

VCIP 2015 Technical Program

Conference Venue: Nanyang Executive Centre (NEC), Nanyang Technological University, Singapore

Sunday, 13 December 2015

09:00 Tutorial 1 (Lecture Room 1)

| High Efficiency Video Coding - Coding Tools and Specification: HEVC Version 2 and Beyond

12:00 *Mathias Wien, RWTH Aachen University, Germany*

Tutorial 2 (Lecture Room 2)

Regularities of Visual Data and Their Applications

Shenghua Gao, Shanghai Tech University, China

Kui Jia, Advanced Digital Sciences Center, Singapore

Tianzhu Zhang, Chinese Academy of Sciences, China

Weisheng Dong, Xidian University, China

14:00 Tutorial 3 (Lecture Room 1)

| HEVC Screen Content Coding (SCC) - Standardization and Technologies

17:00 *Ji-Zheng Xu, Microsoft Research Asia, China*

Wen-Hsiao Peng, National Chiao Tung University, Taiwan

Tutorial 4 (Lecture Room 2)

Cloud Communications for Highly Interactive Multimedia Communications

Anil Fernando, University of Surrey, UK

Monday, 14 December 2015

08:30 Opening Ceremony (Auditorium)

09:00 Keynote Speech I (Auditorium)

Design and Implementation of Stereo Matching for Depth Estimation in Computer Vision Applications

Professor Liang-Gee Chen, National Taiwan University, Taiwan

10:00 Coffee/Tea Break

10:30 Oral Session MO1A: Image and Video Processing I (Auditorium)

Session Chair: Chia-Wen Lin, National Tsinghua University, Taiwan

1. Registration of Undersampled Images via Higher Resolution Spectrum Restoration

Qiang Song¹, Ruiqin Xiong¹, Xinfeng Zhang², Siwei Ma¹, Wen Gao¹

¹Peking University

²Nanyang Technological University

2. 2D Nonlocal Sparse Representation for Image Denoising

Na Qi¹, Yunhui Shi¹, Xiaoyan Sun², Wenpeng Ding¹, Baocai Yin¹

¹Beijing University of Technology

²Microsoft Research

3. Perceptually-aware Distributed Compressive Video Sensing
Jin Xu¹, Soufiene Djahel¹, Yuansong Qiao², Zhizhong Fu³
¹*University College of Dublin (UCD)*
²*Athlone Institute of Technology*
³*University of Electronic Science and Technology of China*
4. Merge Mode Based Fast Inter Prediction for HEVC
Zhengxue Cheng, Heming Sun, Dajiang Zhou, Shinji Kimura
Waseda University
5. Weighted Rate-Distortion Optimization for Screen Content Intra Coding
Wei Xiao¹, Bin Li², Jizheng Xu², Guangming Shi¹, Feng Wu³
¹*Xidian University*
²*Microsoft*
³*University of Science and Technology of China*

10:30 Oral Session MO1B: Systems and Techniques for Human Interaction (Lecture Room 1)

Session Chair: Yongtian Wang, Beijing Institute of Technology, China

1. Fixation Prediction through Multimodal Analysis
Xionghuo Min, Guangtao Zhai, Chunjia Hu, Ke Gu
Shanghai Jiao Tong University
2. A Robust Facial Landmark Detection Method in Multi-views
Xinran Liu, Fei Su
Beijing University of Posts and Telecommunications
3. Fusion of Submanifold and Local Texture Features for Palmprint Authentication
Asha Rani, Manisha Verma, Balasubramanian Raman
Indian institute of technology Roorkee
4. Encoding Scale into Fisher Vector for Human Action Recognition
Bowen Zhang, Hanli Wang
Tongji University
5. Spatio-temporal Quality Pooling Adaptive to Distortion Distribution and Visual Attention
Yichen Li, Xiaoqiang Guo, Haiying Wang
Beijing University of Posts and Telecommunications

12:00 Lunch Break

13:00 Oral Session MO2A: Cloud Multimedia Systems, Applications and Services (Auditorium)

Session Chair: Jiangbo Lu, Advanced Digital Sciences Center (ADSC), Singapore

1. 3View Deep Canonical Correlation Analysis for Cross-modal Retrieval
Jie Shao, Zhicheng Zhao, Fei Su, Ting Yue
Beijing University of Posts and Telecommunications

2. Improving Tag Matrix Completion for Image Annotation and Retrieval
Zhen Qin, Chunguang Li, Honggang Zhang, Jun Guo
Beijing University of Posts and Telecommunications
3. QCCE: Quality Constrained Co-saliency Estimation for Common Object Detection
Koteswar Jerripathula, Jianfei Cai, Junsong Yuan
Nanyang Technological University
4. Hierarchical Video Summarization with Loitering Indication
Ruipeng Lu, Hua Yang, Ji Zhu, Shuang Wu, Jia Wang, Dave Bull
Shanghai Jiao Tong University
5. Salient Object Detection using HOS Based LO Smoothing and Shape-Aware Region Merging
Hyunjun Eun, Jonghee Kim, Changick Kim
Korea Advanced Institute of Science and Technology

