

# VCIP 2015 Technical Program

(Preliminary)

## 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, ShanghaiTech 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)**

1. Registration of Undersampled Images via Higher Resolution Spectrum Restoration

*Qiang Song<sup>1</sup>, Ruiqin Xiong<sup>1</sup>, Xinfeng Zhang<sup>2</sup>, Siwei Ma<sup>1</sup>, Wen Gao<sup>1</sup>*

<sup>1</sup>*Peking University*

<sup>2</sup>*Nanyang Technological University*

2. 2D Nonlocal Sparse Representation for Image Denoising

*Na Qi<sup>1</sup>, Yunhui Shi<sup>1</sup>, Xiaoyan Sun<sup>2</sup>, Wenpeng Ding<sup>1</sup>, Baocai Yin<sup>1</sup>*

<sup>1</sup>*Beijing University of Technology*

<sup>2</sup>*Microsoft Research*

3. Perceptually-aware Distributed Compressive Video Sensing  
*Jin Xu<sup>1</sup>, Soufiene Djahel<sup>1</sup>, Yuansong Qiao<sup>2</sup>, Zhizhong Fu<sup>3</sup>*  
<sup>1</sup>*University College of Dublin (UCD)*  
<sup>2</sup>*Athlone Institute of Technology*  
<sup>3</sup>*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 Xiao<sup>1</sup>, Bin Li<sup>2</sup>, Jizheng Xu<sup>2</sup>, Guangming Shi<sup>1</sup>, Feng Wu<sup>3</sup>*  
<sup>1</sup>*Xidian University*  
<sup>2</sup>*Microsoft*  
<sup>3</sup>*University of Science and Technology of China*

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

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)**

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  
*Zheng 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 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 Jiaotong 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*

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 Ge<sup>1</sup>, Chen Min<sup>1</sup>, Martin Jagersand<sup>2</sup>, Dan Yang<sup>1</sup>*  
*<sup>1</sup>Chongqing University*  
*<sup>2</sup>University of Alberta*
3. Neighborhood Repulsed Correlation Metric Learning for Kinship Verification  
*Haibin Yan<sup>1</sup>, Xiuzhuang Zhou<sup>2</sup>, Yongxin Ge<sup>3</sup>*  
*<sup>1</sup>Beijing University of Posts and Telecommunications*  
*<sup>2</sup>Capital Normal University*  
*<sup>3</sup>Chongqing 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)**

