

# **2018 Data Compression Conference (DCC 2018)**

**Snowbird, Utah, USA  
27 – 30 March 2018**



IEEE Catalog Number: CFP18DCC-POD  
ISBN: 978-1-5386-4884-1

**Copyright © 2018 by the Institute of Electrical and Electronics Engineers, Inc.  
All Rights Reserved**

*Copyright and Reprint Permissions:* Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

***\*\*\* This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP18DCC-POD
ISBN (Print-On-Demand):	978-1-5386-4884-1
ISBN (Online):	978-1-5386-4883-4
ISSN:	1068-0314

**Additional Copies of This Publication Are Available From:**

Curran Associates, Inc  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: (845) 758-0400  
Fax: (845) 758-2633  
E-mail: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

CURRAN ASSOCIATES INC.  
**proceedings**  
.com

# **Technical Sessions**

## **Session 1**

Film Grain Synthesis for AV1 Video Codec .....	3
<i>Andrey Norkin<sup>1</sup> and Neil Birkbeck<sup>2</sup></i>	
<sup>1</sup> Netflix, <sup>2</sup> Google	
Co-located Reference Frame Interpolation using Optical Flow Estimation for Video Compression.....	13
<i>Bohan Li<sup>1</sup>, Jingning Han<sup>2</sup>, and Yaowu Xu<sup>2</sup></i>	
<sup>1</sup> University of California, Santa Barbara, <sup>2</sup> Google Inc.	
Adaptive Interpolated Motion-Compensated Prediction with Variable Block Partitioning .....	23
<i>Wei-Ting Lin, Tejaswi Nanjundaswamy, and Kenneth Rose</i>	
University of California, Santa Barbara	

## **Session 2**

Constant Delay Traversal of Compressed Graphs .....	32
<i>Sebastian Maneth<sup>1</sup> and Fabian Peternek<sup>2</sup></i>	
<sup>1</sup> Universität Bremen, <sup>2</sup> University of Edinburgh	
A Grammar Compression Algorithm Based on Induced Suffix Sorting .....	42
<i>Daniel Saad Nogueira Nunes<sup>1,2</sup>, Felipe Louza<sup>3</sup>, Simon Gog<sup>4</sup>, Mauricio Ayala-Rincón<sup>2</sup>, and Gonzalo Navarro<sup>5</sup></i>	
<sup>1</sup> Federal Institute of Education, Science and Technology of Brasília, <sup>2</sup> University of Brasília, <sup>3</sup> University of São Paulo, <sup>4</sup> Karlsruhe Institute of Technology, <sup>5</sup> University of Chile	
Engineering Compressed Static Functions.....	52
<i>Marco Genuzio and Sebastiano Vigna</i>	
Università degli Studi di Milano	

## **Session 3**

Online Decomposition of Compressive Streaming Data Using n-l1 Cluster-Weighted Minimization .....	62
<i>Huynh van Luong<sup>1</sup>, Nikos Deligiannis<sup>2</sup>, Soren Forchhammer<sup>3</sup>, and Andre Kaup<sup>1</sup></i>	
<sup>1</sup> University of Erlangen-Nuremberg, <sup>2</sup> Vrije Universiteit Brussel, <sup>3</sup> Technical University of Denmark	

Rate Allocation for Motion Compensated JPEG2000 .....	70
<i>José Carmelo Maturana-Espinosa<sup>1</sup>, Vicente González-Ruiz<sup>1</sup>, Juan Pablo García-Ortiz<sup>1</sup>, and Daniel Müller<sup>2</sup></i>	
<sup>1</sup> University of Almería, <sup>2</sup> European Space Agency	
Guided Cross-Component Prediction for RGB Video Coding .....	80
<i>Han Huang and Shawmin Lei</i>	
MediaTek Inc.	