13:00 Special Session MO2B: Human-Centric Visual Computing (Lecture Room 1)

Organizers: Weihong Deng, Beijing University of Posts and Telecommunications, China
Xiuzhuang Zhou, Capital Normal University, China

1. DeepEmo: Real-world Facial Expression Analysis via Deep Learning
Weihong Deng, Jiani Hu, Shuo Zhang, Jun Guo
Beijing University of Posts and Telecommunications
2. Active Appearance Model Search Using Partial Least Squares Regression
Yongxin Ge¹, Min Chen¹, Martin Jagersand², Dan Yang¹
¹Chongqing University
²University of Alberta
3. Neighborhood Repulsed Correlation Metric Learning for Kinship Verification
Haibin Yan¹, Xiuzhuang Zhou², Yongxin Ge³
¹Beijing University of Posts and Telecommunications
²Capital Normal University
³Chongqing University
4. Face Recognition Based on Random Feature
Shasha Li, Weihong Deng
Beijing University of Posts and Telecommunications
5. Improving Golf Swing Skills Using Intelligent Glasses
Hua-Tsung Chen, Tzu-Wei Huang, Chien-Li Chou, Hou-Chun Tsai, Suh-Yin Lee
National Chiao Tung University

14:30 Coffee/Tea Break

14:30 Poster/Demo Session MPD1 (Education Wing Atrium)

Session Chair: Shizheng Wang, Nanyang Technological University, Singapore

Posters

1. A Novel Depth Motion Vector Coding Exploiting Spatial and Inter-component Clustering Tendency
Shampa Shahriyar¹, Manzur Murshed², Mortuza Ali², Manoranjan Paul³
¹*Monash University*
²*Federation University Australia*
³*Charles Sturt University*
2. Residual-consensus Driven Linear Matching
Hao Wang
Shanghai Jiao Tong University
3. An Adaptive Search Range Method for HEVC with the K-Nearest Neighbor Algorithm
Yuchen Li, Yitong Liu, Hongwen Yang, Dacheng Yang
Beijing University of Posts and Telecommunications
4. Detail-Preserving Tone Mapping for Low Dynamic Range Displays with Adaptive Gamma Correction
Cheolkon Jung, Xiaoke Wang
Xidian University
5. Perceptual Block Merging for Quadtree-Based Partitioning in HEVC Using Disorderly Concealment Effect
Cheolkon Jung, Yao Chen, Qiaozhou Lin
Xidian University
6. Image Denoising via Sparse Approximation Using Eigenvectors of Graph Laplacian
Yibin Tang¹, Ying Chen², Ning Xu³, Aimin Jiang³, Yuan Gao³
¹*College of Internet of Things*
²*Southeast University*
³*Hohai University*
7. Weighted Transformable Spatial Pyramid and Scalable Query for Object Retrieval
Ziou Zheng, Wenmin Wang, Ronggang Wang
Peking University
8. Centroid Adapted Frequency Selective Extrapolation for Reconstruction of Lost Image Areas
Wolfgang Schnurrer, Markus Jonscher, Jürgen Seiler, Thomas Richter, Michel Bätz, Andre Kaup
Friedrich-Alexander-Universität Erlangen-Nürnberg
9. Power-Constrained Backlight Scaling Using Brightness Compensated Contrast-Tone Mapping Operation
Cheolkon Jung, Lu Wang
Xidian University

10. Rate Control for Screen Content Coding Based on Picture Classification
Yaoyao Guo¹, Bin Li², Songlin Sun¹, Jizheng Xu²
¹*Beijing University of Posts and Telecommunications*
²*Microsoft*
11. A Novel SSIM Index for Image Quality Assessment using a New Luminance Adaptation Effect Model in Pixel Intensity Domain
Sung-Ho Bae, Munchurl Kim
Korea Advanced Institute of Science and Technology
12. Enhanced Inter Prediction with Localized Weighted Prediction in HEVC
Na Zhang¹, Yiran Lu¹, Xiaopeng Fan¹, Ruiqin Xiong², Debin Zhao¹, Wen Gao²
¹*Harbin Institute of Technology;*
²*Peking University*
13. Parallel Intra Coding for HEVC on CPU plus GPU Platform
Juncheng Ma¹, Falei LUO², Shanshe Wang¹, Nan Zhang³, Siwei Ma¹
¹*Peking University*
²*Institute of Computing Technology*
³*School of Biomedical Engineering, Capital Medical University*
14. Temporal Trimap Propagation using Motion-Assisted Shape Blending
Jubin Johnson, Deepu Rajan, Hisham Cholakkal
Nanyang Technological University
15. 3D Facial Clone based on Depth Patches
Jerome Manceau, Catherine Soladié, Renaud Séguier
CentraleSupélec
16. Fast Super-Resolution Algorithm using ELBP Classifier
Dong-yoon Choi, Byung Cheol Song
Inha University
17. An Efficient All Zero Block Detection Algorithm Based on Frequency Characteristics of DCT in HEVC
Henglu Wei, WEI ZHOU, Xin Zhou, Zhemin Duan
Northwestern Polytechnical University
18. Early SKIP Mode Decision Based on Bayesian Model for HEVC
Qiang Hu, Zhiru Shi, Xiaoyun Zhang, Zhiyong Gao
Shanghai Jiao Tong University;
19. Time and Energy Modeling of an INTRA-ONLY HEVC Encoder
Rafael Rodriguez-Sanchez¹, Maria Teresa Alonso², Jose Luis Martinez², Rafael Mayo¹, Enrique S. Quintana-Orti¹
¹*Universitat Jaume I*
²*Universidad de Castilla-La Mancha*

