Multimedia Traffic in a QoS-Enabled Communication Network<br><i>Nashwa Abdel-Baki, Hans Peter Großmann</i> . . . . .                                                        | 141 |
| Broadcast Synchronizing System Using Audio Watermark<br><i>DongHwan Shin, JongWeon Kim, JongUk Choi</i> . . . . .                                                                                                 | 153 |
| Realistic Broadcasting Using Multi-modal Immersive Media<br><i>Sung-Yeol Kim, Seung-Uk Yoon, Yo-Sung Ho</i> . . . . .                                                                                             | 164 |
| Client System for Realistic Broadcasting: A First Prototype<br><i>Jongeun Cha, Seung-Man Kim, Sung-Yeol Kim, Sehwan Kim, Seung-Uk Yoon, Ian Oakley, Jeha Ryu, Kwan H. Lee, Woontack Woo, Yo-Sung Ho</i> . . . . . | 176 |
| Proposal of Cooperative Transmission for the Uplink of TDD-CDMA Systems<br><i>Ho Van Khuong, Hyung-Yun Kong</i> . . . . .                                                                                         | 187 |
| A Novel Scheduler for 1xEV-DO Type System Supporting Diverse Multimedia Traffics<br><i>Shan Guo Quan, Jeong-Jun Suh, Tae Chul Hong, Young Yong Kim</i> .                                                          | 200 |
| Proposal of Space-Time Block Coded Cooperative Wireless Transmission in Rayleigh Fading Channels<br><i>Ho Van Khuong, Hyung-Yun Kong</i> . . . . .                                                                | 212 |
| Downlink Packet Scheduling Based on Channel Condition for Multimedia Services of Mobile Users in OFDMA-TDD<br><i>Ryong Oh, Se-Jin Kim, Hyong-Woo Lee, Choong-Ho Cho</i> . . . . .                                 | 224 |
| An Efficient Channel Tracking Method for OFDM Based High Mobility Wireless Multimedia System<br><i>Kwanghoon Kim, Haelyong Kim, Hyuncheol Park</i> . . . . .                                                      | 235 |
| A Novel Key Management and Distribution Solution for Secure Video Multicast<br><i>Hao Yin, Xiaowen Chu, Chuang Lin, Feng Qiu, Geyong Min</i> . . . . .                                                            | 246 |

|                                                                                                                                                                            |     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| A Robust Method for Data Hiding in Color Images<br><i>Mohsen Ashourian, Peyman Moallem, Yo-Sung Ho</i> .....                                                               | 258 |
| A Color Image Encryption Algorithm Based on Magic Cube<br>Transformation and Modular Arithmetic Operation<br><i>Jianbing Shen, Xiaogang Jin, Chuan Zhou</i> .....          | 270 |
| Selective Video Encryption Based on Advanced Video Coding<br><i>Shiguo Lian, Zhongxuan Liu, Zhen Ren, Zhiquan Wang</i> .....                                               | 281 |
| Key Frame Extraction Based on Shot Coverage and Distortion<br><i>Ki Tae Park, Joong Yong Lee, Kee Wook Rim,<br/>Young Shik Moon</i> .....                                  | 291 |
| Secret Message Location Steganalysis Based on Local Coherences of Hue<br><i>Xiang-Wei Kong, Wen-Feng Liu, Xin-Gang You</i> .....                                           | 301 |
| Feature-Based Image Watermarking Method Using Scale-Invariant<br>Keypoints<br><i>Hae-Yeoun Lee, Choong-hoon Lee, Heung-Kyu Lee,<br/>Jeho Nam</i> .....                     | 312 |
| Watermarking NURBS Surfaces<br><i>Zhigeng Pan, Shusen Sun, Mingmin Zhang, Daxing Zhang</i> .....                                                                           | 325 |
| Digital Watermarking Based on Three-Dimensional Wavelet Transform<br>for Video Data<br><i>Seung-Jin Kim, Tae-Su Kim, Ki-Ryong Kwon, Sang-Ho Ahn,<br/>Kuhn-Il Lee</i> ..... | 337 |
| Using Space-Time Coding for Watermarking of Three-Dimensional<br>Triangle Mesh<br><i>Mohsen Ashourian, Keyvan Mohebbi</i> .....                                            | 349 |
| Perceptually Tuned Auto-correlation Based Video Watermarking Using<br>Independent Component Analysis<br><i>Seong-Whan Kim, Hyun-Sung Sung</i> .....                        | 360 |