## Session 4

Entropy Coding and Entropy Coding Improvements of JPEG XS .....	87
<i>Thomas Richter<sup>1</sup>, Joachim Keinert<sup>1</sup>, Antonin Descampe<sup>2</sup>, and Gael Rouvroy<sup>2</sup></i>	
<sup>1</sup> Fraunhofer IIS, <sup>2</sup> intoPIX	
Compressed Image Restoration via External-Image Assisted Band Adaptive PCA Model Learning .....	97
<i>Qiang Song<sup>1</sup>, Ruiqin Xiong<sup>1</sup>, Xiaopeng Fan<sup>2</sup>, Xianming Liu<sup>2</sup>, Tiejun Huang<sup>1</sup>, and Wen Gao<sup>1</sup></i>	
<sup>1</sup> Peking University, <sup>2</sup> Harbin Institute of Technology	
Convex Optimization Based Bit Allocation for Light Field Compression under Weighting and Consistency Constraints .....	107
<i>Bichuan Guo<sup>1</sup>, Yuxing Han<sup>2</sup>, and Jiangtao Wen<sup>1</sup></i>	
<sup>1</sup> Tsinghua University, <sup>2</sup> South China Agricultural University	
Spike Coding for Dynamic Vision Sensors.....	117
<i>Zhichao Bi, Siwei Dong, Yonghong Tian, and Tiejun Huang</i>	
Peking University	

## Session 5

A Group Variational Transformation Neural Network for Fractional Interpolation of Video Coding .....	127
<i>Sifeng Xia, Wenhuan Yang, Yueyu Hu, Siwei Ma, and Jiaying Liu</i>	
Peking University	
Protecting JPEG Images Against Adversarial Attacks .....	137
<i>Aaditya Prakash, Nick Moran, Solomon Garber, Antonella DiLillo, and James Storer</i>	
Brandeis University	
Joint Source-Channel Coding with Neural Networks for Analog Data Compression and Storage .....	147
<i>Ryan Zarcone<sup>1</sup>, Dylan Paiton<sup>1</sup>, Alex Anderson<sup>1</sup>, Jesse Engel<sup>2</sup>, and H.S. Philip Wong<sup>2</sup></i>	
<sup>1</sup> University of California, Berkeley, <sup>2</sup> Stanford University	

## Session 6

Graph-Based Transforms Based on Prediction Inaccuracy Modeling for Pathology Image Coding.....	157
<i>Debaleena Roy and Victor Sanchez</i>	
<sup>1</sup> University of Warwick	
Lossy Compression of Quality Scores in Differential Gene Expression: A First Assessment and Impact Analysis.....	167
<i>Ana A. Hernandez-Lopez<sup>1</sup>, Jan Voges<sup>2</sup>, Claudio Alberti<sup>1</sup>, Marco Mattavelli<sup>1</sup>,     and Jörn Ostermann<sup>2</sup></i>	
<sup>1</sup> École Polytechnique Fédérale de Lausanne, <sup>2</sup> Leibniz Universität Hannover - Institut für Informationsverarbeitung	
The Bits between Proteins .....	177
<i>Dinithi Sumanaweera, Lloyd Allison, and Arun Konagurthu</i>	
Monash University	

## Session 7

A New HEVC In-loop Filter Based on Multi-channel Long-Short-Term Dependency Residual Networks .....	187
<i>Xiandong Meng<sup>1</sup>, Chen Chen<sup>1</sup>, Shuyuan Zhu<sup>2</sup>, and Bing Zeng<sup>1</sup></i>	
<sup>1</sup> The Hong Kong University of Science and Technology, <sup>2</sup> University of Electronic Science and Technology of China	
The Multi-Scale Deep Decoder for the Standard HEVC Bitstreams .....	197
<i>Tingting Wang, Wenhui Xiao, Mingjin Chen, and Hongyang Chao</i>	
Sun Yat-sen University	
Fast H.264/AVC to HEVC Transcoding Based on Compressed Domain Information.....	207
<i>Yihao Zhang, Juan Zha, and Hongyang Chao</i>	
Sun Yat-sen University	

## Session 8

Practical Succinct Text Indexes in External Memory .....	217
<i>Hongwei Huo<sup>1</sup>, Xiaoyang Chen<sup>1</sup>, Yuhao Zhao<sup>1</sup>, Xiaojin Zhu<sup>1</sup>, and Jeffrey Scott Vitter<sup>3</sup></i>	
<sup>1</sup> Xidian University, <sup>2</sup> The University of Mississippi	
Two-Dimensional Block Trees.....	227
<i>Nieves R. Brisaboa<sup>1</sup>, Travis Gagie<sup>2</sup>, Adrián Gómez-Brandón<sup>1</sup>, and Gonzalo Navarro<sup>3</sup></i>	
<sup>1</sup> Universidade da Coruña, <sup>2</sup> Diego Portales University, <sup>3</sup> University of Chile	
Compact Representations of Event Sequences .....	237
<i>Nieves R. Brisaboa<sup>1</sup>, Guillermo de Bernardo<sup>1</sup>, Gonzalo Navarro<sup>2</sup>, Tirso V. Rodeiro<sup>1</sup>,     and Diego Seco<sup>3</sup></i>	
<sup>1</sup> Universidade da Coruña, <sup>2</sup> University of Chile, <sup>3</sup> University of Concepción	