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**16:00**    **Posters**

1. A Novel Depth Motion Vector Coding Exploiting Spatial and Inter-component Clustering Tendency  
*Shampa Shahriyar<sup>1</sup>, Manzur Murshed<sup>2</sup>, Mortuza Ali<sup>2</sup>, Manoranjan Paul<sup>3</sup>*  
*<sup>1</sup>Monash University*  
*<sup>2</sup>Federation University Australia*  
*<sup>3</sup>Charles Sturt University*
2. Invariant Image Recognition under Projective Deformations: An Image Normalization Approach  
*Xue Wei<sup>1</sup>, Son Lam Phung<sup>1</sup>, Abdesselam Bouzerdoum<sup>1</sup>, Amine Bermak<sup>2</sup>*  
*<sup>1</sup>University of Wollongong;*  
*<sup>2</sup>Hong Kong University of Science and Technology*
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 Tang<sup>1</sup>, Ying Chen<sup>2</sup>, Ning Xu<sup>3</sup>, Aimin Jiang<sup>3</sup>, Yuan Gao<sup>3</sup>*  
*<sup>1</sup>College of Internet of Things*  
*<sup>2</sup>Southeast University*  
*<sup>3</sup>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 Guo<sup>1</sup>, Bin Li<sup>2</sup>, Songlin Sun<sup>1</sup>, Jizheng Xu<sup>2</sup>*  
*<sup>1</sup>Beijing University of Posts and Telecommunications*  
*<sup>2</sup>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 Zhang<sup>1</sup>, Yiran Lu<sup>1</sup>, Xiaopeng Fan<sup>1</sup>, Ruiqin Xiong<sup>1</sup>, Debin Zhao<sup>1</sup>, Wen Gao<sup>2</sup>*  
*<sup>1</sup>Harbin Institute of Technology;*  
*<sup>2</sup>Peking University*
13. Parallel Intra Coding for HEVC on CPU plus GPU Platform  
*Juncheng Ma<sup>1</sup>, Falei LUO<sup>2</sup>, Shanshe Wang<sup>1</sup>, Nan Zhang<sup>3</sup>, Siwei Ma<sup>1</sup>*  
*<sup>1</sup>Peking University*  
*<sup>2</sup>Institute of Computing Technology*  
*<sup>3</sup>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-Sanchez<sup>1</sup>, Maria Teresa Alonso<sup>2</sup>, Jose Luis Martinez<sup>2</sup>, Rafael Mayo<sup>1</sup>, Enrique S. Quintana-Orti<sup>1</sup>*  
*<sup>1</sup>Universitat Jaume I*  
*<sup>2</sup>Universidad de Castilla-La Mancha*
20. Hybrid Angular Intra/Template Matching Prediction for HEVC Intra Coding  
*Tao Zhang<sup>1</sup>, Haoming Chen<sup>2</sup>, Ming-Ting Sun<sup>1</sup>, Debin Zhao<sup>2</sup>, Wen Gao<sup>1</sup>*  
*<sup>1</sup>Harbin Institute of Technology*  
*<sup>2</sup>University 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 Márquez<sup>1</sup>, Chi Ching Chi<sup>2</sup>, Jose Luis Martinez<sup>1</sup>, Pedro Ángel Cuenca Castillo<sup>1</sup>, Mauricio Álvarez Mesa<sup>2</sup>, Sergio Sanz Rodríguez<sup>2</sup>, EBen Juurlink<sup>2</sup>*  
<sup>1</sup>*High-Performance Networks and Architectures (RAAP), Univ. of Castilla-La Mancha*  
<sup>2</sup>*Embedded Systems Architecture (AES). Technische Universität Berlin*
24. Reference Picture Selection Using Checkerboard Pattern for Resilient Video Coding  
*Joao Carreira<sup>1</sup>, Pedro Assuncao<sup>2</sup>, Sergio Faria<sup>2</sup>, Erhan Ekmekcioglu<sup>1</sup>, Ahmet Kondo<sup>1</sup>, Hyun Lim<sup>3</sup>*  
<sup>1</sup>*Loughborough University in London*  
<sup>2</sup>*Instituto de Telecomunicações/Instituto Politecnico de Leiria*  
<sup>3</sup>*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  
*Frank Gürkaynak<sup>1</sup>, Hubert Kaeslin<sup>1</sup>, Luca Benini<sup>1</sup>, Aljosa Smolic<sup>1</sup>, Gabriel Cebrián Márquez<sup>2</sup>*  
<sup>1</sup>*Eidgenössische Technische Hochschule Zürich*  
<sup>2</sup>*Disney Research Zurich*
2. Kvazaar HEVC Still Image Coding on Raspberry Pi 2 for Low-Cost Remote Surveillance  
*Ari Koivula, Jarno Vanne, Timo Härmäläinen, Muming Zhao*  
*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 Song<sup>1</sup>, Qiudong Zhu<sup>1</sup>, Dongdong Weng<sup>1</sup>, Yue Liu<sup>1</sup>, Yongtian Wang<sup>2</sup>*  
*<sup>1</sup>Beijing Institute of Technology*  
*<sup>2</sup>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)**

1. A Markov Decision based Rate Adaption Approach for Dynamic HTTP Streaming  
*Chao Zhou, Chia-Wen Lin*  
*Huawei*
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 Monteiro<sup>1</sup>, Ricardo Scholz<sup>2</sup>, Carlos Ferraz<sup>2</sup>, Tsang Ren<sup>2</sup>, Roberto Barros<sup>2</sup>*  
*<sup>1</sup>Universidade Federal de Pernambuco*  
*<sup>2</sup>Centro de Informática,*
4. Delay-Constrained Rate Control For Real-Time Video Streaming Over Wireless Networks  
*Yufeng Geng<sup>1</sup>, Xinggong Zhang<sup>1</sup>, Tong Niu<sup>1</sup>, Chao Zhou<sup>2</sup>, Zongming Guo<sup>1</sup>*  
*<sup>1</sup>Peking University*  
*<sup>2</sup>Huawei*
5. Classification-Aware Distortion Metric for HEVC Intra Coding  
*Massimo Minervini, Sotirios Tsaftaris*  
*IMT Institute for Advanced Studies Lucca*

**16:00 Special Session MO3B: Image Sparse Representation and Its Applications (Lecture Room 2)**

*Organizers: Jiaying Liu, Peking University, China*

*Xinfeng Zhang, Nanyang Technological University, Singapore*

*Xianming Liu, Harbin Institute of Technology, Singapore*

1. Sparsity-based Joint Gaze Correction and Face Beautification for Conference Video  
*Xianming Liu, Gene Cheung, Deming Zhai, Debin Zhao*  
*National Institute of Informatics*
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, Yunhui Shi, Xiaoyan Sun, Wenpeng Ding, Baocai Yin*  
*Beijing University of Technology*  
*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**

