

# **2013 8th International Symposium on Image and Signal Processing and Analysis**

**(ISPA 2013)**

**Trieste, Italy  
4-6 September 2013**



**IEEE Catalog Number: CFP13504-POD  
ISBN: 978-1-4799-3125-5**

# Contents

<b>Organizing Committee</b> . . . . .	<b>1</b>
<b>Reviewers</b> . . . . .	<b>2</b>
<b>Image Processing</b> . . . . .	<b>4</b>
Image Enhancement and Denoising . . . . .	4
<i>A. Babu, M. R. El-Sakka</i> A Hybrid Scaling Factor for Speckle Reducing Anisotropic Diffusion . . . . .	4
<i>H. Berkovich, D. Malah, M. Barzohar</i> Non-Local Means Denoising Using a Content-Based Search Region and Dissimilarity Kernel . . . . .	10
<i>A. Kumar, N. Agarwal, J. Bhadviya, G. Mittal, G. Ramponi</i> An Efficient New Edge Preserving Technique for Removal of Salt and Pepper Noise . . . . .	16
<i>B. Henke, M. Vahl, Z. Zhou</i> Removing Color Cast of Underwater Images through Non-Constant Color Constancy Hypothesis . . . . .	20
<i>M. Nuutinen, T. Virtanen, V. Valkonen, P. Oittinen</i> Automatic Exposure and White Balance Control in Video Cameras: Time Course Characterization and Preference . . . . .	25
<i>G. Guarnieri, S. Marsi</i> Color Rendering in High Dynamic Range Images . . . . .	30
Terrain Imaging . . . . .	36
<i>E. Schwinger, A. Z. Munthe-Kaas</i> Comparative Analysis of Various Thresholding Techniques on TerraSAR-X Images in the Presence of Speckle Noise . . . . .	36
<i>M. Bugarić, M. Braović, D. Stipaničev</i> Augmented Reality Based Segmentation of Outdoor Landscape Images . . . . .	43
<i>J. Zaletelj, U. Burnik, J. F. Tasic</i> Registration of Satellite Images Based on Road Network Map . . . . .	49
Image Segmentation . . . . .	54
<i>Y. Xiyu, Z. Fugen, B. Xiangzhi, G. Bin, W. Hui, T. Dongjie</i> Supervised Image Segmentation using Learning and Merging . . . . .	54
<i>M. Minervini, C. Rusu, S. A. Tsafaris</i> Learning Computationally Efficient Approximations of Complex Image Segmentation Metrics . . . . .	60
<i>Y. Yang, Y. Zhao, B. Wu, H. Wang</i> Split Bregman Method for Minimization of Modified Vese-Chan Model for Fast Image Segmentation . . . . .	66
<i>A. Moro, E. Mumolo, M. Nolich, K. Terabayashi, K. Umeda</i> Improved Foreground-Background Segmentation Using Dempster-Shafer Fusion . . . . .	72
<i>A. B. Goumeidane, M. Khamadja</i> Merging Discrepancy Measures for Region-Based Segmentation Results Evaluation and Comparison: Application to Thresholded Weld Defect Radiographic Images . . . . .	78
<i>K. Lidayová, J. Lindblad, N. Sladoje, H. Frimmel</i> Coverage Segmentation of Thin Structures by Linear Unmixing and Local Centre of Gravity Attraction . . . . .	83