## Session 9

Generalized Probability Smoothing .....	247
<i>Christopher Mattern</i>	
DeepMind	
Fixed-Rate Zero-Delay Source Coding for Stationary Vector-Valued	
Gauss-Markov Sources .....	257
<i>Photios A. Stavrou<sup>1</sup> and Jan Østergaard<sup>2</sup></i>	
<sup>1</sup> KTH Royal Institute of Technology, <sup>2</sup> Aalborg University	
Universal Compression of Piecewise i.i.d. Sources .....	267
<i>Badri Vellambi, Owen Cameron, and Marcus Hutter</i>	
Australian National University	
Gaussian Hierarchical Identification with Pre-processing .....	277
<i>Minh Thanh Vu, Tobias J. Oechtering, and Mikael Skoglund</i>	
KTH Royal Institute of Technology	

## Session 10

A Dynamic Compressed Self-Index for Highly Repetitive Text Collections .....	287
<i>Takaaki Nishimoto<sup>1</sup>, Yoshimasa Takabatake<sup>2</sup>, and Yasuo Tabei<sup>1</sup></i>	
RIKEN Center for Advanced Intelligence Project <sup>1</sup> , Kyushu Institute of Technology <sup>2</sup>	
Compact Encoding for Galled-Trees and its Applications .....	297
<i>Kuang-Yu Chang<sup>1</sup>, Wing-Kai Hon<sup>1</sup>, and Sharma V. Thankachan<sup>2</sup></i>	
<sup>1</sup> National Tsing Hua University, <sup>2</sup> University of Central Florida	
Exploiting Computation-Friendly Graph Compression Methods for Adjacency-Matrix	
Multiplication .....	307
<i>Alexandre Francisco<sup>1</sup>, Travis Gagie<sup>2</sup>, Susana Ladra<sup>3</sup>, and Gonzalo Navarro<sup>4</sup></i>	
<sup>1</sup> Universidade de Lisboa, <sup>2</sup> Universidad Diego Portales, <sup>3</sup> Universidade da Coruña,	
<sup>4</sup> University of Chile	
Run Compressed Rank/Select for Large Alphabets .....	315
<i>Jose Fuentes-Sepulveda<sup>1</sup>, Juha Karkkainen<sup>2</sup>, Dmitry Kosolobov, and Simon Puglisi<sup>3</sup></i>	
<sup>1</sup> University of Chile, <sup>2</sup> University of Helsinki	

## Session 11

Improving Marlin's Compression Ratio with Partially Overlapping Codewords .....	325
<i>Manuel Martínez<sup>1</sup>, Kai Sandfort<sup>1</sup>, Danny Dubé<sup>2</sup>, and Joan Serra-Sagristà<sup>3</sup></i>	
<sup>1</sup> Karlsruhe Institute of Technology, <sup>2</sup> Université Laval, <sup>3</sup> Universitat Autònoma de Barcelona	
SPDP: An Automatically Synthesized Lossless Compression Algorithm for	
Floating-Point Data .....	335
<i>Steven Claggett, Sahar Azimi, and Martin Burtscher</i>	
Texas State University	

Performance Analysis of Hardware-Based Numerical Data Compression on Various Data Formats .....	345
<i>Tomohiro Ueno<sup>1</sup>, Kentaro Sano<sup>1,2</sup>, and Takashi Furusawa<sup>2</sup></i>	
<sup>1</sup> Riken, <sup>2</sup> Tohoku University	