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**20:30**



## **Tuesday, 15 December 2014**

### **09:00 Keynote Speech 2 (Auditorium)**

Jumping between Text, Images and Video  
*Dr Yong Rui, Microsoft Research Asia, China*

### **10:00 Coffee/Tea Break**

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

1. Deblocking Strength Prediction based CTU-level SAO Category Determination in HEVC Encoder  
*Gaoxing Chen<sup>1</sup>, Zhenyu Pei<sup>1</sup>, Zhenyu Liu<sup>2</sup>, Takeshi Ikenaga<sup>1</sup>*  
<sup>1</sup>*Waseda University*  
<sup>2</sup>*Tsinghua 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 Cui<sup>1</sup>, Shanshe Wang<sup>2</sup>, Nan Zhang<sup>3</sup>, Siwei Ma<sup>1</sup>*  
<sup>1</sup>*Seoul National University*  
<sup>2</sup>*Peking University*  
<sup>3</sup>*Capital Medical University*
4. An Adaptive Hierarchical QP Setting for Screen Content Coding  
*Jiahao Li<sup>1</sup>, Bin Li<sup>2</sup>, Jizheng Xu<sup>2</sup>, Ruiqin Xiong<sup>1</sup>*  
<sup>1</sup>*Peking University*  
<sup>2</sup>*Microsoft*
5. Rearrangement Pixel Granularity Template Matching for Lossy Screen Content Picture Intra Coding  
*Pin Tao, Lixin Feng, Zheng Wang*  
*Tsinghua University*

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

1. A High-Throughput and Multi-Parallel 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<sup>1</sup>, Hu Tiam<sup>2</sup>, Anni Cai<sup>2</sup>, Ping Shi<sup>1</sup>*  
<sup>1</sup>*Communication University of China*  
<sup>2</sup>*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<sup>1</sup>, Haoji Hu<sup>2</sup>, Mai Xu<sup>1</sup>*  
*<sup>1</sup>Beihang University*  
*<sup>2</sup>Zhejiang University*

**12:00 Lunch Break**

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

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<sup>1</sup>, Dongliang He<sup>2</sup>, Chong Luo<sup>1</sup>, Feng Wu<sup>2</sup>, Wenjun Zeng<sup>1</sup>*  
*<sup>1</sup>Microsoft Research*  
*<sup>2</sup>University of Science and Technology of China (USTC)*
3. Compressive Sensing based Image Transmission with Side Information at the Decoder  
*Xiaodan Song<sup>1</sup>, Xiulian Peng<sup>2</sup>, Jizheng Xu<sup>2</sup>, Guangming Shi<sup>1</sup>, Feng Wu<sup>3</sup>*  
*<sup>1</sup>Xidian University*  
*<sup>2</sup>Microsoft*  
*<sup>3</sup>University of Science and Technology of China*
4. On Display-Camera Synchronization for Visible Light Communication  
*Kaixuan Liu<sup>1</sup>, Xiaolin Wu<sup>1</sup>, Xiao Shu<sup>2</sup>*  
*<sup>1</sup>Shanghai Jiao Tong University*  
*<sup>2</sup>McMaster University*
5. Efficient SAO Coding Algorithm for x265 Encoder  
*Shibo Yin, Xiaoyun Zhang, Zhiyong Gao*  
*Shanghai Jiaotong 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: Omnidirectional-view Three-dimensional Displays*  
*Yongtian Wang*  
*Beijing Institute of Technology*

1. Automatic Multiview Synthesis – Towards a Mobile System on a Chip  
*Michael Schaffner<sup>1</sup>, Frank K. Gurkaynak<sup>1</sup>, Hubert Kaeslin<sup>1</sup>, Luca Benini<sup>1</sup>, Aljoscha Smolic<sup>2</sup>*  
<sup>1</sup>ETH Zurich  
<sup>2</sup>Disney Research Zurich
2. Glasses-free 3D Display with Glasses-assisted Quality: Key Innovations for Smart Directional Back-light Autostereoscopy  
*Jianying Zhou, Hang Fan, Jiahui Wang, Yangui Zhou, Haowen Liang, Peter Krebs, Daikun Lin, and Kunyang Li*  
*Sun Yat-Sen University*
3. Region Adaptive Workload Prediction for Parallel View Synthesis  
*Zhanqi Liu, Qionghai Dai, Xin Jin*  
*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**

