

## **PROGRAM**

### **Data Compression Conference (DCC 2013)**

*Sponsored by U. Arizona, Brandeis U., Microsoft Research, IEEE Signal Processing Society  
Proceedings published by IEEE Computer Society Conference Publishing Services (CPS)*

**Snowbird, Utah**  
**March 20 - 22, 2013**

#### **PROGRAM COMMITTEE**

Michael W. Marcellin, *University of Arizona (DCC Co-Chair)*  
James A. Storer, *Brandeis University (DCC Co-Chair)*  
Ali Bilgin, *University of Arizona (Committee Co-Chair)*  
Joan Serra-Sagrista, *Universitat Autonoma de Barcelona (Committee Co-Chair)*  
Henrique Malvar, *Microsoft Research (Publications Chair)*  
James E. Fowler, *Mississippi State University (Publicity Chair)*  
Yuriy Reznik, *InterDigital, Inc. (Special Sessions Co-Chair)*  
Gary J. Sullivan, *Microsoft Corporation (Special Sessions Co-Chair)*  
Alberto Apostolico, *Georgia Institute of Technology / Università di Padova*  
Charles D. Creusere, *New Mexico State University*  
Vivek Goyal, *Massachusetts Institute of Technology*  
Hamid Jafarkhani, *University of California Irvine*  
Tamas Linder, *Queen's University*  
Giovanni Motta, *Google, Inc.*  
Gonzalo Navarro, *University of Chile*  
Jan Ostergaard, *Aalborg University*  
Antonio Ortega, *University of Southern California*  
Majid Rabbani, *Eastman Kodak Co.*  
Thomas Richter, *University of Stuttgart*  
Serap Savari, *Texas A&M University*  
Khalid Sayood, *University of Nebraska*  
Dana Shapira, *Ashkelon Academic College*  
Dafna Sheinwald, *IBM Haifa Lab*  
Jiangtao Wen, *Tsinghua University*  
Gregory W. Wornell, *Massachusetts Institute of Technology*  
Feng Wu, *Microsoft Research Asia*

#### **SCHEDULE OVERVIEW:**

##### **Tuesday Evening, March 19:**

Registration and Reception (7pm - 10pm)

##### **Wednesday, March 20:**

Morning:	Technical Sessions 1, 2, 3	(8:00am - 12:20pm)
Mid-Day:	Keynote Presentation	(2:30pm - 3:30pm)
Afternoon:	Technical Sessions 4, 5	(4:00pm - 7:00pm)

##### **Thursday, March 21:**

Morning:	Technical Sessions 6, 7	(8:00am - noon)
Mid-Day:	Technical Session 8	(2:30pm - 3:50pm)
Afternoon:	Poster Session and Reception	(4:00pm - 7:00pm)

##### **Friday, March 22:**

Morning:	Technical Sessions 9, 10, 11	(8:00am - 1:00pm)
----------	------------------------------	-------------------

## TUESDAY EVENING

Registration / Reception, 7:00-10:00pm (Golden Cliff Room)

## WEDNESDAY MORNING

### SESSION 1 (Special Sessions on HEVC, Part 1)

<b>8:00am:</b> Tunneling High-Resolution Color Content through 4:2:0 HEVC and AVC Video Coding Systems.....	3
<i>Yongjun Wu, Sandeep Kanumuri, Yifu Zhang, Shyam Sadhwani,     Gary J. Sullivan, and Henrique S. Malvar     Microsoft Corporation</i>	
<b>8:20am:</b> Fast Transforms for Intra-prediction-based Image and Video Coding.....	13
<i>Ankur Saxena, Felix C. Fernandes, and Yuriy A. Reznik<sup>t</sup>     Samsung Telecommunications America, <sup>t</sup>InterDigital Communications</i>	
<b>8:40am:</b> Model Correction for Cross-Channel Chroma Prediction.....	23
<i>Christophe Gisquet and Edouard François     Canon Research France</i>	
<b>9:00am:</b> A Parametric Merge Candidate for High Efficiency Video Coding.....	33
<i>Michael Tok, Marko Esche, Alexander Glantz, Andreas Krutz, and Thomas Sikora     Technische Universität Berlin</i>	