<i>D. Seršić, A. Sović</i> A Robust Separable Image Denoising Based on Relative Intersection of Confidence Intervals Rule . . .	89
Pattern Recognition . . . . .	96
<i>L. Pasanen, L. Holmström</i> Bayesian Scale Space Analysis of Images . . . . .	96
<i>J. A. Fernandez, B. V. K. V. Kumar</i> Zero-Aliasing Correlation Filters . . . . .	101
<i>A. Hast, A. Marchetti</i> Rotation Invariant Feature Matching – Based on Gaussian Filtered Log Polar Transform and Phase Correlation . . . . .	107
<i>J. Herwig, S. Leßmann, F. Bürger, J. Pauli</i> Adaptive Anomaly Detection within Near-Regular Milling Textures . . . . .	113
<i>M. Diephuis, S. Voloshynovskiy</i> Physical Object Identification Based on FAMOS Microstructure Fingerprinting: Comparison of Templates Versus Invariant Features . . . . .	119
<i>T. Yoshida, A. Hori, S. Hangai</i> A Study on DCT Coefficients of Time Series Pen Position Data for Printed Signature Verification . .	124
<i>M. Luszczkiewicz-Piatek, B. Smolka</i> Color Image Retrieval Based on Spatio-Chromatic Multichannel Gaussian Mixture Modelling . . . .	130
<i>Y. Lufimpu-Luviya, D. Merad, S. Paris, B. Fertil</i> Combining Regression and Classification Methods for Age Band Estimation from Human Faces . . .	136
<i>S. M. M. Rahman, M. M. Reza, Q. M. Z. Hasani</i> Low-Complexity Iris Recognition Method Using 2D Gauss-Hermite Moments . . . . .	142
Video Analysis and Processing . . . . .	147
<i>K. Choroś</i> Automatic Detection of Headlines in Temporally Aggregated TV Sports News Videos . . . . .	147
<i>M. Centin, P. Fragneto, B. Rossi, D. Denaro, C. Marchisio</i> A Combined Color-Correlation Visual Model for Object Tracking using Particle Filters . . . . .	153
<i>Q. Fu, M. Celenk</i> Marked Watershed and Image Morphology Based Moving Detection and Performance Analysis . . .	159
<i>A. Lakhssassi, R. Palenychka, M. Saydé, Y. Savaria, M. Zaremba, E. Kengne</i> A Spatiotemporal Attention Operator for Monitoring Thermo-Mechanical Stress in Wafer-Scale Integrated Circuits Using an Infrared Camera . . . . .	165
<i>K. A. Ismaeil, D. Aouada, B. Mirbach, B. Ottersten</i> Multi-Frame Super-Resolution by Enhanced Shift & Add . . . . .	171
Document Processing . . . . .	177
<i>R. Huber-Mörk, A. Schindler</i> Automatic Classification of Defect Page Content in Scanned Document Collections . . . . .	177
<i>H. T. Phan, A. T. Duong, N. D.-H. Le, S. T. Tran</i> Hierarchical Sparse Autoencoder Using Linear Regression-Based Features in Clustering for Hand- written Digit Recognition . . . . .	183
<i>A. Sehad, Y. Chibani, M. Cherietz, Y. Yaddaden</i> Ancient Degraded Document Image Binarization Based on Texture Features . . . . .	189
<i>Y. Brik, Y. Chibani, E.-T. Zemouri, A. Sehad</i> Ridgelet-DTW-Based Word Spotting for Arabic Historical Document . . . . .	194
3D Imaging . . . . .	200
<i>C. Bräuer-Burchardt, S. Heist, P. Kühmstedt, G. Notni, S. Zwick</i> Calibration of a Free-Form Mirror for Optical 3D Measurements Using a Generalized Camera Model	200