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**16:00**

**17:00    Free & Easy @ 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)**

Content Identification

*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)**

1. A Novel Light Field Superresolution 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 Ma, Na Zhang, Xiaopeng Fan, Ruiqin Xiong, Debin Zhao*

*Harbin Institute of Technology*

3. Modeling of Packet-Loss-Induced Distortion in 3-D Synthesized Views

*Pan Gao, Wei Xiang*

*University of Southern QLD*

4. Virtual View Distortion Estimation for Depth Map Coding

*Chao Yang, Ping An, Deyang Liu, Liquan Shen*

*Shanghai University*

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)**

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. Residual-consensus Driven Linear Matching

*Hao Wang*

*Shanghai Jiao Tong University*

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)**

1. Image-Guided Depth Propagation Using Superpixel Matching and Adaptive Autoregressive Model  
*Cheolkon Jung, Jiji Cai*  
*Xidian University*
2. Accurate Image Specular Highlight Removal Based on Light Field Imaging  
*Chenxue Xu, Haoqian Wang, Xingzheng 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, Lehrstuhl für Multimediakommunikation und Signalverarbeitung*
4. Fast Depth Estimation using Spatio-temporal Prediction for Stereo-based Pedestrian Detection  
*Mohammadamin 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, Hantao Liu, Wen-Jiin Tsai and Nevrez İmamoğlu*

1. Hybrid Image Retargeting  
*Wen-Jiin Tsai, Chun-Fu Chen*  
*National Chiao-Tung University*
2. Quality Assessment for Out-of-Focus Blurred Images  
*Yutao Liu<sup>1</sup>, Guangtao Zhai<sup>3</sup>, Xianming LIU<sup>2</sup>, Zhao debin<sup>1</sup>*  
*<sup>1</sup>Harbin Institute of Technology*  
*<sup>2</sup>NII*  
*<sup>3</sup>Shanghai Jiaotong University*
3. Incremental SfM Based Lossless Compression of JPEG Coded Photo Album  
*Hao Wu<sup>1</sup>, Xiaoyan Sun<sup>2</sup>, Jingyu Yang<sup>1</sup>, Feng Wu<sup>3</sup>*  
*<sup>1</sup>Tianjin University*  
*<sup>2</sup>Microsoft Research*  
*<sup>3</sup>University of Science and Technology of China (USTC)*

4. Visual Attention on Human Face  
*Guangtao Zhai, Ke Gu*  
*Shanghai Jiao Tong University*
5. Local Feature Aggregation for Blind Image Quality Assessment  
*Jingtao Xu, Qiaohong Li, Tao Liu, Haiqing Du, Yong Liu*  
*Beijing University of Posts and Telecommunications*

**14:30 Coffee/Tea Break**

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

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**16:00 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 Lu<sup>1</sup>, Qin Tu<sup>1</sup>, Maozheng Zhao<sup>1</sup>, Ran Gao<sup>1</sup>, Aidong Men<sup>1</sup>, Dongfei Wang<sup>2</sup>*  
*<sup>1</sup>Beijing University of Posts and Telecommunications*  
*<sup>2</sup>Academy 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 Wang<sup>1</sup>, Juncheng Ma<sup>1</sup>, Falei LUO<sup>2</sup>, Siwei Ma<sup>2</sup>*  
*<sup>1</sup>Peking University*  
*<sup>2</sup>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 Zhao<sup>1</sup>, Jingjing Fu<sup>2</sup>, Yan Lu<sup>2</sup>, Shipeng Li<sup>2</sup>, Debin Zhao<sup>1</sup>*  
*<sup>1</sup>Harbin Institute of Technology*  
*<sup>2</sup>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 Gao<sup>1</sup>, Qin Tu<sup>1</sup>, Cuiwei Li<sup>1</sup>, MaoZheng Zhao<sup>1</sup>, Guangtao Fu<sup>2</sup>, Bo Yang<sup>1</sup>*  
*<sup>1</sup>Beijing University of Posts and Telecommunications*  
*<sup>2</sup>Academy of Broadcasting Science, SAPPRFT*
12. Visual Saliency Detection Based On Mutual Information In Compressed Domain  
*Ran Gao<sup>1</sup>, Qin Tu<sup>1</sup>, Jun Xu<sup>1</sup>, Yanping Lu<sup>1</sup>, Wei Xie<sup>2</sup>, Aidong Men<sup>1</sup>*  
*<sup>1</sup>Beijing University of Posts and Telecommunications*  
*<sup>2</sup>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 Zhang<sup>1</sup>, Lin Weisi<sup>1</sup>, Siwei Ma<sup>2</sup>, Shiqi Wang<sup>2</sup>, Wen Gao<sup>2</sup>*  
*<sup>1</sup>Nanyang Technological University (NTU)*  
*<sup>2</sup>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 Torre<sup>1</sup>, Rafael Rodriguez-Sanchez<sup>2</sup>, Jose Luis Martinez<sup>1</sup>*  
*<sup>1</sup>Universidad de Castilla-La Mancha*  
*<sup>2</sup>Universitat Jaume I*