**Break:** 9:20am - 9:40am

### SESSION 2 (Special Sessions on HEVC, Part 2)

<b>9:40am:</b> Coding Tree Depth Estimation for Complexity Reduction of HEVC .....	43
<i>Guilherme Correa, Pedro Assuncao<sup>t</sup>, Luciano Agostini<sup>t</sup>, and Luis A. da Silva Cruz     University of Coimbra, <sup>t</sup>Polytechnic Institute of Leiria, <sup>t</sup>Federal University of Pelotas</i>	
<b>10:00am:</b> Fast Coding Unit Depth Decision Algorithm for Interframe Coding in HEVC ...	53
<i>Yongfei Zhang, Haibo Wang, and Zhe Li     Beihang University</i>	
<b>10:20am:</b> Highly Parallel Framework for HEVC Motion Estimation on Many-Core Platform.....	63
<i>Chenggang Yan, Yongdong Zhang, Feng Dai, and Liang Li     Chinese Academy of Sciences</i>	
<b>10:40am:</b> Low Complexity Rate Distortion Optimization for HEVC .....	73
<i>Siwei Ma, Shiqi Wang, Shanshe Wang<sup>t</sup>, Liang Zhao<sup>t</sup>, Qin Yu, and Wen Gao     Peking University, <sup>t</sup>Harbin Institute of Technology</i>	

**Break:** 11:00am - 11:20am

### SESSION 3

<b>11:20am:</b> Decoder-Side Super-Resolution and Frame Interpolation for Improved H.264 Video Coding .....	83
<i>Hasan F. Ates     Isik University</i>	
<b>11:40am:</b> Image Super-Resolution via Hierarchical and Collaborative Sparse Representation .....	93
<i>Xianming Liut, Deming Zhait, Debin Zhao<sup>t</sup>, and Wen Gao<sup>t, ‡</sup>     <sup>t</sup>Harbin Institute of Technology, <sup>‡</sup>Peking University</i>	
<b>12:00pm:</b> Progressive Image Restoration through Hybrid Graph Laplacian Regularization.....	103
<i>Deming Zhait, Xianming Liut, Debin Zhao<sup>t</sup>, Hong Chang<sup>t</sup>, and Wen Gao<sup>t, □</sup>     <sup>t</sup>Harbin Institute of Technology, <sup>‡</sup>Chinese Academy of Sciences, <sup>□</sup>Peking University</i>	

**Lunch Break:** 12:20 - 2:30pm

**WEDNESDAY MID-DAY INVITED PRESENTATION**

2:30pm - 3:30pm

**The Arrival of the High Efficiency Video Coding Standard (HEVC)**

*Gary Sullivan*

Microsoft

With the first edition of the High Efficiency Video Coding Standard (HEVC) being completed just weeks before the conference, DCC 2013 will be the first major technical conference to feature a presentation of its final design. HEVC marks the next major milestone in the history of digital video compression. For the first time since the development of H.264/MPEG-4 AVC, the standardization community has developed and corralled recent advances in compression technology to form a coherent and fully-documented design that will enable broad use. About two decades ago, the MPEG-2 video standard created digital video television as we now know it. One decade ago, the H.264 / MPEG-4 AVC standard provided a major leap forward in compression capability and addressed the full range of video applications with a single interoperable standard. Now HEVC will provide the next major advance. HEVC can be implemented readily in practical products and can provide approximately twice the compression performance of prior standard technologies - roughly cutting in half the bit rate necessary to achieve a given level of video quality. Even for the coding of still images, the HEVC technology represents a substantial advance in compression capability. In addition to compression advances, HEVC has been designed for practical implementation and particularly with a special emphasis on the use of parallel-processing architectures. Like MPEG-2 and H.264 / MPEG-4 AVC before it, HEVC has been developed jointly by the two major standardization organizations for video coding - the ITU-T Video Coding Experts Group (VCEG) and the ISO/IEC Moving Picture Experts Group (MPEG). The partnership is known as the Joint Collaborative Team on Video Coding (JCT-VC). The new HEVC standard will thus be formally referenced both as ITU-T H.265 and ISO/IEC 23008-2 (MPEG-H Part 2). In addition to completing the first edition of the HEVC standard, these organizations are now hard at work on developing substantial extension technologies to enhance the design with profiles for application range extensions (such as enhanced chroma formats), Scalable Video Coding (SVC), and substantial new 3D capabilities.

