2013 IEEE Digital Signal Processing and Signal Processing Education Meeting

(DSP/SPE 2013)

Napa, California, USA 11-14 August 2013



IEEE Catalog Number: 0 ISBN: 9

CFP13DSW-POD 978-1-4799-1615-3

TABLE OF CONTENTS

1-A: CLASSIFICATION AND SEGMENTATION

1-A.1: BILINEAR VECTOR QUANTIZATION**1** *Qian Zhang, Zhuoran Li, Jianji Wang, Xi'an Jiaotong University, China*

Yousef Alotaibi, Ali Meftah, King Saud University, Saudi Arabia; Sid-Ahmed Selouani, Université de Moncton, Canada

1-A.3: PERFORMANCE IMPROVEMENT OF THE COMPRESSIVE CLASSIFIER USING12 EQUI-NORM TIGHT FRAMES

Hailong Shi, Hao Zhang, Xiqin Wang, Intelligent Sensing Lab, China

Muhammad Kaleem, Aziz Guergachi, Sridhar Krishnan, Ryerson University, Canada

1-B: COMPRESSIVE SENSING

PP Vaidyanathan, California Institute of Technology, United States

Jitendra Tugnait, Auburn University, United States

Luisa Polania, Kenneth Barner, University of Delaware, United States

1-C: EMBEDDED SYSTEM AND TESTBED DESIGN

Yuan-Chu Yu, Southern Taiwan University of Science and Technology, Taiwan; Yuan-Tse Yu, National Kaohsiung Normal University, Taiwan

Jeremy Hershberger, Elizabeth Thompson, Indiana University Purdue University Fort Wayne, United States; Timothy Loos, Raytheon Company (retired), United States

1-D: NOVEL METHODS: LABORATORY, COMPUTER-BASED, DISTANCE LEARNING

1-D.1: TEACHING A "MOOC:" EXPERIENCES FROM THE FRONT LINE
1-D.2: COMPARISON OF DSP BOARDS FOR CLASSROOM USE
1-D.3: FROM FIXED-POINT PROCESSORS TO ANDROID: A HYBRID COURSE FOR279 REAL-TIME DSP LABORATORY <i>David Jun, Douglas Jones, Minh Do, University of Illinois, United States</i>
1-D.4: REAL-TIME ENERGY EFFICIENT EMBEDDED SYSTEM DEVELOPMENT
2-A: ESTIMATION
2-A.1: ADAPTIVE WINDOWED ESTIMATION OF ELECTROMAGNETIC FREQUENCY
2-A.2: PARAMETRIC HAMMERSTEIN-WIENER MODEL ESTIMATION VIA DUAL
2-A.3: COMPARISON OF CENTERED DISCRETE FRACTIONAL FOURIER
2-A.4: ON A MATRIX FRAMEWORK FOR THE TEAGER-KAISER ENERGY OPERATOR69 Balu Santhanam, University of New Mexico, United States
2-A.5: CO-PILOTS IN CHANNEL ESTIMATION
2-A.6: IMPROVED SPECTROGRAMS USING DISCRETE FRACTIONAL FOURIER
2-A.7: A CONTRACTION MAPPING BASED TWO-DIMENSIONAL EQUALIZER AND ITS

2-B: BIOMEDICAL SIGNAL PROCESSING

2-B.1: ROBUST APPROACH FOR EVALUATING PERIODICITY IN HUMAN ATRIAL90 FIBRILLATION BIPOLAR ELECTROGRAMS

Lakshmi Sugavaneswaran, Ryerson University, Canada; Rupin Dalvi, University Health Network, Canada; Sridhar Krishnan, Ryerson University, Canada; Vijay Chauhan, University Health Network, Canada

2-B.2: HIGH PERFORMANCE HEART SOUND SEGMENTATION ALGORITHM BASED96 ON MATCHING PURSUIT

Carlos I. Nieblas, Miguel A. Alonso, Roberto Conte, Salvador Villarreal, CICESE, Mexico

2-B.3: ANALYSIS OF VOCAL-FOLD MOTION FROM LARYNGEAL IMAGE101 SEQUENCES

Jasmin Gonzalez, Sally Wood, Yuling Yan, Santa Clara University, United States

2-C: GRAPHICAL MODELS

2-C.1: MESSAGE PASSING SOFT DECODING OF LINEAR BLOCK CODES OVER107 ARBITRARY FINITE FIELDS

Todd K. Moon, Jacob H. Gunther, Utah State University, United States

Venkatesan Ekambaram, Giulia Fanti, Babak Ayazifar, Kannan Ramchandran, University of California Berkeley, United States

2-C.3: A NEW SERIES-WOUND FRAMEWORK FOR GENERATING 1D CHAOTIC MAPS118 *Zhongyun Hua, Yicong Zhou, C.L.Philip Chen, University of Macau, China*

3-A: IMAGE PROCESSING

3-A.1: RECONSTRUCTING IMAGE DIFFERENCES FROM TOMOGRAPHIC POISSON124 DATA

Joseph A. O'Sullivan, Yaqi Chen, Washington University, United States

Erica Takemura, Mariane Petraglia, Antonio Petraglia, Federal University of Rio de Janeiro, Brazil

3-A.4: ROBUST LANE LOCALIZATION USING MULTIPLE CUES ON THE ROAD......**141** Sumanth Pavuluri, Santa Clara University, United States; Kikuo Fujimura, Honda Research Institute, United States; Sally Wood, Santa Clara University, United States