20. Hybrid Angular Intra/Template Matching Prediction for HEVC Intra Coding
Tao Zhang¹, Haoming Chen², Ming-Ting Sun², Debin Zhao¹, Wen Gao³
¹*Harbin Institute of Technology*
²*University of Washington*
³*Peking University*
21. Image Semantic Quality Assessment for Compression of Car-Plate Images
Dandan Wang, Dong Liu, Fangdong Chen
University of Science and Technology of China
22. Noise-aided Dynamic Range Compression using Selective Processing in a Statistics-dependent Stochastic Resonance Model
Rajlaxmi Chouhan, Prabir Biswas
IIT Kharagpur
23. Reducing HEVC Encoding Complexity Using Two-Stage Motion Estimation
Gabriel Cebrián Márquez¹, Chi Ching Chi², Jose Luis Martinez¹, Pedro Ángel Cuenca Castillo¹, Mauricio Álvarez Mesa², Sergio Sanz Rodríguez², EBen Juurlink²
¹*High-Performance Networks and Architectures (RAAP), Univ. of Castilla-La Mancha*
²*Embedded Systems Architecture (AES). Technische Universität Berlin*
24. Reference Picture Selection Using Checkerboard Pattern for Resilient Video Coding
Joao Carreira¹, Pedro Assuncao², Sergio Faria², Erhan Ekmekcioglu¹, Ahmet Kondo¹, Hyun Lim³
¹*Loughborough University in London*
²*Instituto de Telecomunicações/Instituto Politecnico de Leiria*
³*Institute for Digital Technologies, Loughborough University*
25. No-Reference Video Quality Assessment by HEVC Codec Analysis
Xin Huang, Jacob Sjøgaard, Søren Forchhammer
Danmarks Tekniske Universitet
26. Fast Rate Distortion Optimized Quantization for HEVC
Yongfei Zhang, Rui Tian, Jiangang Liu, Ning Wang
Beihang University
27. Part-based Deep Network for Pedestrian Detection in Surveillance Videos
Qi Chen, Wenhui Jiang, Yanyun Zhao, Zhicheng Zhao
Beijing University of Posts and Telecommunications

Demos

1. Automatic Multiview Synthesis – Prototype Demo
Michael Schaffner^{1,2}, Frank Gürkaynak¹, Hubert Kaeslin¹, Luca Benini¹, Aljosa Smolic²
¹*Eidgenössische Technische Hochschule Zürich*
²*Disney Research Zurich*
2. Kvazaar HEVC Still Image Coding on Raspberry Pi 2 for Low-Cost Remote Surveillance
Marko Viitanen, Ari Koivula, Jarno Vanne, Timo Hämäläinen
Tampere University of Tech

3. Glasses-free Light Field 3D Display
Shizheng Wang, Xiangyu Zhang, Qijia Cheng, Rajendran Kaviya, Phil Surman, Junsong Yuan, and Xiao Wei Sun
Nanyang Technological University
4. Head Tracked Multiview 3D Display
Phil Surman, Shizheng Wang, Xiangyu Zhang, Lei Zhang, Xiao Wei Sun
Nanyang Technological University
5. Omnidirectional-view Three-dimensional Displays Using Multiple Mini-projectors
Weitao Song¹², Qudong Zhu¹, Dongdong Weng¹, Yue Liu¹, Yongtian Wang¹
¹*Beijing Institute of Technology*
²*University of Connecticut*
6. A Real-time Head Tracker for Autostereoscopic Display
Guo Song, Phil Surman, Zhenfeng Zhuang, Xiao Wei Sun
Nanyang Technological University
7. Viewable Floating Displays using Simple Secondary Optical Elements
Zhenfeng Zhuang, Hongjuan Wang, Phil Surman, Xiao Wei Sun
Nanyang Technological University