**Gary J. Sullivan** has been a longstanding chairman or co-chairman of various video and image coding standardization activities in ITU-T VCEG and ISO/IEC MPEG, including the "Advanced Video Coding" (AVC) standard ITU-T H.264 / ISO/IEC 14496-10 and the new "High Efficiency Video Coding" (HEVC) standard ITU-T H.265 / ISO/IEC 23008-2. He is a Video and Image Technology Architect in the Windows division of Microsoft Corporation, where he has been the originator and lead designer of the DirectX Video Acceleration (DXVA) video decoding feature of Microsoft Windows. He has received the IEEE Masaru Ibuka Consumer Electronics Award, the IEEE Consumer Electronics Engineering Excellence Award, the INCITS Technical Excellence Award, the IMTC Leadership Award, and the University of Louisville J. B. Speed Professional Award in Engineering. The team efforts that he has led have been recognized by an ATAS Primetime Emmy Engineering Award and a pair of NATAS Technology & Engineering Emmy Awards. He is a Fellow of the IEEE and SPIE.

**Break:** 3:30pm - 4:00pm

## WEDNESDAY AFTERNOON

### SESSION 4

<b>4:00pm:</b> A Simple Online Competitive Adaptation of Lempel-Ziv Compression with Efficient Random Access Support .....	113
<i>Akashnil Dutta, Reut Levi<sup>†</sup>, Dana Ron<sup>†</sup>, and Ronitt Rubinfeld</i> Massachusetts Institute of Technology, <sup>†</sup> Tel Aviv University	
<b>4:20pm:</b> Practical Parallel Lempel-Ziv Factorization .....	123
<i>Julian Shun and Fuyao Zhao</i> Carnegie Mellon University	
<b>4:40pm:</b> Simpler and Faster Lempel Ziv Factorization .....	133
<i>Keisuke Goto and Hideo Bannai</i> Kyushu University	
<b>5:00pm:</b> From Run Length Encoding to LZ78 and Back Again.....	143
<i>Yuya Tamakoshi, Tomohiro I, Shunsuke Inenaga, Hideo Bannai,     and Masayuki Takeda</i> Kyushu University	

**Break:** 5:20pm - 5:40pm

### SESSION 5

<b>5:40pm:</b> Backwards Compatible Coding of High Dynamic Range Images with JPEG .....	153
<i>Thomas Richter</i> University of Stuttgart	
<b>6:00pm:</b> Visually Lossless JPEG 2000 Decoder .....	161
<i>Leandro Jiménez-Rodríguez, Francesc Aulí-Llinàs, Michael W. Marcellin<sup>†</sup>,     and Joan Serra-Sagristà</i> Universitat Autònoma de Barcelona, <sup>†</sup> University of Arizona	
<b>6:20pm:</b> A Distortion Metric for the Lossy Compression of DNA Microarray Images.....	171
<i>Miguel Hernández-Cabronero, Victor Sanchez<sup>†</sup>, Michael W. Marcellin<sup>‡</sup>,     and Joan Serra-Sagristà</i> Universitat Autònoma de Barcelona, <sup>†</sup> University of Warwick, <sup>‡</sup> University of Arizona	
<b>6:40pm:</b> Motion-Adaptive Transforms Based on Vertex-Weighted Graphs .....	181
<i>Du Liu and Markus Flierl</i> KTH Royal Institute of Technology	

## THURSDAY MORNING

### SESSION 6 (Special Sessions on HEVC, Part 3)

<b>8:00am:</b> Scalable Video Coding Extension for HEVC .....	191
<i>Jianle Chen, Krishna Rapaka, Xiang Li, Vadim Seregin, Liwei Guo,     Marta Karczewicz, Geert Van der Auwera, Joel Sole, Xianglin Wang,     Chengjie Tu, Ying Chen, and Rajan Joshi</i> Qualcomm Technology Inc.	
<b>8:20am:</b> A Scalable Video Coding Extension of HEVC .....	201
<i>Philipp Helle, Haricharan Lakshman, Mischa Siekmann, Jan Stegemann,     Tobias Hinz, Heiko Schwarz, Detlev Marpe, and Thomas Wiegand</i> Heinrich Hertz Institute	
<b>8:40am:</b> Color Gamut Scalable Video Coding .....	211
<i>Louis Kerofsky, Andrew Segall, and Seung-Hwan Kim</i> Sharp Laboratories of America	
<b>9:00am:</b> Texture Compression .....	221
<i>Georgios Georgiadis, Alessandro Chiuso<sup>†</sup>, and Stefano Soatto</i> University of California, Los Angeles, <sup>†</sup> University of Padova	
<b>9:20am:</b> Cross Segment Decoding for Improved Quality of Experience for Video Applications .....	231
<i>Jiangtao Wen, Shunyao Li, Yao Lu<sup>†</sup>, Meiyuan Fang, Xuan Dong,     Huiwen Chang, and Pin Tao</i> Tsinghua University, <sup>†</sup> University of California San Diego	
<b>9:40am:</b> Ultra Fast H.264/AVC to HEVC Transcoder .....	241
<i>Tong Shen, Yao Lu<sup>†</sup>, Ziyu Wen, Linxi Zou, Yucong Chen, and Jiangtao Wen</i> Tsinghua University, <sup>†</sup> University of California San Diego	