20. Decorrelation-Stretch based Cloud Detection for Total Sky Images  
*Muming Zhao<sup>1</sup>, Chongyang Zhang<sup>1</sup>, Wenjun Zhang<sup>1</sup>, Wei Li<sup>2</sup>, Jian Zhang<sup>3</sup>*  
*<sup>1</sup>Shanghai Jiao Tong University*  
*<sup>2</sup>Technology Center of Shanghai Electric Power T&D Group, Shanghai;*  
*<sup>3</sup>University 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 Jiaotong 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 Li<sup>1</sup>, Xiaoyan Sun<sup>2</sup>, Feng Wu<sup>1</sup>*  
*<sup>1</sup>University of Science and Technology of China (USTC)*  
*<sup>2</sup>Microsoft Research*

## **Demos**

1. Kvazaar HEVC Still Image Coding on Raspberry Pi 2 for Low-Cost Remote Surveillance  
*Ari Koivula, Jarno Vanne, Timo Hämäläinen, Muming Zhao*  
*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. Omnidirectional-view Three-dimensional Displays Using Multiple Mini-projectors  
*Weitao Song, Qiudong Zhu, Dongdong Weng, Yue Liu, Yongtian Wang*  
*Beijing Institute of Technology*  
*University of Connecticut*
5. A Real-time Head Tracker for Autostereoscopic Display  
*Guo Song, Phil Surman, Zhenfeng Zhuang, Xiao Wei Sun*  
*Nanyang Technological University*
6. 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)**

1. Optimized Truncation Model for Adaptive Compressive Sensing Acquisition of Images  
*Xiangwei Li, Xuguang Lan, Meng Yang, Jianru Xue, Nanning Zheng*  
*Xi'an Jiaotong University*
2. Adaptive Local Nonparametric Regression for Fast Single Image Super-Resolution  
*Yulun Zhang<sup>1</sup>, Yongbing Zhang<sup>1</sup>, Jian Zhang<sup>2</sup>, Haoqian Wang<sup>1</sup>, Xingzheng Wang<sup>1</sup>, Qionghai Dai<sup>1</sup>*  
<sup>1</sup>*Tsinghua University*  
<sup>2</sup>*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<sup>1</sup>, Qin Tu<sup>1</sup>, Jun Xu<sup>1</sup>, Ran Gao<sup>1</sup>, Qiang Wang<sup>2</sup>, Yongyu Chang<sup>1</sup>*  
<sup>1</sup>*Beijing University of Posts and Telecommunications*  
<sup>2</sup>*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*  
*Xin Feng, Chong University of Technology*

1. Image-set Querying Based Localization  
*Lei Deng, Siyuan Huang, Baohua Chen, Jie Zhou*  
*Tsinghua University*

2. On Video Source Format of Screen Content Compression  
*Xin Feng<sup>1</sup>, Feng Yang<sup>1</sup>, Hao Zhang<sup>2</sup>, Ningning Shi<sup>3</sup>, Zhan Ma<sup>3</sup>*  
*<sup>1</sup>Chongqing University of Technology*  
*<sup>2</sup>Central South University*  
*<sup>3</sup>Nanjing University*
3. On Fast and Accurate Block-Matching Metric for Motion Estimation  
*Min Xu, Yuanyuan Shang, Kai Jin*  
*Captial Normal University*
4. View and Time-invariant Action Recognition Based on Depth Videos  
*Zhi Liu<sup>1</sup>, Yingli Tian<sup>2</sup>, Xin Feng<sup>1</sup>*  
*<sup>1</sup>Chongqing University of Technology*  
*<sup>2</sup>City University of New York*
5. Efficient Image Retrieval Based Mobile Indoor Localization  
*Ruoyun He<sup>1</sup>, Yitong Wang<sup>2</sup>, Qingyi Tao<sup>1</sup>, Jianfei Cai<sup>1</sup>, Ling-yu Duan<sup>2</sup>*  
*<sup>1</sup>Nanyang Technological University*  
*<sup>2</sup>Peking University*

**17:30 End of Program**