## Session 12

Intra Block Copy for Screen Content in the Emerging AV1 Video Codec.....	355
<i>Jiahao Li<sup>1</sup>, Hui Su<sup>2</sup>, Alex Converse<sup>2</sup>, Bin Li<sup>3</sup>, Roger Zhou<sup>4</sup>, Bruce Lin<sup>4</sup>, Jizheng Xu<sup>3</sup>, Yan Lu<sup>3</sup>, and Ruiqin Xiong<sup>1</sup></i>	
<sup>1</sup> Peking University, <sup>2</sup> Google Inc., <sup>3</sup> Microsoft Research Asia, <sup>4</sup> Microsoft Corp.	
Efficient AV1 Video Coding Using a Multi-layer Framework.....	365
<i>Wei-Ting Lin<sup>1</sup>, Zoe Liu<sup>1</sup>, Debargha Mukherjee<sup>1</sup>, Jingning Han<sup>1</sup>, Paul Wilkins<sup>1</sup>, Yaowu Xu<sup>1</sup>, and Kenneth Rose<sup>2</sup></i>	
<sup>1</sup> University of California, Santa Barbara, <sup>2</sup> Google Inc.	
Predicting Chroma from Luma in AV1 .....	374
<i>Luc Trudeau<sup>1</sup>, Nathan Egge<sup>1</sup>, and David Barr<sup>2</sup></i>	
<sup>1</sup> Mozilla, <sup>2</sup> Xiph.Org Foundation	
A Bayesian Approach to Block Structure Inference in AV1-Based Multi-rate Video Encoding .....	383
<i>Bichuan Guo<sup>1</sup>, Xinyao Chen<sup>1</sup>, Jiawen Gu<sup>1</sup>, Yuxing Han<sup>2</sup>, and Jiangtao Wen<sup>1</sup></i>	
<sup>1</sup> Tsinghua University, <sup>2</sup> South China Agriculture University	

## Poster Session

(listed alphabetically by first author)

Lossless Image Compression Using Reversible Integer Wavelet Transforms and Convolutional Neural Networks .....	395
<i>Eze Ahanonu, Michael Marcellin, and Ali Bilgin</i>	
University of Arizona	
Shearlet Transform Based Prediction Scheme for Light Field Compression .....	396
<i>Waqas Ahmad<sup>1</sup>, Suren Vagharshakyan<sup>2</sup>, Mårten Sjöström<sup>1</sup>, Atanas Gotchev<sup>2</sup>, Robert Bregovic<sup>2</sup>, and Roger Olsson<sup>1</sup></i>	
<sup>1</sup> Mid Sweden University, <sup>2</sup> Tampere University of Technology	
High Efficient Snake Order Pseudo-Sequence Based Light Field Image Compression .....	397
<i>Hadi Amirpour, Manuela Pereira, and Antonio Pinheiro</i>	
Instituto de Telecomunicacoes and Universidade da Beira Interior	
Complexity Reduction for Optimal Entropy-Constrained Quantization .....	398
<i>Yukihiro Bandoh, Seishi Takamura, and Atsushi Shimizu</i>	
NTT	

Compressed Hierarchical Clustering .....	399
<i>Gilad Baruch<sup>1</sup>, Shmuel T. Klein<sup>1</sup> and Dana Shapira<sup>2</sup></i>	
<sup>1</sup> Bar Ilan University, <sup>2</sup> Ariel University	
Enhance the HEVC Fast Intra CU Mode Decision Based on Convolutional Neural Network by Corner Power Estimation .....	400
<i>Liangliang Chang<sup>1</sup>, Zhenyu Liu<sup>1</sup>, Libo Wang<sup>2</sup>, and Xiaobo Li<sup>2</sup></i>	
<sup>1</sup> Tsinghua University, <sup>2</sup> Alibaba (China) Co., Ltd	
OCT: A Novel Opportunistic Compression and Transmission Approach for Private Car Trajectory Data.....	401
<i>Jie Chen<sup>1</sup>, Dong Wang<sup>1</sup>, Zhu Xiao<sup>1</sup>, and Vincent Havyarimana<sup>2</sup></i>	
<sup>1</sup> Hunan University, <sup>2</sup> Ecole Normale Supérieure	
Fast and Efficient Compression of Next Generation Sequencing Data .....	402
<i>Cornel Constantinescu and Gero Schmidt</i>	
IBM Research Almaden	
Filtering Invalid Off-Targets in CRISPR/Cas9 Design Tools.....	403
<i>Ondřej Cvacho and Jan Holub</i>	
Czech Technical University in Prague	
Hybrid Cubemap Projection Format for 360-degree Video Coding.....	404
<i>Fanyi Duanmu<sup>1</sup>, Yuwen He<sup>2</sup>, Xiaoyu Xiu<sup>2</sup>, Philippe Hanhart<sup>2</sup>,</i> <i>Yan Ye<sup>2</sup>, and Yao Wang<sup>1</sup></i>	
<sup>1</sup> New York University, <sup>2</sup> Interdigital Communications LLC	
Optimal Single- and Multiple-Tree Almost Instantaneous Variable-to-Fixed Codes.....	405
<i>Danny Dubé and Fatma Haddad</i>	
Université Laval	
Rate-Distortion Performance of Sequential Massive Random Access to Gaussian Sources with Memory.....	406
<i>Elsa Dupraz<sup>1</sup>, Thomas Maugey<sup>2</sup>, Aline Roumy<sup>2</sup>, and Michel Kieffer<sup>3</sup></i>	
<sup>1</sup> IMT Atlantique, <sup>2</sup> INRIA Rennes, <sup>3</sup> Univ Paris-Sud	
K-means Algorithm over Compressed Binary Data .....	407
<i>Elsa Dupraz</i>	
IMT Atlantique	
Compaction of Church Numerals for Higher-Order Compression .....	408
<i>Isamu Furuya and Takuya Kida</i>	
Hokkaido University	
Improved Depth Compression by Depth Downsampling Guided by Color Super-Pixel Refinement Segmentation.....	409
<i>Mihail Georgiev and Atanas Gotchev</i>	
Tampere University of Technology	
Efficient Processing of Top-K Vector-Raster Queries over Compressed Data .....	410
<i>Gilberto Gutiérrez, Susana Ladra, Juan R. López, José R. Paramá,</i> <i>and Fernando Silva-Coira</i>	
Universidade da Coruña	
Low-Complexity Spatial Scalability Scheme Using HEVC for 4K and VR Videos.....	411
<i>Glenn Herrou<sup>1</sup>, Wassim Hamidouche<sup>2</sup>, and Luce Morin<sup>2</sup></i>	
<sup>1</sup> IRT b-com, <sup>2</sup> IETR/INSA Rennes	
Simulated Annealing for JPEG Quantization .....	412
<i>Max Hopkins, Michael Mitzenmacher, and Sebastian Wagner-Carena</i>	
Harvard University	