**Break:** 10:00am - 10:20am

### SESSION 7

<b>10:20am:</b> Efficient Coding of Signal Distances Using Universal Quantized Embeddings ..	251
<i>Petros T. Boufounos and Shantanu Rane</i> Mitsubishi Electric Research Laboratories	
<b>10:40am:</b> Very Low-Rate Variable-Length Channel Quantization for Minimum Outage Probability .....	261
<i>Erdem Koyuncu and Hamid Jafarkhani</i> University of California, Irvine	
<b>11:00am:</b> Low Complexity Embedded Quantization Scheme Compatible with Bitplane Image Coding .....	271
<i>Francesc Aulí-Llinàs</i> Universitat Autònoma de Barcelona	
<b>11:20am:</b> Quantisation Invariants for Transform Parameter Estimation in Coding Chains .....	281
<i>Marco Visentini-Scarzanella, Marco Tagliasacchi<sup>†</sup>, and Pier Luigi Dragotti</i> Imperial College London, <sup>†</sup> Politecnico di Milano	
<b>11:40am:</b> Quantization Games on Networks .....	291
<i>Ankur Mani, Lav R. Varshney<sup>†</sup>, and Alex (Sandy) Pentland</i> Massachusetts Institute of Technology, <sup>†</sup> IBM Thomas J. Watson Research Center	

**Lunch Break:** 12:00pm - 2:30pm

**THURSDAY MID-DAY**

**SESSION 8**

<b>2:30pm:</b> Linear and Geometric Mixtures – Analysis .....	301
<i>Christopher Mattern</i>	
Technische Universität Ilmenau	
<b>2:50pm:</b> Multiple Description Coding for Closed Loop Systems over Erasure Channels .....	311
<i>Jan Østergaard and Daniel E. Quevedo<sup>†</sup></i>	
Aalborg University, <sup>†</sup> The University of Newcastle	
<b>3:10pm:</b> Partition Tree Weighting .....	321
<i>Joel Veness, Martha White, Michael Bowling, and András György</i>	
University of Alberta	
<b>3:30pm:</b> Structural Group Sparse Representation for Image Compressive Sensing Recovery .....	331
<i>Jian Zhang<sup>†</sup>, Debin Zhao<sup>†</sup>, Feng Jiang<sup>†</sup>, and Wen Gao<sup>†, ‡</sup></i>	
<sup>†</sup> Harbin Institute of Technology, <sup>‡</sup> Peking University	

**THURSDAY AFTERNOON**  
**POSTER SESSION AND RECEPTION**

4:00-7:00pm

In the Golden Cliff Room

(Titles are listed at the end this program;  
abstracts of each presentation appear in the proceedings.)

## FRIDAY MORNING

### SESSION 9

<b>8:00am:</b> Faster Compressed Top-k Document Retrieval .....	341
<i>Wing-Kai Hon, Rahul Shah<sup>†</sup>, Sharma V. Thankachan<sup>†</sup>, and Jeffrey Scott Vitter<sup>‡</sup></i>	
National Tsing Hua University, <sup>†</sup> Louisiana State University, <sup>‡</sup> The University of Kansas	
<b>8:20am:</b> Faster Compact Top-k Document Retrieval.....	351
<i>Roberto Konow<sup>†,‡</sup> and Gonzalo Navarro<sup>†</sup></i>	
<sup>†</sup> University of Chile, <sup>‡</sup> Univ. Diego Portales, Chile	
<b>8:40am:</b> Context-Based Algorithms for the List-Update Problem under Alternative Cost Models.....	361
<i>Shahin Kamali, Susana Ladrat<sup>†</sup>, Alejandro López-Ortiz, and Diego Seco<sup>†,‡</sup></i>	
University of Waterloo, Canada, <sup>†</sup> University of A Coruña, Spain,	
<sup>‡</sup> University of Concepción, Chile	
<b>9:00am:</b> An Adaptive Difference Distribution-Based Coding with Hierarchical Tree Structure for DNA Sequence Compression.....	371
<i>Wenrui Dai, Hongkai Xiong, Xiaoqian Jiang<sup>†</sup>, and Lucila Ohno-Machado<sup>†</sup></i>	
Shanghai Jiaotong University, <sup>†</sup> University of California, San Diego	
<b>9:20am:</b> Compressing Huffman Models on Large Alphabets .....	381
<i>Gonzalo Navarro and Alberto Ordóñez<sup>†</sup></i>	
University of Chile, <sup>†</sup> University of A Coruña	