16:00 Oral Session MO3A: Visual Communications I (Auditorium)

Session Chair: Wen-Hsiao Peng, National Chiao Tung University, Taiwan

1. A Markov Decision based Rate Adaption Approach for Dynamic HTTP Streaming
Chao Zhou¹, Chia-Wen Lin²
¹*Huawei*
²*National Tsinghua University, Taiwan*
2. Reconstruction of Videos Taken by a Non-Regular Sampling Sensor
Markus Jonscher, Jürgen Seiler, Michel Bätz, Thomas Richter, Wolfgang Schnurrer, Andre Kaup
Friedrich-Alexander-Universität Erlangen-Nürnberg
3. Perceptual Video Quality Assessment for Adaptive Streaming Encoding
Estêvão Monteiro¹, Ricardo Scholz², Carlos Ferraz², Tsang Ren², Roberto Barros²
¹*Universidade Federal de Pernambuco*
²*Centro de Informática*
4. Delay-Constrained Rate Control For Real-Time Video Streaming Over Wireless Networks
Yufeng Geng¹, Xinggong Zhang¹, Tong Niu¹, Chao Zhou², Zongming Guo¹
¹*Peking University*
²*Huawei*
5. Classification-Aware Distortion Metric for HEVC Intra Coding
Massimo Minervini, Sotirios Tsafaris
IMT Institute for Advanced Studies Lucca

16:00 Special Session MO3B: Image Sparse Representation and Its Applications (Lecture Room 1)

Organizers: Jiaying Liu, Peking University, China

Xinfeng Zhang, Nanyang Technological University, Singapore

Xianming Liu, Harbin Institute of Technology

1. Sparsity-based Joint Gaze Correction and Face Beautification for Conferencing Video
Xianming Liu^{1,2}, Gene Cheung¹, Deming Zhai², Debin Zhao²
¹*National Institute of Informatics*
²*Harbin Institute of Technology*
2. A Dual Structured-Sparsity Model for Compressive-Sensed Video Reconstruction
Chen Zhao, Jian Zhang, Siwei Ma, Ruiqin Xiong, Wen Gao
Peking University
3. Image Super-Resolution via Group Structured Sparse Representation
Wenhan Yang, Jiaying Liu, Saboya Yang, Zongming Guo
Peking University
4. Single Image Super-resolution via 2D Nonlocal Sparse Representation
Na Qi¹, Yunhui Shi¹, Xiaoyan Sun², Wenpeng Ding¹, Baocai Yin¹
¹*Beijing University of Technology*
²*Microsoft Research*
5. Moiré Pattern Removal from Texture Images via Low-rank and Sparse Matrix Decomposition
Fanglei Liu, Jingyu Yang, Huanjing Yue
Tianjin University

18:30 Welcome Reception @ The Attic, NTU Campus Clubhouse (Next to NEC)

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20:30

Tuesday, 15 December 2014

09:00 Keynote Speech 2 (Auditorium)

Computer Vision: From Recognition to Understanding

Dr Yong Rui, Microsoft Research Asia, China

10:00 Coffee/Tea Break

10:30 Oral Session TO1A: Image and Video Coding (Auditorium)

Session Chair: Hanzi Wang, Xiamen University, China

1. Deblocking Strength Prediction based CTU-level SAO Category Determination in HEVC Encoder

Gaoxing Chen¹, Zhenyu Pei¹, Zhenyu Liu², Takeshi Ikenaga¹

¹Waseda University

²Tsinghua University

2. Efficient Background Picture Coding for Videos Obtained from Static Cameras

Fangdong Chen, Li Li, Dong Liu, Houqiang Li, Zhuoyi Lv, Haitao Yang

University of Science and Technology of China

3. An Optimized Probability Estimation Model for Binary Arithmetic Coding

Jing Cui¹, Shanshe Wang², Nan Zhang³, Siwei Ma²

¹Seoul National University

²Peking University

³Capital Medical University

4. Virtual View Distortion Estimation for Depth Map Coding

Chao Yang, Ping An, Deyang Liu, Liquan Shen

Shanghai University

5. Rearrangement Pixel Granularity Template Matching for Lossy Screen Content Picture Intra Coding

Zheng Wang, Pin Tao, Lixin Feng

Tsinghua University

10:30 Oral Session TO1B: Embedded Systems and Visual Information Processing (Lecture Room 1)

Session Chair: Munchurl Kim, Korea Advanced Institute of Science and Technology, Korea

