Multimedia Database and Information Retrieval

Negative Relevance Feedback for Improving Retrieval in Large-Scale Image Collections

Abir Gallas, Walid Barhoumi, and Ezzeddine Zagrouba

Predicting Occupation from Single Facial Images

Wei-Ta Chu and Chih-Hao Chiu

KS-SIFT: A Keyframe Extraction Method Based on Local Features

Tamires Tessarolli de Souza Barbieri and Rudinei Goularte

Cineast: A Multi-feature Sketch-Based Video Retrieval Engine

Luca Rossetto, Ivan Giangreco, and Heiko Schuldt

Indexing Motion Detection Data for Surveillance Video

Søren Vind, Philip Bille, and Inge Li Gørtz

Batch Mode Active Learning for Interactive Image Retrieval

Ngo Truong Giang, Ngo Quoc Tao, Nguyen Duc Dung, and Nguyen Trong The

Image and Video Processing

A Measurement Method for Speed Distribution of Collective Motion with Optical Flow and its Application to Estimation of Rotation Curve

Kei Terayama, Hirohisa Hioki, and Masa-Aki Sakagami

Human Interaction Recognition Using Independent Subspace Analysis Algorithm

Ngoc Nguyen and Atsuo Yoshitaka
Independent Subspace of Dynamic Gabor Features for Facial Expression
Classification ................................................................................................................................................47
   Prarinya Siritanawan, Kazunori Kotani, and Fan Chen

When Specular Object Meets RGB-D Camera 3D Scanning: Color Image Plus Fragmented Depth Map ................................................................................................................................................55
   Shun-Xuan Wang, Yu-Hsun Lin, and Ja-Ling Wu

Salient Event Detection in Basketball Mobile Videos .............................................................................63
   Francesco Cricri, Sujeet Mate, Igor D.D. Curcio, and Moncef Gabbouj

Scene Duplicate Detection from News Videos Using Image-Audio Matching Focusing on Human Faces ..............................................................................................................................................71
   Haruka Kumagai, Keisuke Doman, Ichiro Ide, Daisuke Deguchi, and Hiroshi Murase

Objective Quality Comparison of 4K UHD and Up-Scaled 4K UHD Videos ............................................78
   Manri Cheon and Jong-Seok Lee

Seam Carving for Color-Plus-Depth 3D Image ........................................................................................82
   Wei-Cih Jhou, Yu-Hsun Lin, and Ja-Ling Wu

Block-Based Salient Region Detection Using a New Spatial-Spectral-Domain Contrast Measure ................................................................................................................................................86
   Nan Mu, Xin Xu, Li Chen, and Jing Tian

Contour Completion of Partly Occluded Skew-Symmetry Objects .........................................................90
   Takahiro Hayashi and Motoki Sasaki

Feature Description Using Center-Symmetric Extended Local Ternary Patterns ..................................94
   Wen-Hung Liao, Chia-Yu Liu, and Ming-Ching Lin

Fast Object Detection Using Multistage Particle Window Deformable Part Model ..................................98
   Wei-Ta Chu and Ming-Hung Hsu

Integrating Spatial Information into Inverted Index for Large-Scale Image Retrieval ................................102
   Bien-Van Nguyen, Duy Pham, Thanh Duc Ngo, Duy-Dinh Le, and Duc Anh Duong

Towards Fast Multimedia Feature Extraction: Hadoop or Storm .........................................................106
   David Mera, Michal Batko, and Pavel Zezula

An Evaluation of Debayering Algorithms on GPU for Real-Time Panoramic Video Recording ..................110
   Ragnar Langseth, Vamsidhar Reddy Gaddam, Håkon Kvale Stensland, Carsten Griwodz, and Pål Halvorsen
Audio Processing

Bridging Music via Sound Effects ................................................................. 116
Yin-Tzu Lin, Chuan-Lung Lee, Jyh-Shing Jang, and Ja-Ling Wu

A Novel Fundamental Frequency Estimator Based on Harmonic Pattern Match
for Music Signals .......................................................................................... 123
Li Luo, Guido H. Bruck, and Peter Jung

Correcting Chord Classification Errors Based on Tonal Organization
Information of Classical Music .................................................................... 131
Lam Wang Kong and Tan Lee

Speech/Music Classification of Short Audio Segments ............................... 135
Toni Hirvonen

Efficient Recognition of Human Emotional States from Audio Signals ......... 139
Ernur Sonat Erdem and Mustafa Sert

Multimedia Networking, Security, and Mobile Services

Hive.js: Browser-Based Distributed Caching for Adaptive Video Streaming ................................................. 143
Roberto Roverso and Mikael Högqvist