<i>C. Bräuer-Burchardt, P. Kühmstedt, G. Notni</i> Lens Distortion Determination with Plane Calibration Targets . . . . .	206
<i>Y. Zhao, Y. Liu</i> Contrast-Based Surface Saliency . . . . .	212
<i>W. Smith, K.-P. Lam, D. Collins, J. Richardson</i> On 2.5D Surface Reconstruction of Cell Cultures . . . . .	218
<i>F. Malapelle, A. Fusiello, B. Rossi, E. Piccinelli, P. Fragneto</i> Uncalibrated Dynamic Stereo Using Parallax . . . . .	224
Image and Video Coding Techniques . . . . .	230
<i>C. David, V. Gui</i> Sparse Coding and Gaussian Modeling of Coefficients Average for Background Subtraction . . . . .	230
<i>E. Belyaev, K. Egiazarian, M. Gabbouj</i> A Real-Time Simulcast Multi-View Wavelet Video Coding Based on Skipping of Spatial Subbands . . . . .	236
<i>N. Al-Hayani, N. Al-Jawad, S. Jassim</i> Simultaneous Video Compression and Encryption for Real-Time Secure Transmission . . . . .	240
<i>N. Agarwal, A. Kumar, J. Bhadviya, G. Ramponi</i> Low Complex Algorithm for Interpolation as well as Lossless Compression of Natural Images . . . . .	246
<i>K. Viswanath, J. Mukhopadhyay, P. K. Biswas</i> Image Deblocking by Transcoding DCT Blocks to Wavelet Subbands . . . . .	251
Biomedical Imaging . . . . .	257
<i>M. A. Ali, J. Seguin, A. Fischer, N. Mignet, L. Wendling, T. Hurtut</i> Comparison of the Spatial Organization in Colorectal Tumors using Second-Order Statistics and Functional ANOVA . . . . .	257
<i>S. Seyyedi, K. Cengiz, M. Kamasak, I. Yildirim</i> An Object-Oriented Simulator for 3D Digital Breast Tomosynthesis System . . . . .	262
<i>M. Ruela, C. Barata, T. Mendonça, J. S. Marques</i> On the Role of Shape in the Detection of Melanomas . . . . .	268
<i>C. Barata, M. E. Celebi, J. S. Marques</i> Towards an Automatic Bag-of-Features Model for the Classification of Dermoscopy Images: The Influence of Segmentation . . . . .	274
<i>C. Campi, A. Perasso, M. C. Beltrametti, A. M. Massone, G. Sambucetti, M. Piana</i> Pattern Recognition in Medical Imaging by Means of the Hough Transform of Curves . . . . .	280
Watermarking . . . . .	284
<i>E. Maiorana, V. Solachidis, P. Campisi</i> Robust Multi-Bit Watermarking for HDR Images in the Radon-DCT Domain . . . . .	284
<i>M. Diao, Y. Zhu, Z. Sun, X. Liu, L. Zhang</i> An Improved Fingerprint Algorithm of 3D-DCT for Video Fingerprinting . . . . .	290
<i>J. Mayer, S. J. Simske</i> Informed Coding for Color Hardcopy Watermarking . . . . .	296
<b>Signal Processing . . . . .</b>	<b>302</b>
Radar, Sonar, and Communication Signal Processing . . . . .	302
<i>M. Daković, L. Stanković</i> Estimation of Sinusoidally Modulated Signal Parameters Based on the Inverse Radon Transform . . . . .	302
<i>S. Djukanović, M. Simeunović, I. Djurović</i> A Low-Complexity Robust Estimation of Multiple Wideband Polynomial-Phase Signals in Sensor Array . . . . .	308