| Invertible Watermarking Scheme for Authentication and Integrity<br><i>Kil-Sang Yoo, Mi-Ae Kim, Won-Hyung Lee</i> .....                                                     | 371 |
| Adaptive Congestion Control Scheme Based on DCCP for<br>Wireless/Mobile Access Networks<br><i>Si-Yong Park, Sung-Min Kim, Tae-Hoon Lee, Ki-Dong Chung</i> .....            | 382 |

|                                                                                                                                                                                                          |     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| SARS : A Linear Source Model Based Adaptive Rate-Control Scheme<br>for TCP-Friendly Real-Time MPEG-4 Video Streaming<br><i>Eric Hsiao-Kuang Wu, Ming-I Hsieh, Chung-Yuan Knight Chang ...</i>            | 394 |
| Evaluation of a Crossover Router Based QoS Mechanism in Fast Mobile<br>IPv6 Networks*<br><i>Zheng Wan, Zhengyou Wang, Zhijun Fang, Weiming Zeng,<br/>Shiqian Wu .....</i>                                | 405 |
| Adaptive and QoS Downlink Multimedia Packet Scheduling for<br>Broadband Wireless Systems<br><i>Seungwan Ryu, Byunghan Ryu, Hyunhwa Seo .....</i>                                                         | 417 |
| A Practical Multicast Transmission Control Method for Multi-channel<br>HDTV IP Broadcasting System<br><i>Kazuhiro Kamimura, Teruyuki Hasegawa, Haruo Hoshino,<br/>Shigehiro Ano, Toru Hasegawa .....</i> | 429 |
| MEET : Multicast Debugging Toolkit with End-to-End Packet Trace<br><i>Jinyong Jo, Jaiseung Kwak, Okhwan Byeon .....</i>                                                                                  | 441 |
| Traffic Management for Video Streaming Service over Diff-Serv<br><i>Sang-Hyun Park, Jeong-Sik Park, Jae-Young Pyun .....</i>                                                                             | 453 |
| Scalable and Adaptive QoS Mapping Control Framework for Packet<br>Video Delivery<br><i>Gooyoun Hwang, Jitae Shin, JongWon Kim .....</i>                                                                  | 465 |
| A Frame-Layer Rate Control Algorithm for H.264 Using Rate-<br>Dependent Mode Selection<br><i>Jun-Yup Kim, Seung-Hwan Kim, Yo-Sung Ho .....</i>                                                           | 477 |
| TCP-Friendly Congestion Control over Heterogeneous Wired/Wireless<br>IP Network<br><i>Jae-Young Pyun, Jong An Park, Seung Jo Han, Yoon Kim,<br/>Sang-Hyun Park .....</i>                                 | 489 |
| A Balanced Revenue-Based Resource Sharing Scheme for Advance and<br>Immediate Reservations<br><i>Dong-Hoon Yi, JongWon Kim .....</i>                                                                     | 501 |
| Sequential Mesh Coding Using Wave Partitioning<br><i>Tae-Wan Kim, Kyoung Won Min, Byeong Ho Choi, Yo-Sung Ho ...</i>                                                                                     | 514 |
| Dimension-Reduction Technique for MPEG-7 Audio Descriptors<br><i>Jui-Yu Lee, Shingchern D. You .....</i>                                                                                                 | 526 |

|                                                                                                                                                                                               |     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| Design of an Asynchronous Switch Based on Butterfly Fat-Tree for Network-on-Chip Applications<br><i>Min-Chang Kang, Eun-Gu Jung, Dong-Soo Har</i> .....                                       | 538 |
| Adaptive Deinterlacing for Real-Time Applications<br><i>Qian Huang, Wen Gao, Debin Zhao, Huifang Sun</i> .....                                                                                | 550 |
| Adaptive MAP High-Resolution Image Reconstruction Algorithm Using Local Statistics<br><i>Kyung-Ho Kim, Yoan Shin, Min-Cheol Hong</i> .....                                                    | 561 |
| Energy-Efficient Cooperative Image Processing in Video Sensor Networks<br><i>Dan Tao, Huadong Ma, Yonghe Liu</i> .....                                                                        | 572 |
| Mathematical PSNR Prediction Model Between Compressed Normal Maps and Rendered 3D Images<br><i>Toshihiko Yamasaki, Kazuya Hayase, Kiyoharu Aizawa</i> .....                                   | 584 |