Enhanced Intra Prediction with Recurrent Neural Network in Video Coding.....	413
<i>Yueyu Hu<sup>1</sup>, Wenhan Yang<sup>1</sup>, Sifeng Xia<sup>1</sup>, Wen-Huang Cheng<sup>2</sup>, and Jiaying Liu<sup>1</sup></i>	
<sup>1</sup> Peking University, <sup>2</sup> Academia Sinica	
Lossless Dynamic Point Cloud Geometry Compression with Inter Compensation and Traveling Salesman Prediction.....	414
<i>Birendra Kathariya<sup>1</sup>, Li Li<sup>1</sup>, Zhu Li<sup>1</sup>, and Jose Alvarez<sup>2</sup></i>	
<sup>1</sup> University of Missouri, <sup>2</sup> Futurewei Technologies, Inc.	
Fibonacci Based Compressed Suffix Array.....	415
<i>Shmuel T. Klein<sup>1</sup> and Dana Shapira<sup>2</sup></i>	
<sup>1</sup> Bar Ilan University, <sup>2</sup> Ariel University	
Hybrid Sensor Network Data Compression with Error Resiliency.....	416
<i>Chiman Kwan<sup>1</sup> and Yvonne Luk<sup>2</sup></i>	
<sup>1</sup> Signal Processing, Inc., <sup>2</sup> University of Maryland	
High Performance Video Codec with Error Concealment .....	417
<i>Chiman Kwan<sup>1</sup>, Edward Shi<sup>2</sup>, and Yool-Bin Um<sup>2</sup></i>	
<sup>1</sup> Signal Processing, Inc., <sup>2</sup> Applied Research LLC	
Objective Performance Evaluation of Several State-of-the-Art Audio Codecs.....	418
<i>Chiman Kwan<sup>1</sup> and Yvonne Luk<sup>2</sup></i>	
<sup>1</sup> Signal Processing, Inc., <sup>2</sup> University of Maryland	
Rate-Distortion-Complexity Optimized Coding Scheme for Kvazaar HEVC Intra Encoder.....	419
<i>Ari Lemmetti, Eemeli Kallio, Marko Viitanen, Jarno Vanne,     and Timo D. Hämäläinen</i>	
Tampere University of Technology	
A Double Background Based Coding Scheme for Surveillance Videos .....	420
<i>Haoran Li<sup>1</sup>, Wenpeng Ding<sup>1</sup>, Yunhui Shi<sup>1</sup>, and Wenbin Yin<sup>2</sup></i>	
<sup>1</sup> Beijing Key Laboratory of Multimedia and Intelligent Software Technology, <sup>2</sup> Harbin Institute of Technology	
Simplified Depth Intra Coding Based on Texture Feature and Spatial Correlation in 3D-HEVC.....	421
<i>Tiansong Li, Li Yu, Shengwei Wang, and Hongkui Wango</i>	
Huazhong University of Science and Technology	
Optimal In-place Suffix Sorting .....	422
<i>Zhize Li<sup>1</sup>, Jian Li<sup>1</sup>, and Hongwei Huo<sup>2</sup></i>	
<sup>1</sup> Tsinghua University, <sup>2</sup> Xidian University	
Task-Based JPEG 2000 Image Compression: An Information-Theoretic Approach .....	423
<i>Yuzhang Lin, Ashok Amit, Michael Marcellin, and Ali Bilgin</i>	
University of Arizona	
A Visual Discrimination Model for JPEG2000 Compression .....	424
<i>Feng Liu<sup>1</sup>, Yuzhang Lin<sup>2</sup>, Miguel Hernández-Cabronero<sup>2</sup>, Eze Ahanonu<sup>2</sup>,     Michael W. Marcellin<sup>2</sup>, Amit Ashok<sup>2</sup>, and Ali Bilgin<sup>2</sup></i>	
<sup>1</sup> Nankai University, <sup>2</sup> University of Arizona	
Unequal Weight Planar Prediction and Weighted Angular Prediction .....	425
<i>Krit Panusopone, Seungwook Hong, Yue Yu, and Limin Wang</i>	
ARRIS	
Fast and Robust Image Upsampling by Local Adaptive Gradient Field Sharpening Transform .....	426
<i>Qiang Song<sup>1</sup>, Ruiqin Xiong<sup>1</sup>, Dong Liu<sup>2</sup>, Zhiwei Xiong<sup>2</sup>, Feng Wu<sup>2</sup>, and Wen Gao<sup>1</sup></i>	
<sup>1</sup> Peking University, <sup>2</sup> University of Science and Technology of China	