**Break:** 9:40am - 10:00am

### SESSION 10

<b>10:00am:</b> On the Relationships among Optimal Symmetric Fix-Free Codes .....	391
<i>S. M. Hossein Tabatabaei Yazdi and Serap A. Savari</i>	
Texas A&M University	
<b>10:20am:</b> Practical Coding Scheme for Universal Source Coding with Side Information at the Decoder .....	401
<i>Elsa Dupraz<sup>†</sup>, Aline Roumy<sup>‡</sup>, and Michel Kieffert<sup>†,♦</sup></i>	
<sup>†</sup> Univ Paris-Sud, <sup>‡</sup> INRIA, <sup>♦</sup> Institut Universitaire de France	
<b>10:40am:</b> Near in Place Linear Time Minimum Redundancy Coding .....	411
<i>Juha Kärkkäinen and German Tischler<sup>†</sup></i>	
University of Helsinki, <sup>†</sup> Wellcome Trust Genome Campus	
<b>11:00am:</b> The Rightmost Equal-Cost Position Problem.....	421
<i>Maxime Crochemore<sup>†,♦</sup>, Alessio Langiu<sup>†</sup>, and Filippo Mignosi<sup>‡</sup></i>	
<sup>†</sup> King's College London, <sup>‡</sup> University of L'Aquila, <sup>♦</sup> Université Paris-Est, France	
<b>11:20am:</b> Predictive Coding of Integers with Real-Valued Predictions .....	431
<i>Mortuza Ali and Manzur Murshed</i>	
Monash University	

**Break:** 11:40am - 12:00pm

### SESSION 11

<b>12:00pm:</b> Quadratic Similarity Queries on Compressed Data .....	441
<i>Amir Ingber, Thomas Courtade, and Tsachy Weissman</i>	
Stanford University	
<b>12:20pm:</b> Computing Convolution on Grammar-Compressed Text .....	451
<i>Toshiya Tanaka, Tomohiro I, Shunsuke Inenaga, Hideo Bannai, and Masayuki Takeda</i>	
Kyushu University	
<b>12:40pm:</b> Compressed Parameterized Pattern Matching .....	461
<i>Richard Beal and Donald A. Adjeroh</i>	
West Virginia University	

# Poster Session

(listed alphabetically by first author)

Simplified HEVC FME Interpolation Unit Targeting a Low Cost and High Throughput Hardware Design .....	473
<i>Vladimir Afonso, Henrique Mach, Luciano Agostini, and Denis Franco</i>	
Federal University of Pelotas (UFPel)	
Low Complexity Improvement for Hyperspectral Asymmetrical Data Compression .....	474
<i>Simplice A. Alissou, Ye Zhang, Hao Chen, and Meng Yan</i>	
Harbin Institute of Technology	
Sample Adaptive Offset Design in HEVC.....	475
<i>Alexander Alshin, Elena Alshina, and JeongHoon Park</i>	
Samsung Electronics	
A Method for Fast Rough Mode Decision in HEVC .....	476
<i>Manoj Alwani and Sumit Johar</i>	
STMicroelectronics	
Compact Data Structures for Temporal Graphs .....	477
<i>Guillermo de Bernardo, Nieves R. Brisaboa, Diego Caro<sup>†</sup>, and M. Andrea Rodríguez<sup>†</sup></i>	
University of A Coruña, <sup>†</sup> University of Concepción	
Algorithms for Compressed Inputs .....	478
<i>Nathan Brunelle, Gabriel Robins, and Abhi Shelat</i>	
University of Virginia	
Compression of Distributed Correlated Temperature Data in Sensor Networks .....	479
<i>Feng Chen, Marcin Rutkowski, Christopher Fenner, Robert C. Huck,</i>	
<i>Shuang Wang<sup>†</sup>, and Samuel Cheng</i>	
University of Oklahoma, <sup>†</sup> University of California, San Diego	
Multiterminal Source Coding for Many Sensors with Entropy Coding and Gaussian Process Regression .....	480
<i>Samuel Cheng</i>	
University of Oklahoma	
An Optimal Switched Adaptive Prediction Method for Lossless Video Coding.....	481
<i>Dinesh Kumar Chobey, Mohit Vaishnav, and Anil Kumar Tiwari<sup>†</sup></i>	
The LNMIIT, Jaipur, <sup>†</sup> IIT Jodhpur	
Combining Geometry Simplification and Coordinate Approximation Techniques for Better Lossy Compression of GIS Data .....	482
<i>José-Antonio Cotelo-Lema, Manuel Barcón-Goas, Antonio Fariña,     and Miguel R. Luaces</i>	
University of A Coruña, Spain	
Random Extraction from Compressed Data - A Practical Study.....	483
<i>Cornel Constantinescu, Joseph Glider, Dilip Simha, and David Chambliss</i>	
IBM Almaden Research Center and Stony Brook University	
A DCT-Based Image Coder Tailored to Product Presentation .....	484
<i>Wai C. Chu</i>	
Independent Consultant	