| Fast Adaptive Skin Detection in JPEG Images<br><i>Qing-Fang Zheng, Wen Gao</i> .....                                                                                                          | 595 |
| Effective Blocking Artifact Reduction Using Classification of Block Boundary Area<br><i>Jung-Youp Suk, Gun-Woo Lee, Kuhn-Il Lee</i> .....                                                     | 606 |
| Adaptive Rate-Distortion Optimization for H.264<br><i>Kwan-Jung Oh, Yo-Sung Ho</i> .....                                                                                                      | 617 |
| Directional Lifting-Based Wavelet Transform for Multiple Description Image Coding with Quincunx Segmentation<br><i>Nan Zhang, Yan Lu, Feng Wu, Baocai Yin</i> .....                           | 629 |
| Non-periodic Frame Refreshment Based on the Uncertainty Models of the Reference Frames<br><i>Yong Tae Kim, Youngil Yoo, Dong Wook Kang, Kyeong Hoon Jung, Ki-Doo Kim, Seung-Jun Lee</i> ..... | 641 |
| Color Quantization of Digital Images<br><i>Xin Zhang, Zuman Song, Yunli Wang, Hui Wang</i> .....                                                                                              | 653 |
| Directional Feature Detection and Correspondence<br><i>Wen-Hao Wang, Fu-Jen Hsiao, Tsuhan Chen</i> .....                                                                                      | 665 |

|                                                                                                                                                                    |     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| An Improvement of Dead Reckoning Algorithm Using Kalman Filter<br>for Minimizing Network Traffic of 3D On-Line Games<br><i>Hyon-Gook Kim, Seong-Whan Kim</i> ..... | 676 |
| IREG Gun: Infrared LED Tracking System for Game Interface<br><i>SeongHo Baek, TaeYong Kim, JongSu Kim,<br/>ChaSeop Im, Chan Lim</i> .....                          | 688 |
| On the Implementation of Gentle Phone's Function Based on PSOLA<br>Algorithm<br><i>JongKuk Kim, MyungJin Bae</i> .....                                             | 700 |
| A Novel Blind Equalizer Based on Dual-Mode MCMA and DD<br>Algorithm<br><i>Seokho Yoon, Sang Won Choi, Jumi Lee, Hyoungmoon Kwon,<br/>Ickho Song</i> .....          | 711 |
| Robust Secret Key Based Authentication Scheme Using Smart Cards<br><i>Eun-Jun Yoon, Kee-Young Yoo</i> .....                                                        | 723 |
| A Dynamically Configurable Multimedia Middleware<br><i>Hendry, Munchurl Kim</i> .....                                                                              | 735 |
| Adaptive VoIP Smoothing of Pareto Traffic Based on Optimal E-Model<br>Quality<br><i>Shyh-Fang Huang, Eric Hsiao-Kuang Wu, Pao-Chi Chang</i> .....                  | 747 |
| Indoor Scene Reconstruction Using a Projection-Based Registration<br>Technique of Multi-view Depth Images<br><i>Sehwan Kim, Woontack Woo</i> .....                 | 759 |
| Image-Based Relighting in Dynamic Scenes<br><i>Yong-Ho Hwang, Hyun-Ki Hong, Jun-Sik Kwon</i> .....                                                                 | 772 |
| Stippling Technique Based on Color Analysis<br><i>Seok Jang, Hyun-Ki Hong</i> .....                                                                                | 782 |
| Photometry Data Coding for Three-Dimensional Mesh Models Using<br>Connectivity and Geometry Information<br><i>Young-Suk Yoon, Sung-Yeol Kim, Yo-Sung Ho</i> .....  | 794 |
| Adaptation of MPEG-4 BIFS Scenes into MPEG-4 LAsER Scenes in<br>MPEG-21 DIA Framework<br><i>Qonita M. Shahab, Munchurl Kim</i> .....                               | 806 |

|                                                                                                                                                                     |     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| Performance Evaluation of H.264 Mapping Strategies over IEEE 802.11e WLAN for Robust Video Streaming<br><i>Umar Iqbal Choudhry, JongWon Kim</i> .....               | 818 |
| Reducing Spatial Resolution for MPEG-2 to H.264/AVC Transcoding<br><i>Bo Hu, Peng Zhang, Qingming Huang, Wen Gao</i> .....                                          | 830 |