<i>V. Popović-Bugarin, F. Radenović, L. Stanković</i> Analytical Rigid Body Reconstruction after Micro-Doppler Removal . . . . .	314
<i>P. Helin, B. Dumitrescu, J. Astola, I. Tabus</i> Likelihood Based Combining of Subband Estimates for Wideband DOA . . . . .	320
<i>A. Pelinković, S. Djukanović, I. Djurović, M. Simeunović</i> A Frequency Domain Method for the Carrier Frequency Offset Estimation in OFDM Systems . . . . .	326
<i>E. D. D. Claudio, G. Jacovitti</i> Wideband Source Localization by Space-Time MUSIC Subspace Estimation . . . . .	331
Adaptive and Nonlinear Filtering . . . . .	337
<i>G. L. Sicuranza, A. Carini</i> Nonlinear System Identification by Means of Mixtures of Linear-in-the-Parameters Nonlinear Filters . . . . .	337
<i>E. L. O. Batista, R. Seara</i> A New Perspective on the Convergence and Stability of NLMS Hammerstein Filters . . . . .	343
<i>F. Albu, K. Nishikawa, M. Rotaru, D. Coltuc</i> An Efficient Implementation of the Kernel Affine Projection Algorithm . . . . .	349
<i>M. Gasparini, L. Romoli, S. Cecchi, F. Piazza</i> Identification of Hammerstein Model using Cubic Splines and FIR Filtering . . . . .	354
<i>C. Rusu, C. F. N. Cowan</i> On Some Performances of the Exponentiated Convex Variable Step-Size (ECVSS) Algorithm . . . . .	360
Speech, Music, and Audio Processing . . . . .	366
<i>V. Montazeri, S. A. Khoubrouy, I. M. S. Panahi</i> A Perceptually Motivated Estimator for Speech Enhancement . . . . .	366
<i>P. Jain, R. B. Pachori</i> GCI Identification from Voiced Speech Using the Eigen Value Decomposition of Hankel Matrix . . . . .	371
<i>S. Scardapane, D. Comminiello, M. Scarpiniti, A. Uncini</i> Music Classification using Extreme Learning Machines . . . . .	377
<i>N. Bassiou, C. Kotropoulos, E. Koliopoulou</i> Symmetric $\alpha$ -Stable Sparse Linear Regression for Musical Audio Denoising . . . . .	382
<i>S. A. Khoubrouy, I. M. S. Panahi</i> Voice Activation Detection Using Teager-Kaiser Energy Measure . . . . .	388
<i>A. Degani, M. Dalai, R. Leonardi, P. Migliorati</i> Real-Time Performance Comparison of Tuning Frequency Estimation Algorithms . . . . .	393
<i>T. S. Mirzahasanloo, N. Khehtarnavaz, I. M. S. Panahi</i> Adding Quiet and Music Detection Capabilities to FDA-Approved Cochlear Implant Research Platform . . . . .	399
<i>Z. Boulkenafet, O. Nouali, C. Mohamed</i> Forensic Evidence Reporting Using GMM-UBM, JFA and I-Vector Methods: Application to Algerian Arabic Dialect . . . . .	404
<i>M. Virgulti, S. Cecchi, F. Piazza</i> IIR Filter Approximation of an Innovative Digital Audio Equalizer . . . . .	410
Signal Processing Theory and Methods . . . . .	416
<i>I. Ito, K. Egiazarian</i> Double Linear Correlation using DCT and Its Application to Forward and Reverse Matching . . . . .	416
<i>D. Malnar, V. Sucic</i> On the Reference Signal Parameters in the Cross Wigner-Ville Distribution Based Instantaneous Frequency Estimation Method . . . . .	421
<i>L. Stanković, M. Daković, S. Vujović</i> Concentration Measures with an Adaptive Algorithm for Processing Sparse Signals . . . . .	425

<i>T. Saramäki, M. Ahsan, H. Lienes, M. Renfors</i> A Generalized Class of Lattice Wave Digital Filters . . . . .	431
<i>L. Grama, A. Lodin, C. Rusu, J. Takala</i> Method to Convert Analog Filters to Digital Filters . . . . .	438
Signal Processing Applications . . . . .	444
<i>A. S. Elsayy, S. Eldawlatly, M. Taher, G. M. Aly</i> A Principal Component Analysis Ensemble Classifier for P300 Speller Applications . . . . .	444
<i>K. Lenac, E. Mumolo, M. Nolich</i> Sufficient Condition for Real-Time Non-Preemptive Scheduling of Interactive Multimedia Tasks . . . . .	450
<i>S. Gaci</i> Regularity Analysis of Oil Exploration Borehole Logs: A Case Study from Algeria . . . . .	456
Signal Analysis and Coding . . . . .	462
<i>A. K. Ovacık, P. Pääjärvi, J. P. LeBlanc</i> Skewness as an Objective Function for Vibration Analysis of Rolling Element Bearings . . . . .	462
<i>K. Ozols, R. Shavelis, M. Greitans</i> Amplitude Adaptive Asynchronous Sigma-Delta Modulator . . . . .	467
<i>H. Astola, I. Tabus</i> Bounds on the Size of Lee-codes . . . . .	471
<b>Special Sessions . . . . .</b>	<b>477</b>
Special Session on Providing Clinical Value to Medical Images and Biomedical Signals . . . . .	477
<i>N. Lanconelli, S. Masetti, V. Giglio, P. E. Puddu, C. Torromeo, P. Nardinocchi, L. Teresi</i> Strain Analysis of Cardiac Tissues from 3D Ultrasound Images Through Speckle Tracking . . . . .	477
<i>T. Szydzik, L. D. Paepe, L. Albani, A. Nunez</i> Contributions to Visualization Algorithm Enabling GPU-Accelerated Image Displaying for Dual Panel High Dynamic Range LCD Display . . . . .	483
<i>G. Garipoli, C. Bonanomi, A. Rizzi, L. Albani, D. Gadia</i> Tuning a Computer Based Stereo Blindness Assessment . . . . .	489
<i>G. Guarnieri, G. Ramponi, S. Marsi</i> Gray-Level Mapping in Advanced Medical Displays: Determining the Collective and Individual Visual Response of the Users . . . . .	493
<i>G. Crifaci, L. Billeci, G. Tartarisco, R. Balocchi, G. Pioggia, E. Brunori, S. Maestro, M. A. Morales</i> ECG and GSR Measure and Analysis Using Wearable Systems: Application in Anorexia Nervosa Adolescents . . . . .	499
<i>A. Nikravanshalmani, M. Karamimohammadi, J. Dehmeshki</i> Segmentation and Separation of Cerebral Aneurysms: A Multi-Phase Approach . . . . .	505
<i>L. Albani, L. D. Paepe, S. Bonfiglio, G. Guarnieri, G. Ramponi</i> HDR Medical Display Based on Dual Layer LCD . . . . .	511
<i>E. Hodneland, A. Lundervold, J. Rørvik, A. Z. Munthe-Kaas</i> Normalized Gradient Fields and Mutual Information for Motion Correction of DCE-MRI Images . . . . .	516
<i>G. Tarroni, D. Marsili, F. Veronesi, G. Sanguinetti, C. Corsi, C. Lamberti</i> Near-Automated 3D Segmentation of Left and Right Ventricles on Magnetic Resonance Images . . . . .	522
<i>D. Turco, C. Corsi, R. Mignani, S. Severi</i> Assessment of Kidney Volumes in Polycystic Kidney Disease from Coronal and Axial MR images . . . . .	528
<i>E. Soudah, M. Bordone, M. Rodriguez, J. S. Pérez, C.-H. Li, F. Carreras</i> Data Analysis of 4D Phase Contrast MRI in Healthy and Non-Healthy Patients . . . . .	533
Special Session on Digital Imaging in Cultural Heritage . . . . .	536