1. A High-Throughput Deblocking Filter VLSI Architecture for HEVC

Wei Zhou, Jinzhi Zhang, Xin Zhou, Tongqing Liu

Northwestern Polytechnical University

2. Enhancing Low-light Color Images Using An RGB-NIR Single Sensor

Hiroki Yamashita, Daisuke Sugimura, Takayuki Hamamoto

Tokyo University of Science

3. Cross-Modal Correlation Learning with Deep Convolutional Architecture
Yan Hua¹, Hu Tian², Anni Cai², Ping Shi¹
¹*Communication University of China*
²*Beijing University of Posts and Telecommunications*
4. Supervised Dictionary Learning for Blind Image Quality Assessment
Feng Shao
Ningbo University
5. Subjective Rate-distortion Optimization in HEVC with Perceptual Model of Multiple Faces
Yufan Liu¹, Haoji Hu², Mai Xu¹
¹*Beihang University*
²*Zhejiang University*

12:00 Lunch Break

13:00 Oral Session TO2A: Visual Communications II (Auditorium)

Session Chair: Guangtao Zhai, Shanghai Jiao Tong University, China

1. Q-Learning Based Control Algorithm for HTTP Adaptive Streaming
Virginia Martín, Julián Cabrera, Narciso García
Universidad Politécnica de Madrid, Grupo de Tratamiento de Imágenes
2. Progressive Pseudo-Analog Transmission for Mobile Video Live Streaming
Cuiling Lan¹, Dongliang He², Chong Luo¹, Feng Wu², Wenjun Zeng¹
¹*Microsoft Research*
²*University of Science and Technology of China (USTC)*
3. Compressive Sensing based Image Transmission with Side Information at the Decoder
Xiaodan Song¹, Xiulian Peng², Jizheng Xu², Guangming Shi¹, Feng Wu³
¹*Xidian University*
²*Microsoft*
³*University of Science and Technology of China*
4. On Display-Camera Synchronization for Visible Light Communication
Kaixuan Liu¹, Xiaolin Wu¹, Xiao Shu²
¹*Shanghai Jiao Tong University*
²*McMaster University*
5. Efficient SAO Coding Algorithm for x265 Encoder
Shibo Yin, Xiaoyun Zhang, Zhiyong Gao
Shanghai Jiao Tong University

13:00 Special Session TO2B: Emerging Techniques for Glasses-Free 3D Displays (Lecture Room 1)

Organizers: Philip Surman, Shizheng Wang, Junsong Yuan, Yuanjin Zheng, and Xiao Wei Sun
Nanyang Technological University, Singapore

Invited Talk: Recent Progress in Glasses-Free 3D Displays at Beijing Institute of Technology

Yongtian Wang

Beijing Institute of Technology

1. Automatic Multiview Synthesis-Towards a Mobile System on a Chip

Michael Schaffner¹, Frank K. Gurkaynak¹, Hubert Kaeslin¹, Luca Benini¹, Aljoscha Smolic²

¹ETH Zurich

²Disney Research Zurich

2. Glasses-free 3D Display with Glasses-assisted Quality: Key Innovations for Smart Directional Backlight Autostereoscopy

Hang Fan, Yangui Zhou, Haowen Liang, Jiahui Wang, Peter Krebs, Daikun Lin, Kunyang Li, Jianbang Su, Haiyu Chen, Xiaolu Wang, Jianying Zhou

Sun Yat-Sen University

3. Region Adaptive Workload Prediction for Parallel View Synthesis

Zhanqi Liu, Xin Jin, Qionghai Dai

Tsinghua University

4. Multi-phase Joint Reconstruction Framework for Multi-view Video Compression using Block-based Compressive Sensing

Mansoor Ebrahim

Sunway University

5. Two-layer Optimized Light Field Display Using Depth Initialization

Shizheng Wang, Zhenfeng Zhuang, Phil Surman, Junsong Yuan, Yuanjin Zheng, Xiao Wei Sun

Nanyang Technological University

14:30 Coffee/Tea Break

15:00 Panel Session: What's Next in Visual Communications and Image Processing? (Auditorium)

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16:00 Panel Chair: Wenjun Zeng, Microsoft Research Asia, China

Panelists:

Pierre Moulin, University of Illinois at Urbana-Champaign, USA

Yong Rui, Microsoft Research Asia, China

Simon See, nVIDIA Corporation

Ming-Ting Sun, University of Washington, USA

(Shuttle buses leaving NEC for Gardens by the Bay at 16:15, 16:30 and 16:45)

17:00 Visit to Cloud Forest Conservatory @ Gardens by the Bay

18:30 Conference Banquet @ Gardens by the Bay

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21:30

Wednesday, 16 December 2015

09:00 Keynote Speech 3 (Auditorium)

Robust Hashing and its Applications to Content Identification and Retrieval
Professor Pierre Moulin, University of Illinois at Urbana-Champaign, USA

10:00 Coffee/Tea Break

10:30 Oral Session WO1A: 3D Videos and Video Coding I (Auditorium)