A Compression Algorithm for Fluctuant Data in Smart Grid Database Systems .....	485
<i>Chi-Cheng Chuang, Yu-Sheng Chiu, Zhi-Hung Chen<sup>†</sup>, Hao-Ping Kang<sup>†</sup>,     and Che-Rung Lee<sup>†</sup></i>	
Institute for Information Industry, <sup>†</sup> National Tsing Hua University	
Real-Time Compression of Intra-Cerebral EEG Using Eigendecomposition with Dynamic Dictionary .....	486
<i>Hoda Daou and Fabrice Labeau</i>	
McGill University	
Multi-Level Dictionary Used in Code Compression for Embedded Systems .....	487
<i>Wanderson Roger Azevedo Dias and Edward David Moreno<sup>†</sup></i>	
Federal University of Amazonas - UFAM, <sup>†</sup> Federal University of Sergipe - UFS	
Efficient Quadtree Compression for Temporal Trajectory Filtering .....	488
<i>Marko Esche, Michael Tok, Alexander Glantz, Andreas Krutz,     and Thomas Sikora</i>	
Technische Universität Berlin	
Low Bit-Rate Subpixel-Based Color Image Compression .....	489
<i>L. Fang, N.-M. Cheung<sup>†</sup>, O. C. Au<sup>‡</sup>, H. Li, and K. Tang<sup>‡</sup></i>	
University of Science and Technology of China, <sup>†</sup> Singapore University of Technology and Design, <sup>‡</sup> Hong Kong University of Science and Technology	
Visually Lossless Compression of Stereo Images .....	490
<i>Hsin-Chang Feng, Michael W. Marcellin, and Ali Bilgin</i>	
University of Arizona	
A Realistic Distributed Storage System That Minimizes Data Storage and Repair Bandwidth .....	491
<i>Bernat Gastón, Jaume Pujol, and Mercè Villanueva</i>	
Universitat Autònoma de Barcelona	
High Compression Rate and Ratio Using Predefined Huffman Dictionaries .....	492
<i>Amit Golander, Shai Tahar<sup>†</sup>, Lior Glass<sup>‡</sup>, Giora Biran<sup>†</sup>, and Sagi Manole</i>	
Tonian, <sup>†</sup> IBM, <sup>‡</sup> University of Michigan	
Evaluation of Efficient Compression Properties of the Complete Oscillator Method, Part 1: Canonical Signals .....	493
<i>Irina Gorodnitsky and Anton Yen<sup>†</sup></i>	
Luce Communications, <sup>†</sup> SPAWAR Systems Center	
Frame-Compatible Stereo 3D Services Using H.264/AVC and HEVC.....	494
<i>Palanivel Guruvareddiar and Biju K. Joseph</i>	
Tata Elxsi Limited	
Analog Joint Source Channel Coding over Non-Linear Channels .....	495
<i>Mohamed Hassanin and Javier Garcia-Frias</i>	
University of Delaware	
Space-Efficient Construction Algorithm for the Circular Suffix Tree.....	496
<i>Wing-Kai Hon, Tsung-Han Ku, Rahul Shah, and Sharma V. Thankachan</i>	
National Tsing Hua University and Louisiana State University	
Robust Adaptive Image Coding for Frame Memory Reduction in LCD Overdrive .....	497
<i>Tai Nguyen Huu<sup>†,‡</sup>, Hoang-Lan Nguyen Thi<sup>‡</sup>, and Ha Bang Ban<sup>‡</sup></i>	
<sup>†</sup> Hue University College of Science, <sup>‡</sup> Hanoi University of Science and Technology	
A Binning Design for Wyner-Ziv Video Coding .....	498
<i>Wen Ji and Yiqiang Chen</i>	
Chinese Academy of Sciences	
Differential Base Pattern Coding for Cache Line Data Compression.....	499
<i>Haruhiko Kaneko, Satoshi Fujii, and Hiroaki Sasaki</i>	
Tokyo Institute of Technology	