On Unequal Power Allocation for Video Communications Using Scalable
Video Coding in Massive MIMO Systems .................................................. 147
Soo-Jin Kim, Chan-Byoung Chae, and Jong-Seok Lee

An Image Authentication and Recovery Method Using Optimal Selection
of Block Types .............................................................................................. 151
Chun-Hung Chen, Yuan-Liang Tang, and Wen-Shyong Hsieh

Fast Selective Encryption Method for Bitmaps Based on GPU Acceleration .... 155
Han Qiu and Gerard Memmi

Visualization, Computer Graphics and Virtual Reality

An Advanced Computational Intelligence System for Training of Ballet Dance
in a Cave Virtual Reality Environment ......................................................... 159
G. Sun, P. Muneesawang, M. Kyan, H. Li, L. Zhong, N. Dong, B. Elder,
and L. Guan

An Extracting Method for Individual Building Wall Points from Mobile Mapping
System Data .................................................................................................... 167
Xin Zeng, Shunsuke Araki, and Ken’ichi Kakizaki

An Immersive Telepresence System Using a Real-Time Omnidirectional
Camera and a Virtual Reality Head-Mounted Display .................................. 175
Luis Gaemperle, Kerem Seyid, Vladan Popovic, and Yusuf Leblebici
Modeling, Language, Interface and Tools for Multimedia Systems

Tagging Driven by Interactive Image Discovery: Tagging-Tracking-Learning ..................................................179
  Qiong Wu, Rui Gao, Xida Chen, and Pierre Boulanger

Using Multiple Interleaved Time Bases in Hypermedia Synchronization .........................................................187
  Marcio Ferreira Moreno and Luiz Fernando Gomes Soares

Context-Dependent Viewpoint Sequence Recommendation System for Multi-view Video ........................................195
  Xueting Wang, Yuki Muramatu, Takatsugu Hirayama, and Kenji Mase

Unsupervised Visual Domain Adaptation Using Auxiliary Information in Target Domain .....................................203
  Masaya Okamoto and Hideki Nakayama

Multimedia Applications

Quantifying and Improving User Quality of Experience in Immersive Tele-Rehabilitation .........................................207
  Karthik Venkatraman, Suraj Raghuraman, Yuan Tian, Balakrishnan Prabhakaran, Klara Nahrstedt, and Thiru Annaswamy

Variable Markov Oracle: A Novel Sequential Data Points Clustering Algorithm with Application to 3D Gesture Query-Matching .................................................................215
  Cheng-I Wang and Shlomo Dubnov

Automatic Segmentation of Audio Signals for Bird Species Identification .............................................................223
  Thiago L.F. Evangelista, Thales M. Priolli, Carlos N. Silla Jr, Bruno A. Angélico, and Celso A.A. Kaestner

Muvee: An Alternative Approach to Mobile Video Trimming .................................................................................229
  Roman Ganhör

A Visual Evaluation Framework for In-Home Physical Rehabilitation .................................................................237
  Naimul Mefraz Khan, Stephen Lin, Ling Guan, and Baining Guo

Music Driven Human Motion Manipulation for Characters in a Video .................................................................241
  Che-Hua Yeh, Yi-Hsuan Yang, Ming-Hsu Chang, and Hong-Yuan Mark Liao

3D Sketch System Based on Life-Sized and Operable Concept Enhanced by Three Design Spaces ................................245
  Shun'Ichi Tano, Naofumi Kanayama, Tomonori Hashiyama, Junko Ichino, and Mitsuru Iwata

Using a Commodity Hardware Video Encoder for Interactive Video Streaming ..................................................251
  Martin Alexander Wilhelmsen, Håkon Kvale Stensland, Vamsidhar Reddy Gaddam, Asgeir Mortensen, Ragnar Langseth, Carsten Griwodz, and Pål Halvorsen
Dealing with Noisy Data on Point Cloud Models ................................................................. 255
  Yi-Peng Lin and Kuo-Wei Hsu

Towards a Semantic Multi-modalities Description of Audiovisual Documents ....................... 259
  Manel Fourati, Anis Jedidi, and Faiez Gargouri

**Demo Session**

Multi-modal Interaction System for Smart TV Environments .................................................. 263
  Injae Lee, Jihun Cha, and Ohseok Kwon

Demo Paper: A Fast-Adjusting Rate Control Algorithm Using Network-Assisted Scheme for HD Video Streaming .......................................................................................... 265
  Abbas Javadtalab, Xiaoqing Zhu, and Shervin Shirmohammadi

**Posters**

Adaptive Spatial Resolution Selection for Stereoscopic Video Compression with MV-HEVC: A Frequency Based Approach ................................................................. 267
  Payman Aflaki, Miska M. Hannuksela, and Moncef Gabbouj