Session Chair: Xiaolin Wu, Shanghai Jiao Tong University, China

1. A Novel Light Field Super-resolution Framework Based on Hybrid Imaging System
Judong Wu, Haoqian Wang, Xingzheng Wang, Yongbing Zhang
Tsinghua University
2. Quad-tree based Inter-view Motion Prediction
Ji Ma¹, Na Zhang¹, Xiaopeng Fan¹, Ruiqin Xiong², Debin Zhao¹
¹Harbin Institute of Technology
²Peking University
3. Modeling of Packet-Loss-Induced Distortion in 3-D Synthesized Views
Pan Gao, Wei Xiang
University of Southern QLD
4. An Adaptive Hierarchical QP Setting for Screen Content Coding
Jiahao Li¹, Bin Li², Jizheng Xu², Ruiqin Xiong¹
¹Peking University
²Microsoft
5. Automatic Foreground Segmentation Using Light Field Images
Xianyu Chen, Feng Dai, Yike Ma, Yongdong Zhang
Institute of Computing Tech.

10:30 Oral Session WO1B: Multimedia Content Analysis (Lecture Room 1)

Session Chair: Wenjun Zeng, Microsoft Research Asia, China

1. Discriminatively-learned Global Image Representation Using CNN as a Local Feature Extractor for Image Retrieval
Wei-Lin Ku, Hung-Chun Chou, Wen-Hsiao Peng
National Chiao Tung University
2. Designing A Composite Dictionary Adaptively From Joint Examples
Zhangyang Wang, Yingzheng Yang, Jianchao Yang, and Thomas Huang
University of Illinois at Urbana-Champaign
3. Improving VLAD with Regional PCA Whitening
Mingmin Zhen, Ronggang Wang, Wenmin Wang
Peking University

4. Invariant Image Recognition under Projective Deformations: An Image Normalization Approach
Xue Wei¹, Son Lam Phung¹, Abdesselam Bouzerdoum¹, Amine Bermak²
¹University of Wollongong
²Hong Kong University of Science and Technology

5. Image Tag Completion and Refinement by Subspace Clustering and Matrix Completion
Yuqing Hou, Zhouchen Lin
Peking University

12:00 Lunch Break

13:00 Oral Session WO2A: 3D Videos and Video Coding II (Auditorium)

Session Chair: Joohee Kim, Illinois Institute of Technology, USA

1. Image-Guided Depth Propagation Using Superpixel Matching and Adaptive Autoregressive Model
Jiji Cai, Cheolkon Jung
Xidian University
2. Accurate Image Specular Highlight Removal Based on Light Field Imaging
Chenxue Xu, Xingzheng Wang, Haoqian Wang, Yongbing Zhang
Tsinghua University
3. Super-Resolution for Mixed-Resolution Multiview Images Using a Relative Frequency Response Estimation Method
Thomas Richter, Annelie Habermann, Andre Kaup
Friedrich-Alexander-Universität Erlangen-Nürnberg
4. Fast Depth Estimation using Spatio-temporal Prediction for Stereo-based Pedestrian Detection
Amin Zarshenas, Maral Mesmakhosroshahi, Joohee Kim
Illinois Institute of Technology
5. Structure-aware Priority Belief Propagation for Depth Estimation
Kuanyu Ju, Botao Wang, Hongkai Xiong
Shanghai Jiao Tong University

13:00 Special Session WO2B: Perceptual Visual Information Processing and Its Applications (Lecture Room 1)

Organizers: Yuming Fang, Jiangxi University of Finance and Economics, China

Hantao Liu, University of Hull, UK

Wen-Jiin Tsai, National Chiao-Tung University, Taiwan

Nevrez İmamoğlu, RIKEN, Brain Science Institute, Japan

1. Hybrid Image Retargeting
Wen-Jiin Tsai, Chun-Fu Chen
National Chiao-Tung University

2. Quality Assessment for Out-of-Focus Blurred Images
Yutao Liu¹, Guangtao Zhai³, Xianming LIU¹², Debin Zhao¹
¹*Harbin Institute of Technology*
²*NII*
³*Shanghai Jiao Tong University*
3. Incremental SfM Based Lossless Compression of JPEG Coded Photo Album
Hao Wu¹, Xiaoyan Sun², Jingyu Yang¹, Feng Wu³
¹*Tianjin University*
²*Microsoft Research*
³*University of Science and Technology of China (USTC)*
4. Visual Attention on Human Face
Xionghuo Min, Guangtao Zhai, Ke Gu
Shanghai Jiao Tong University
5. Local Feature Aggregation for Blind Image Quality Assessment
Jingtao Xu, Qiaohong Li, Peng Ye, Haiqing Du, Yong Liu
Beijing University of Posts and Telecommunications

14:30 Coffee/Tea Break

14:30 Poster/Demo Session WPD1 (Education Wing Atrium)