Lossless Compression of Rotated Maskless Lithography Images .....	500
<i>Shmuel T. Klein, Dana Shapira<sup>†</sup>, and Gal Shelef</i>	
Bar Ilan University, <sup>†</sup> Ashkelon Academic College	
Compression of Optimal Value Functions for Markov Decision Processes.....	501
<i>Mykel J. Kochenderfer and Nicholas Monath<sup>†</sup></i>	
Massachusetts Institute of Technology, <sup>†</sup> Brandeis University	
Efficient Parallelization of Different HEVC Decoding Stages.....	502
<i>Anand Meher Kotra, Mickaël Raulet, Olivier Deforges</i>	
IETR-INSA	
Considerations and Algorithms for Compression of Sets.....	503
<i>N. Jesper Larsson</i>	
IT University of Copenhagen	
Visually Lossless Compression of Windowed Images .....	504
<i>Tony Leung, Michael W. Marcellin, and Ali Bilgin</i>	
University of Arizona	
Angular Disparity Map: A Scalable Perceptual-Based Representation of Binocular Disparity .....	505
<i>Yu-Hsun Lin and Ja-Ling Wu</i>	
National Taiwan University	
VDH-Grid Search Algorithm for Fast Motion Estimation .....	506
<i>Robson Lins, Diogo Henriques, Emerson Lima<sup>†</sup>, and Sílvio Melo</i>	
UFPE, <sup>†</sup> UPE	
Single-Pass Dependent Bit Allocation in Temporal Scalability Video Coding .....	507
<i>Jiaying Liu, Yongjin Cho, and Zongming Guo</i>	
Peking University	
3D Wavelet Encoder for Depth Map Data Compression.....	508
<i>Miguel Martínez-Rach, Otoniel López-Granado, Pablo Piñol, and Manuel P. Malumbres</i>	
Miguel Hernández University	
Perceptual Intra Video Encoder for High-Quality High-Definition Content.....	509
<i>Miguel Martínez-Rach, Otoniel López-Granado, Pablo Piñol, and Manuel P. Malumbres</i>	
Miguel Hernández University	
Domain-Specific XML Compression .....	510
<i>John P. T. Moore, Antonio D. Kheirkhahzadeh, and Jiva N. Bagale</i>	
University of West London	
NRPSNR: No-Reference Peak Signal-to-Noise Ratio for JPEG2000 .....	511
<i>Jaime Moreno, Beatriz Jaime, and Christine Fernandez<sup>†</sup></i>	
National Polytechnic Institute, <sup>†</sup> University of Poitiers	
pGBbBShift: Method for Introducing Perceptual Criteria to Region of Interest Coding.....	512
<i>Jaime Moreno, Beatriz Jaime, and Christine Fernandez<sup>†</sup></i>	
National Polytechnic Institute, <sup>†</sup> University of Poitiers	
Computed Tomography Image Coding through Air Filtering in the Wavelet Domain.....	513
<i>Juan Muñoz-Gómez, Joan Bartrina-Rapesta, Francesc Aulí-Llinàs, and Joan Serra-Sagristà</i>	
Universitat Autònoma de Barcelona	
Natural Language Compression Optimized for Large Set of Files .....	514
<i>Petr Procházka and Jan Holub</i>	
Czech Technical University in Prague	