| Low-Bitrate Video Quality Enhancement by Frame Rate Up-Conversion and Adaptive Frame Encoding<br><i>Ya-Ting Yang, Yi-Shin Tung, Ja-Ling Wu, Chung-Yi Weng</i> ..... | 841 |
| Face Recognition Using Neighborhood Preserving Projections<br><i>Yanwei Pang, Nenghai Yu, Houqiang Li, Rong Zhang, Zhengkai Liu</i> ..                              | 854 |
| An Efficient Virtual Aesthetic Surgery Model Based on 2D Color Photograph<br><i>Hyun Park, Kee Wook Rim, Young Shik Moon</i> .....                                  | 865 |
| Automatic Photo Indexing Based on Person Identity<br><i>Seungji Yang, Kyong Sok Seo, Sang Kyun Kim, Yong Man Ro, Ji-Yeon Kim, Yang Suk Seo</i> .....                | 877 |
| Bayesian Colorization Using MRF Color Image Modeling<br><i>Hideki Noda, Hitoshi Korekuni, Nobuteru Takao, Michiharu Niimi</i> ..                                    | 889 |
| An Efficient Player for MPEG-4 Contents on a Mobile Device<br><i>Sangwook Kim, Kyungdeok Kim</i> .....                                                              | 900 |
| Conversion Mechanism of XMT into SMIL in MPEG-4 System<br><i>Heesun Kim</i> .....                                                                                   | 912 |
| Two-Channel-Based Noise Reduction in a Complex Spectrum Plane for Hands-Free Communication System<br><i>Toshiya Ohkubo, Tetsuya Takiguchi, Yasuo Arikawa</i> .....  | 923 |
| An Efficient Classifier Fusion for Face Recognition Including Varying Illumination<br><i>Mi Young Nam, Jo Hyung Yoo, Phill Kyu Rhee</i> .....                       | 935 |
| Illumination Invariant Feature Selection for Face Recognition<br><i>Yazhou Liu, Hongrun Yao, Wen Gao, Debin Zhao</i> .....                                          | 946 |
| Specular Removal Using CL-Projection<br><i>Joung Wook Park, Jae Doug Yoo, Kwan H. Lee</i> .....                                                                     | 958 |

|                                                                                          |      |
|------------------------------------------------------------------------------------------|------|
| Oriental Color-Ink Model Based Painterly Rendering for Realtime Application              |      |
| <i>Crystal S. Oh, Yang-Hee Nam</i> . . . . .                                             | 970  |
| An Adjusted-Q Digital Graphic Equalizer Employing Opposite Filters                       |      |
| <i>Yonghee Lee, Rinchul Kim, Googchun Cho, Seong Jong Choi</i> . . . . .                 | 981  |
| Interactive Transfer of Human Facial Color                                               |      |
| <i>Kyoung Chin Seo, Giroo Shin, Sang Wook Lee</i> . . . . .                              | 993  |
| Panoramic Mesh Model Generation from Multiple Range Data for Indoor Scene Reconstruction |      |
| <i>Wonwoo Lee, Woontack Woo</i> . . . . .                                                | 1004 |
| A Novel Low Latency Packet Scheduling Scheme for Broadband Networks                      |      |
| <i>Eric Hsiao-Kuang Wu, Ming-I Hsieh, Hsu-Te Lai</i> . . . . .                           | 1015 |
| Creative Cartoon Face Synthesis System for Mobile Entertainment                          |      |
| <i>Junfa Liu, Yiqiang Chen, Wen Gao, Rong Fu, Renqin Zhou</i> . . . . .                  | 1027 |
| Concept and Construction of the Caddy Robot                                              |      |
| <i>Florent Servillat, Ryohei Nakatsu, Xiao-feng Wu, Kazuo Itoh</i> . . . . .             | 1039 |
| Rapid Algorithms for MPEG-2 to H.264 Transcoding                                         |      |
| <i>Xiaoming Sun, Pin Tao</i> . . . . .                                                   | 1049 |
| A New Method for Controlling Smoke's Shape                                               |      |
| <i>Yongxia Zhou, Jiaoying Shi, Jiarong Yu</i> . . . . .                                  | 1060 |
| A Scene Change Detection in H.264/AVC Compression Domain                                 |      |
| <i>Sung Min Kim, Ju Wan Byun, Chee Sun Won</i> . . . . .                                 | 1072 |
| <b>Author Index</b> . . . . .                                                            | 1083 |