<i>V. Bruni, D. Vitulano</i> Evaluation of Degraded Images Using Adaptive Jensen-Shannon Divergence . . . . .	536
<i>F. Lozes, A. Elmoataz, O. Lézoray</i> Morphological PDEs on Graphs for Filtering and Inpainting of Point Clouds . . . . .	542
<i>G. Puglisi, F. Stanco, G. Barone, P. Mazzoleni</i> Automatic Petrographic Feature Extraction from Pottery of Archaeological Interest . . . . .	548
<i>N. G. Smith, S. Cutchin, R. Kooima, R. A. Ainsworth, D. J. Sandin, J. Schulze, A. Prudhomme, F. Kuester, T. E. Levy, T. A. DeFanti</i> Cultural Heritage Omni-Stereo Panoramas for Immersive Cultural Analytics—From the Nile to the Hijaz . . . . .	552
<i>A. D. Brown, G. L. Roderick, H. M. Dee, L. M. Hughes</i> Can We Date an Artist’s Work From Catalogue Photographs? . . . . .	558
<i>C. Rusu, S. A. Tsiftaris</i> Estimation of Scribble Placement for Painting Colorization . . . . .	564
<i>M. Zollhöfer, J. Süßmuth, F. Bauer, M. Stamminger, M. Boss</i> Visualization and Deformation Techniques for Entertainment and Training in Cultural Heritage . . .	570
<i>D. Davelli, A. Signoroni</i> Automatic Mapping of Uncalibrated Pictures on Dense 3D Point Clouds . . . . .	576
<i>A. Pelagotti, F. Uccheddu</i> Automatic Graves’ Orientation Detection . . . . .	582
Special Session on Enhanced X-ray Tomographic Reconstruction: Modeling and Algorithms . . . . .	588
<i>S. Brunetti, P. Dulio, C. Peri</i> Explicit Determination of Bounded Non-Additive Sets of Uniqueness for Four X-Rays . . . . .	588
<i>N. Viganò, W. Ludwig, K. J. Batenburg</i> Discrete Representation of Local Orientation in Grains using Diffraction Contrast Tomography . . .	594
<i>Y. Gerard</i> Elementary Algorithms for Multiresolution Geometric Tomography with Strip Model of Projections	600
<i>S. Brocchi</i> An Object-Based Tomographic Reconstruction Algorithm Exploiting Interest Points in Image Projections . . . . .	606
<i>R. Fedele, L. Galantucci, A. Ciani</i> Motion Estimation by X-Ray Tomography: A Variational Formulation for 3D-Volume DIC and a Finite Element Implementation . . . . .	612
<i>E. Niemi, M. Lassas, S. Siltanen</i> Dynamic X-Ray Tomography with Multiple Sources . . . . .	618
<i>S. Mohammadi, F. Brun, C. Dullin, D. Dreossi, G. Tromba</i> A Comparison of Free Software Implementations of Phase Retrieval Algorithms for Propagation-Based X-Ray Microtomographic Imaging . . . . .	622
Special Session on Active Noise and Vibration Control . . . . .	627
<i>M. Meller, M. Niedźwiecki</i> Multiple-Channel Frequency-Adaptive Active Vibration Control using SONIC* . . . . .	627
<i>G. L. Sicuranza, A. Carini</i> A New Recursive Controller for Nonlinear Active Noise Control . . . . .	633
<i>K. Fujii, M. Muneyasu, T. Sakai, Y. Iwamatsu</i> A Method for Estimating Coefficients of Feedback Control Filter under Active Noise Control . . . .	639
<i>S. Miyoshi, Y. Kajikawa</i> A Theory of the FXLMS Algorithm Based on Statistical-Mechanical Method . . . . .	645