Utilization of NASA-TLX for Workload Evaluation of Gaze-Writing Systems .......................... 271
  Takahiro Hayashi and Reo Kishi

Haptic-Driven Visual Playback .................................................................................................. 273
  Yongyao Yan, Greg S. Ruthenbeck, and Karen J. Reynolds

Braille for Visual Cryptography ............................................................................................... 275
  Guangyu Wang, Feng Liu, and Wei Qi Yan

Personalized Music Emotion Recognition Using Electroencephalography (EEG) ....................... 277
  Jia-Lien Hsu, Yan-Lin Zhen, Tzu-Chieh Lin, and Yi-Shiuan Chiu

**Industry Papers**

MPEG Media Transport (MMT) for 3D Tele-Immersion Systems ............................................. 279
  Karthik Venkatraman, Shanthi Vellingiri, Balakrishnan Prabhakaran, and Nhut Nguyen

Composite Search for Distributed Multimedia Recorded Meetings ............................................ 283
  Shimei Pan, Mercan Topkara, Steve Wood, Jeff Boston, and Jennifer Lai

**Invited Papers**

Predicting Evoked Emotions in Video ....................................................................................... 287
  Joseph G. Ellis, W. Sabrina Lin, Ching-Yung Lin, and Shih-Fu Chang

Real-Time Photo Mining from the Twitter Stream: Event Photo Discovery and Food Photo Detection ................................................................................................................. 295
  Keiji Yanai, Takamu Kaneko, and Yoshiyuki Kawano
Clothing Extraction Using Region-Based Segmentation and Pixel-Level Refinement .................................................................303
Zhao-Rui Liu, Xiao Wu, Bo Zhao, and Qiang Peng

Hand-Crafted Features or Machine Learnt Features? Together They Improve RGB-D Object Recognition .........................................................311
Lu Jin, Shenghua Gao, Zechao Li, and Jinhui Tang

Towards Better Land Cover Classification Using Geo-tagged Photographs .................................................................................320
Hirotaka Oba, Masaharu Hirota, Richard Chbeir, Hiroshi Ishikawa, and Shohei Yokoyama

Smartphone-Based Walking Speed Estimation for Stroke Mitigation ..................................................................................328
Jeffrey Cox, Yu Cao, Guanling Chen, Jianbiao He, and Degui Xiao

Mobile App Connecting People Based on Personality Detection and Image Perception Analysis ................................................333
Ruichi Yu, Shuguan Yang, Guifan Li, Chao Qian, Sambit Sahu, and Ching-Yung Lin

**MIPR 2014 Workshop**

Indexing and Retrieving Continuations in Musical Time Series Data Using Relational Databases ..................................................341
Aleksey Charapko and Ching-Hua Chuan

Music Genre Classification of MPEG AAC Audio Data .................................................................................................347
Michihiro Kobayakawa, Mamoru Hoshi, and Koichiro Yuzawa

A High Performance Object Tracking Technique with an Adaptive Search Method in Surveillance System ..................................353
Tsung-Han Tsai and Chi-Hao Chang

Large Area Cell Based Image Localization .................................................................................................................357
Andrew Zhai, Matthew Clements, and Avideh Zakhor

**MTEL 2014 Workshop**

Architecture Considerations for Spaced Repetition Based Mobile Learning Games on iOS ..........................................................363
Florian Schimanke, Robert Mertens, and Oliver Vornberger

Learning Analytics in Linked Open Online Courses ........................................................................................................369
Kai Michael Höver and Max Mühlhäuser

Evaluating a Linked Open Online Course .................................................................................................................375
Kai Michael Höver and Max Mühlhäuser

Graphical Programming Environments for Educational Robots: Open Roberta - Yet Another One? ...........................................381
Beate Jost, Markus Ketterl, Reinhard Budde, and Thorsten Leimbach
MUSES 2014 Workshop and MCR 2014 Workshop
A Lightweight Secure Data Aggregation Technique for Wireless Sensor
Network .....................................................................................................................................................387
  Sk. Md. Mizanur Rahman, Mohammad Anwar Hossain, Maqsood Mahmud,
  Muhammad Imran Chaudry, Ahmad Almogren, Mohammed Alnuem,
  and Atif Alamri

Anonymous and Secure Communication Protocol for Cognitive Radio Ad Hoc
Networks ...................................................................................................................................................393
  Sk. Md. Mizanur Rahman, S. M. Kamruzzaman, Ahmad Almogren,
  Abdulhameed Alelaiwi, Atif Alamri, and Abdullah Alghamdi

Investigating Cascaded Face Quality Assessment for Practical Face
Recognition System ..................................................................................................................................399
  Hyung-Il Kim, Seung Ho Lee, and Yong Man Ro

Author Index .............................................................................................................................................401