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
   1University College of Dublin (UCD)
   2Athlone Institute of Technology
   3University 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
   1Xidian University
   2Microsoft
   3University 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
   Xiongkuo 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, Chenguang Li, Honggang Zhang, Jun Guo
   Beijing University of Posts and Telecommunications

3. QCCE: Quality Constrained Co-saliency Estimation for Common Object Detection
   Koteswar Jerripothula, 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 L0 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

   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
   1Monash University
   2Federation University Australia
   3Charles 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
   1College of Internet of Things
   2Southeast University
   3Hohai 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
   ¹Beijing University of Posts and Telecommunications
   ²Microsoft

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
   ¹Harbin Institute of Technology;
   ²Peking University

13. Parallel Intra Coding for HEVC on CPU plus GPU Platform
   Jun Cheng Ma¹, Falei Luo², Shanshe Wang¹, Nan Zhang³, Siwei Ma¹
   ¹Peking University
   ²Institute of Computing Technology
   ³School 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
   CentraleSupelec

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;

   Rafael Rodriguez-Sanchez¹, Maria Teresa Alonso², Jose Luis Martinez², Rafael Mayo¹, Enrique S. Quintana-Orti²
   ¹Universitat Jaume I
   ²Universidad 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 Gao²
   ¹Harbin Institute of Technology
   ²University of Washington

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 Martinez³, Pedro Ángel Cuenca Castillo³, Mauricio
   Álvarez Mesa³, Sergio Sanz Rodríguez³, EBEn Juurlink²
   ¹High-Performance Networks and Architectures (RAAP), Univ. of Castilla-La Mancha
   ²Embedded 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 Kondoz¹, Hyun Lim³
   ¹Loughborough University in London
   ²Instituto de Telecomunicações/Instituto Politecnico de Leiria
   ³Institute for Digital Technologies, Loughborough University

25. No-Reference Video Quality Assessment by HEVC Codec Analysis
   Xin Huang, Jacob Søgaard, 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 Schaffner¹², Frank Gürkaynak¹, Hubert Kaeslin¹, Luca Benini¹, Aljosa Smolic²
   ¹Eidgenössische Technische Hochschule Zürich
   ²Disney Research Zurich

2. Kвазар 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 Song1,2, Qiudong Zhu1, Dongdong Weng1, Yue Liu1, Yongtian Wang2
1Beijing Institute of Technology
2University 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
1Huawei
2National 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
1Universidade Federal de Pernambuco
2Centro 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
1Peking University
2Huawei

5. Classification-Aware Distortion Metric for HEVC Intra Coding

Massimo Minervini, Sotirios Tsafartaris
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\(^1\), Gene Cheung\(^1\), Deming Zhai\(^2\), Debin Zhao\(^2\)
   \(^1\)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 Qi\(^1\), Yunhui Shi\(^1\), Xiaoyan Sun\(^2\), Wenpeng Ding\(^1\), Baocai Yin\(^2\)
   \(^1\)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)**

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 Hua\textsuperscript{1}, Hu Tian\textsuperscript{2}, Anni Cai\textsuperscript{2}, Ping Shi\textsuperscript{1}
   \textsuperscript{1}Communication University of China
   \textsuperscript{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 Liu\textsuperscript{1}, Haoji Hu\textsuperscript{2}, Mai Xu\textsuperscript{1}
   \textsuperscript{1}Beihang University
   \textsuperscript{2}Zhejiang University

\textbf{12:00} Lunch Break

\textbf{13:00} Oral Session TO2A: Visual Communications II (Auditorium)

\textit{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 Lan\textsuperscript{1}, Dongliang He\textsuperscript{2}, Chong Luo\textsuperscript{1}, Feng Wu\textsuperscript{3}, Wenjun Zeng\textsuperscript{1}
   \textsuperscript{1}Microsoft Research
   \textsuperscript{2}University of Science and Technology of China (USTC)

3. Compressive Sensing based Image Transmission with Side Information at the Decoder
   Xiaodan Song\textsuperscript{1}, Xiulian Peng\textsuperscript{2}, Jizheng Xu\textsuperscript{1}, Guangming Shi\textsuperscript{1}, Feng Wu\textsuperscript{3}
   \textsuperscript{1}Xidian University
   \textsuperscript{2}Microsoft
   \textsuperscript{3}University of Science and Technology of China

4. On Display-Camera Synchronization for Visible Light Communication
   Kaixuan Liu\textsuperscript{1}, Xiaoyun Zhang, Zhiyong Gao
   \textsuperscript{1}Shanghai Jiao Tong University
   \textsuperscript{2}McMaster University

5. Efficient SAO Coding Algorithm for x265 Encoder
   Shibo Yin, Xiaoyun Zhang, Zhiyong Gao
   Shanghai Jiao Tong University

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

\textit{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)

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

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 Zhang², Xiaopeng Fan³, Ruiqin Xiong⁴, Debin Zhao⁵
   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 Xiong⁴
   ¹Peking University
   ²Microsoft

5. Automatic Foreground Segmentation Using Light Field Images
   Xianyu Chen, Feng Dai, Yi Ke 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 Wei\textsuperscript{1}, Son Lam Phung\textsuperscript{1}, Abdesselam Bouzerdoum\textsuperscript{1}, Amine Bermak\textsuperscript{2}  
   \textsuperscript{1}University of Wollongong  
   \textsuperscript{2}Hong 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)

   \textit{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

   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)

   \textit{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
   ¹Harbin Institute of Technology
   ²NII
   ³Shanghai Jiao Tong University

3. Incremental SfM Based Lossless Compression of JPEG Coded Photo Album
   Hao Wu¹, Xiaoyan Sun², Jingyu Yang¹, Feng Wu³
   ²Tianjin University
   ³Microsoft Research
   ³University of Science and Technology of China (USTC)

4. Visual Attention on Human Face
   Xiongkuo 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 Wang¹
   ¹Beijing University of Posts and Telecommunications
   ²Academy of Broadcasting Science, SAPPRFT

4. A Fast Super-Resolution Method Based on Sparsity Properties
   Yuanchao 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
   
   ¹Peking University
   ²Institute 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, Joohye Kim, Young Park
   
   Illinois Institute of Technology

9. Region-of-Interest Based Coding Scheme for Synthesized Video
   
   Wenbo Zhao¹, Jingjing Fu¹, Yan Lu², Shipeng Li², Debin Zhao¹
   
   ¹Harbin Institute of Technology
   ²Microsoft Research

10. Reducing Search Space for Fast Pedestrian Detection
    
    Maral Mesmakhosroshahi, Joohye 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
    
    ¹Beijing University of Posts and Telecommunications
    ²Academy 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
    
    ¹Beijing University of Posts and Telecommunications
    ²Academy 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 Weisi², Siwei Ma², Shiqi Wang², Wen Gao²
    
    ¹Nanyang Technological University (NTU)
    ²Peking 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 Martinez³
   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, Xiaqiang 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

   Yulun Zhang\(^1\), Yongbing Zhang\(^1\), Jian Zhang\(^2\), Haoqian Wang\(^1\), Xingzheng Wang\(^1\), Qionghai Dai\(^1\)  
   \(^1\)Tsinghua University  
   \(^2\)Peking 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 Li\(^1\), Qin Tu\(^1\), Jun Xu\(^1\), Ran Gao\(^1\), Qiang Wang\(^2\), Yongyu Chang\(^1\)  
   \(^1\)Beijing University of Posts and Telecommunications  
   \(^2\)Academy 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