A High Throughput Multi Symbol CABAC Framework for Hybrid Video Codecs .....	515
<i>Krishnakanth Rapaka and En-Hui Yang</i>	
University of Waterloo	
Image Blocking Artifacts Reduction via Patch Clustering and Low-Rank Minimization .....	516
<i>Jie Ren, Jiaying Liu, Mading Li, Wei Bai, and Zongming Guo</i>	
Peking University	
High Throughput Coding of Video Signals .....	517
<i>Thomas Richter and Sven Simon</i>	
University of Stuttgart	
Variable-to-Fixed-Length Encoding for Large Texts Using Re-Pair Algorithm with Shared Dictionaries .....	518
<i>Kei Sekine, Hirohito Sasakawa, Satoshi Yoshida, and Takuya Kida</i>	
Hokkaido University	
Subsampling Input Based Side Information Creation in Wyner-Ziv Video Coding .....	519
<i>Yun-Chung Shen, Ji-Ciao Luo, and Ja-Ling Wu</i>	
National Taiwan University	
Low-complexity Global Motion for AVC and HEVC Coders .....	520
<i>John Sievers</i>	
Logitech SA	
Image Coding Using Nonlinear Evolutionary Transforms .....	521
<i>Seishi Takamura and Atsushi Shimizu</i>	
NTT Corporation	
STOL: Spatio-Temporal Online Dictionary Learning for Low Bit-Rate Video Coding .....	522
<i>Xin Tang and Hongkai Xiong</i>	
Shanghai Jiao Tong University	
Context Lossless Coding of Audio Signals .....	523
<i>Grzegorz Ulacha and Ryszard Stasinski<sup>†</sup></i>	
West Pomeranian University of Technology, <sup>†</sup> Poznan University of Technology	
Improving the Efficiency of Video Coding by Using Perceptual Preprocessing Filter .....	524
<i>Rahul Vanam and Yuriy A. Reznik</i>	
InterDigital Communications	
Genome Sequence Compression with Distributed Source Coding .....	525
<i>Shuang Wang, Xiaoqian Jiang, Lijuan Cui<sup>†</sup>, Wenrui Dai<sup>‡</sup>,</i>	
<i>Nikos Deligiannis<sup>*</sup>, Pinghao Li<sup>‡</sup>, Hongkai Xiong<sup>‡</sup>, Samuel Cheng<sup>‡</sup>,</i>	
<i>and Lucila Ohno-Machado</i>	
University of California, San Diego, <sup>†</sup> University of Oklahoma,	
<sup>*</sup> Shanghai Jiaotong University, <sup>V</sup> Vrije Universiteit Brussel-iMinds	
Online Learning Based Face Distortion Recovery for Conversational Video Coding .....	526
<i>Xi Wang, Li Su, Qingming Huang, Guorong Li, and Honggang Qi</i>	
Chinese Academy of Sciences	

Mode Duplication Based Multiview Multiple Description Video Coding.....	527
<i>Xiaolan Wang, Canhui Cai</i>	
Huaqiao University	
Universal Numerical Encoder and Profiler Reduces Computing's Memory Wall with Software, FPGA, and SoC Implementations .....	528
<i>Al Wegener</i>	
Samplify Systems	
Dagnostically Lossless Compression of X-Ray Angiographic Images through Background Suppression .....	529
<i>Zhongwei Xu<sup>†</sup>, Joan Bartrina-Rapesta<sup>†</sup>, Victor Sanchez<sup>†,‡</sup>,</i>	
<i>Joan Serra-Sagristà<sup>†</sup>, and Juan Muñoz-Gómez<sup>†</sup></i>	
<sup>†</sup> Universitat Autònoma de Barcelona, <sup>‡</sup> University of Warwick	
Efficient Parallel Framework for HEVC Deblocking Filter on Many-Core Platform .....	530
<i>Chenggang Yan, Yongdong Zhang, Feng Dai, and Liang Li</i>	
Chinese Academy of Sciences	
Evaluation of Efficient Compression Properties of the Complete Oscillator Method, Part 2: Speech Coding .....	531
<i>Anton Yen and Irina Gorodnitsky<sup>†</sup></i>	
SPAWAR Systems Center, <sup>†</sup> Luce Communications	
Effective Variable-Length-to-Fixed-Length Coding via a Re-Pair Algorithm .....	532
<i>Satoshi Yoshida and Takuya Kida</i>	
Hokkaido University	
Image Compression via Colorization Using Semi-Regular Color Samples.....	533
<i>Chenguang Zhang and Hui Fang<sup>†</sup></i>	
Hulu Inc., <sup>†</sup> Google Inc.	
Inter-view Reference Frame Selection in Multi-view Video Coding .....	534
<i>Guang Y. Zhang, Abdelrahman Abdelazim, Stephen James Mein,</i>	
<i>Martin Roy Varley, and Djamel Ait-Boudaoud<sup>†</sup></i>	
University of Central Lancashire, <sup>†</sup> University of Portsmouth	
Hierarchical-and-Adaptive Bit-Allocation with Selective Background Prediction for High Efficiency Video Coding (HEVC) .....	535
<i>Xianguo Zhang, Tiejun Huang, Yonghong Tian, and Wen Gao</i>	
Peking University	
LBP-Guided Depth Image Filter .....	536
<i>Rui Zhong, Ruimin Hu, Zhongyuan Wang, Lu Liu, and Zhen Han</i>	
Wuhan University	
Lossless Compression of 3D Grid-Based Model Based on Octree .....	537
<i>Bin Zou, Xiao Wang, Ye Zhang, and Zhilu Wu</i>	
Harbin Institute of Technology	