Session Chair: Jingjing Meng, Nanyang Technological University, Singapore

Posters

1. An Efficient Probabilistic Occupancy Map-Based People Localization Approach
Yen-Shuo Lin, Hua-Tsung Chen, Jen-Hui Chuang
National Chiao Tung University
2. MI3: Multi-Intensity Infrared Illumination Video Database
Chia-Hsin Chan, Hua-Tsung Chen, Wen-Chih Teng, Chin-Wei Liu, Jen-Hui Chuang
National Chiao Tung University
3. Gradient Magnitude Similarity for Tone-Mapped Image Quality Assessment
Yanping Lu¹, Qin Tu¹, Maozheng Zhao¹, Ran Gao¹, Aidong Men¹, Dongfei Wang²
¹*Beijing University of Posts and Telecommunications*
²*Academy of Broadcasting Science, SAPPRFT*
4. A Fast Super-Resolution Method Based on Sparsity Properties
Yuanhao Bai, Huizhu Jia, Xiaodong Xie, Rui Chen, Ming Jiang, Wen Gao
Peking University
5. Joint Image Compression and Encryption Based on Alternating Transforms with Quality Control
Peiya Li, Kwok-Tung Lo
The Hong Kong Polytechnic University

6. Adaptive Motion Vector Resolution Prediction in Block-Based Video Coding
Zhao Wang¹, Juncheng Ma¹, Falei LUO², Siwei Ma¹
¹*Peking University*
²*Institute of Computing Technology*
7. An Adaptive Inter CU Depth Decision Algorithm for HEVC
Jie Liu, Huizhu Jia, Guoqing Xiang, Xiaofeng Huang, BinBin Cai, Chuang Zhu, Xiaodong Xie
Peking University
8. Confidence Indicators Based Pose Estimation for High-Quality 3D Reconstruction Using Depth Image
Ranga Ramanujam Srinivasan, Zhengyu Xia, Joohee Kim, Young Park
Illinois Institute of Technology
9. Region-of-Interest Based Coding Scheme for Synthesized Video
Wenbo Zhao¹, Jingjing Fu², Yan Lu², Shipeng Li², Debin Zhao¹
¹*Harbin Institute of Technology*
²*Microsoft Research*
10. Reducing Search Space for Fast Pedestrian Detection
Maral Mesmakhosroshahi, Joohee Kim
Illinois Institute of Technology
11. Graph Based Spatiotemporal Saliency Detection Incorporating Low and High Level Features
Ran Gao¹, Qin Tu¹, Cuiwei Li¹, MaoZheng Zhao¹, Guangtao Fu², Bo Yang¹
¹*Beijing University of Posts and Telecommunications*
²*Academy of Broadcasting Science, SAPPRFT*
12. Visual Saliency Detection Based On Mutual Information In Compressed Domain
Ran Gao¹, Qin Tu¹, Jun Xu¹, Yanping Lu¹, Wei Xie², Aidong Men¹
¹*Beijing University of Posts and Telecommunications*
²*Academy of Broadcasting Science, SAPPRFT*
13. Fast Uyghur Text Detection in Videos Based on Learning of Baseline Feature
Chang Liu, Yi Fan Song, Zhicheng Zhao, Fei Su
Beijing University of Posts and Telecommunications
14. Video Denoising Algorithm via Multi-scale Joint Luma–Chroma Bilateral Filter
Yuanyuan Gao, Hai-Miao Hu, Jiawei Wu
Beihang University
15. On Comparison of Intra Line Copy and Intra String Copy for HEVC Screen Content Coding
Ru-Ling Liao, Chun-Chi Chen, Wen-Hsiao Peng
National Chiao Tung University
16. Rate-Distortion Based Sparse Coding for Image Set Compression
Xinfeng Zhang¹, Lin Weisi¹, Siwei Ma², Shiqi Wang², Wen Gao²
¹*Nanyang Technological University (NTU)*
²*Peking University*