Integer Nesting/Splitting for Golomb-Rice Coding of Generalized Gaussian Sources .....	427
<i>Ryosuke Sugiura, Yutaka Kamamoto, and Takehiro Moriya</i>	
Nippon Telegraph and Telephone Corp.	
Delta-Huffman Coding of Unbounded Integers.....	428
<i>Dan Tamir</i>	
Texas State University	
LZ77 Like Lossy Transformation of Quality Scores .....	429
<i>Michal Vašinek and Jan Platoš</i>	
VŠB-TU Ostrava	
Detail-Aware Image Decomposition for an HEVC-Based Texture Synthesis	
Framework.....	430
<i>Bastian Wandt, Thorsten Laude, Bodo Rosenhahn, and Jörn Ostermann</i>	
Leibniz Universität Hannover	
Locally Refined Motion Compensation for Future Video Coding.....	431
<i>Zhao Wang<sup>1</sup>, Shiqi Wang<sup>2</sup>, Xinfeng Zhang<sup>3</sup>, Shanshe Wang<sup>1</sup>, and Siwei Ma<sup>1</sup></i>	
<sup>1</sup> Peking University, <sup>2</sup> City University of Hong Kong,	
<sup>3</sup> University of Southern California, Los Angeles	
Lapped Transforms Based Image Recovery for Block Compressed Sensing .....	432
<i>Uditha Wijewardhana<sup>1</sup> and Marian Codreanu<sup>2</sup></i>	
<sup>1</sup> University of Sri Jayewardenepura, <sup>2</sup> University of Oulu	
Component-Based Quadratic Similarity Identification for Multivariate	
Gaussian Sources .....	433
<i>Hanwei Wu and Markus Flierl</i>	
KTH	
Fast Algorithm for HEVC Intra Prediction Based on Adaptive Mode Decision	
and Early Termination of CU Partition.....	434
<i>Mengmeng Zhang<sup>1</sup>, Xiaojun Zhai<sup>1</sup>, Zhi Liu<sup>1</sup>, and Changzhi An<sup>2</sup></i>	
<sup>1</sup> North China University of Technology, <sup>2</sup> Beijing China Electronic Intelligent	
Communication Technology Co., Ltd.	
A Hybrid Approach for Wind Tunnel Data Compression.....	435
<i>Jin Zhou<sup>1</sup> and Chiman Kwan<sup>2</sup></i>	
<sup>1</sup> Google, Inc., <sup>2</sup> Signal Processing, Inc.	
An Innovative Saliency Guided ROI Selection Model for Panoramic	
Images Compression.....	436
<i>Chunbiao Zhu, Kan Huang, and Ge Li</i>	
Peking University	
Author Index.....	437