3-B: BLIND SEPARATION AND IDENTIFICATION

3-B.1: IMPULSIVE SOURCE SEPARATION WITH APPLICATION TO SPERM WHALE147 CLICKS

Jeremy Young, Anders Host-Madsen, Eva-Marie Nosal, University of Hawaii at Manoa, United States

3-B.2: USING REVERBERATION TIME ESTIMATES IN BLIND SEPARATION OF153 ACOUSTIC SOURCES

Diego Haddad, Mariane Petraglia, Federal University of Rio de Janeiro, Brazil; Paulo Batalheiro, State University of Rio de Janeiro, Brazil

Daimei Zhu, V. John Mathews, University of Utah, United States

3-C: SIGNAL PROCESSING ACROSS THE ENGINEERING CURRICULUM

Lawrence Rabiner, Rutgers University, United States; Ronald Schafer, Stanford University, United States

Todd K Moon, Jacob H. Gunther, Utah State University, United States

A. A. (Louis) Beex, Avik Dayal, Virginia Tech, United States

Mario Simoni, Rose-Hulman Institute of Technology, United States; Maurice Aburdene, Bucknell University, United States; Farrah Fayyaz, Purdue University, United States

4-A: COMMUNICATION SYSTEMS

4-A.1: ON THE IF SPECTRAL PLACEMENT OF BANDPASS SAMPLED SIGNALS......164 Sunil Ramlall, University of California, Irvine, United States

4-A.2: EXPLORING FREQUENCY MODULATION FEATURES AND RESOLUTION IN169 THE MODULATION SPECTRUM

Nashlie Sephus, Aaron Lanterman, David Anderson, Georgia Institute of Technology, United States

4-B: ADAPTIVE FILTERING

4-B.1: A COMPARATIVE STUDY OF KERNEL ADAPTIVE FILTERING ALGORITHMS181 Steven Van Vaerenbergh, Ignacio Santamaria, University of Cantabria, Spain

Jean-Baptiste Lacambre, Michel Narozny, Jean-Marie Louge, iXBlue, France

4-C: DENOISING AND ARTIFACT REMOVAL

4-C.1: A NEW SELECTIVE FILTERING ALGORITHM FOR IMAGE DENOISING**193** *Licheng Liu, Yicong Zhou, C. L. Philip Chen, University of Macau, Macao SAR of China*

Zhong Zhang, Jin Ohtaki, Hiroshi Toda, Takashi Imamura, Tetsuo Miyake, Toyohashi University of Thechnology, Japan

4-D: SIGNAL PROCESSING EDUCATION IN DIGITAL COMMUNICATIONS

Jacob Gunther, Todd Moon, Utah State University, United States

Mark Wickert, Les Tekamp, University of Colorado, Colorado Springs, United States

5-A: ACOUSTIC ANALYSIS AND PROCESSING

5-A.1: INVESTIGATION OF EMOTION CLASSIFICATION USING SPEECH RHYTHM204 METRICS

Yousef Alotaibi, Ali Meftah, King Saud University, Saudi Arabia; Sid-Ahmed Selouani, Université de Moncton, Canada

5-A.2: JOINT LINEAR PREDICTION AND EPOCH ESTIMATION OF VOICED SPEECH210 USING A BASIS WHERE THE PREDICTION RESIDUAL CAN BE SPARSELY REPRESENTED

Jacob Gunther, Todd Moon, Utah State University, United States

Fatemeh Pishdadian, Jill Nelson, George Mason University, United States

5-B: CODING AND DECODING

5-B.1: LOW-DELAY JOINT SOURCE-CHANNEL CODING WITH SIDE INFORMATION228 AT THE DECODER

Mojtaba Vaezi, Alice Combernoux, Fabrice Labeau, McGill University, Canada

5-B.3: NON-ADAPTIVE DISTRIBUTED COMPRESSION IN NETWORKS......**239** *Mahdy Nabaee, Fabrice Labeau, ECE Dept, McGill University, Canada*

5-B.4: ADAPTIVE ENERGY-AWARE ENCODING FOR DWT-BASED WIRELESS EEG245 TELE-MONITORING SYSTEM

Ramy Hussein, Alexandria University, Egypt; Alaa Awad, Qatar University, Qatar; Amr El-Sherif, Alexandria University, Egypt; Amr Mohamed, Qatar University, Qatar; Masoud Alghoniemy, Alexandria University, Egypt

5-C: FILTER AND EQUALIZER DESIGN

5-C.1: AN IMPROVEMENT OF CONVERGENCE PERFORMANCE OF IRWLS-BASED251 ALL-PASS IIR FILTERS

Taisaku Ishiwata, Yoshinao Shiraki, Toho University, Japan

5-C.2: REVIVING THE MAXIMUM LIKELIHOOD METHOD FOR DETECTING256 DOMINANT PERIODICITIES FROM NEAR-PERIODIC SIGNALS

Rupin Dalvi, University Health Network, Canada; Lakshmi Sugavaneswaran, Ryerson University, Canada; Vijay Chauhan, University Health Network, Canada; Sridhar Krishnan, Ryerson University, Canada

Woosik Moon, Sehwang Park, Jieun Lee, Sungbin Im, Soongsil University, Republic of Korea