17. Joint Image Dehazing and Contrast Enhancement using the HSV Color Space
Yi Wan, Qiqiang Chen
Lanzhou University
18. Fast Parameter Estimation Algorithm for Sample Adaptive Offset in HEVC Encoder
Sayed El Gendy, Ahmed Shalaby, Mohammed S. Sayed
Egypt-Japan University of Science and Technology (EJUST)
19. HEVC to VP9 Transcoder
Enrique de la Torre¹, Rafael Rodriguez-Sanchez², Jose Luis Martinez¹
¹Universidad de Castilla-La Mancha
²Universitat Jaume I
20. Decorrelation-Stretch based Cloud Detection for Total Sky Images
Muming Zhao¹, Chongyang Zhang¹, Wenjun Zhang¹, Wei Li², Jian Zhang³
¹Shanghai Jiao Tong University
²Technology Center of Shanghai Electric Power T&D Group, Shanghai;
³University of Technology, Sydney
21. A HVS-Guided Approach for Real-time Image Interpolation
Rui Chen, Huizhu Jia, Xiaodong Xie, Wen Gao
Peking University
22. Reflection Removal for Stele Images via Sparse Signal Decomposition
Jun Wang, Jingyu Yang
Tianjin University
23. SimDSR: Simultaneous Detection and Segmentation for Repetitive Patterns
Hao Wang
Shanghai Jiao Tong University
24. Spatial Complexity Based Optimal Initial Quantization Parameter Determination
Xin Liu, Xiaoqiang Guo, Haiying Wang, Jianyi Shi
Beijing University of Posts and Telecommunications
25. Registration-Reliability based Strategy to Enhance Multi-Frame Super-Resolution Algorithms
Qiang Song, Ruiqin Xiong, Xiaopeng Fan, Siwei Ma, Wen Gao
Peking University
26. Enhancing Nighttime Surveillance Video via Gradient Fusion
Wenbo Li¹, Xiaoyan Sun², Feng Wu¹
¹University of Science and Technology of China (USTC)
²Microsoft Research

Demos

1. Kvazaar HEVC Still Image Coding on Raspberry Pi 2 for Low-Cost Remote Surveillance
Marko Viitanen, Ari Koivula, Jarno Vanne, Timo Hämäläinen
Tampere University of Tech
2. Glasses-free Light Field 3D Display
Shizheng Wang, Xiangyu Zhang, Qijia Cheng, Rajendran Kaviya, Phil Surman, Junsong Yuan, and Xiao Wei Sun
Nanyang Technological University
3. Head Tracked Multiview 3D Display
Phil Surman, Shizheng Wang, Xiangyu Zhang, Lei Zhang, Xiao Wei Sun
Nanyang Technological University
4. A Real-time Head Tracker for Autostereoscopic Display
Guo Song, Phil Surman, Zhenfeng Zhuang, Xiao Wei Sun
Nanyang Technological University
5. Viewable Floating Displays using Simple Secondary Optical Elements
Zhenfeng Zhuang, Hongjuan Wang, Phil Surman, Xiao Wei Sun
Nanyang Technological University

16:00 Oral Session WO3A: Image and Video Processing II (Auditorium)

Session Chair: Hongkai Xiong, Shanghai Jiao Tong University, China

1. Optimized Truncation Model for Adaptive Compressive Sensing Acquisition of Images
Xiangwei Li, Xuguang Lan, Meng Yang, Jianru Xue, Nanning Zheng
Xi'an Jiao Tong University
2. Adaptive Local Nonparametric Regression for Fast Single Image Super-Resolution
Yulun Zhang¹, Yongbing Zhang¹, Jian Zhang², Haoqian Wang¹, Xingzheng Wang¹, Qionghai Dai¹
¹Tsinghua University
²Peking University
3. A Novel Image Quality Assessment based on an Adaptive Feature for Image Characteristics and Distortion Types
Sung-Ho Bae, Munchurl Kim
Korea Advanced Institute of Science and Technology
4. Ant Colony Optimization Inspired Saliency Detection Using Compressed Video Information
Cuiwei Li¹, Qin Tu¹, Jun Xu¹, Ran Gao¹, Qiang Wang², Yongyu Chang¹
¹Beijing University of Posts and Telecommunications
²Academy of Broadcasting Science, SAPPRFT
5. Vegetation Coverage Detection from Very High Resolution Satellite Imagery
Jiayuan Fan, Tao Chen, Shijian Lu
*Institute for Infocomm Research, A*STAR, Singapore*

16:00 Special Session WO3B: Video Analysis and Understanding (Lecture Room 1)

Organizers: Yongxin Ge, Chongqing University, China

Xin Feng, Chongqing University of Technology, China

1. Image Set Querying Based Localization

*Lei Deng, Siyuan Huang, Yueqi Duan, Baohua Chen, Jie Zhou
Tsinghua University*

2. On Video Source Format of Screen Content Compression

Xin Feng¹, Feng Yang¹, Hao Zhang², Ningning Shi³, Zhan Ma³

¹Chongqing University of Technology

²Central South University

³Nanjing University

3. An Effective Algorithm for Motion Estimation of Human Faces

*Min Xu, Yuanyuan Shang, Kai Jin
Capital Normal University*

4. An Effective View and Time-invariant Action Recognition Method Based on Depth Videos

Zhi Liu¹, Xin Feng¹, Yingli Tian²

¹Chongqing University of Technology

²City University of New York

5. Efficient Image Retrieval Based Mobile Indoor Localization

Ruoyun He¹, Yitong Wang², Qingyi Tao¹, Jianfei Cai¹, Ling-yu Duan²

¹Nanyang Technological University

²Peking University

17:30 End of Program