<i>A. Wisler, I. M. S. Panahi</i>	Implementation of a Real-Time Feedback Active Noise Control System to Cancel Noise within a 3-Dimensional Enclosure . . . . .	651
<i>I. M. S. Panahi</i>	Development of ANC Methods for fMRI Rooms: Design Challenges and Algorithms . . . . .	655
<i>Y. Kajikawa, W.-S. Gan, S. M. Kuo</i>	Recent Applications and Challenges on Active Noise Control . . . . .	661
Special Session on Bio-Medical Data Analysis and Diagnosis Tools . . . . .		667
<i>T. Ivanovska, L. Wang, R. Laqua, K. Hegenscheid, H. Völzke, V. Liebscher</i>	A Fast Global Variational Bias Field Correction Method for MR Images . . . . .	667
<i>F. Brun, A. Accardo, G. Kourousias, D. Dreossi, R. Pugliese</i>	Effective Implementation of Ring Artifacts Removal Filters for Synchrotron Radiation Microtomographic Images . . . . .	672
<i>A. Cigaina, G. Fenu, F. A. Pellegrino, P. Sirotti, S. Rinaldi, D. Tognetto</i>	Experimental Setup and Methodology for Automatic Quality Assessment of Intraocular Lenses . . .	677
<i>P. Fabris, W. Vanzella, F. A. Pellegrino</i>	Evaluation of Features for Automatic Detection of Cell Nuclei in Fluorescence Microscopy Images .	683
<i>P. Parascandolo, L. Cesario, L. Vosilla, M. Pitikakis, G. Viano</i>	Smart Brush: A Real Time Segmentation Tool for 3D Medical Images . . . . .	689
<i>M. Ajcevic, A. D. Lorenzo, A. Accardo, A. Bartoli, E. Medvet</i>	A Novel Estimation Methodology for Tracheal Pressure in Mechanical Ventilation Control . . . . .	695
Special Session on Retinal Image Analysis . . . . .		700
<i>S. Ali, K. M. Adal, D. Sidibé, T. P. Karnowskiy, E. Chaum, F. Mériaudeau</i>	Exudate Segmentation on Retinal Atlas Space . . . . .	700
<i>Ştefan Ţălu, Z. Fazekas, M. Ţălu, S. Giovanzana</i>	Multifractal Analysis of Human Peripapillary Atrophy . . . . .	705
<i>P. Prentašić, S. Lončarić, Z. Vatauvuk, G. Benčić, M. Subašić, T. Petković, L. Dujmović, M. Malenica-Ravlić, N. Budimlija, R. Tadić</i>	Diabetic Retinopathy Image Database (DRiDB): A New Database for Diabetic Retinopathy Screening Programs Research . . . . .	711
<i>A. D. Mora, J. Soares, J. M. Fonseca</i>	A Template Matching Technique for Artifacts Detection in Retinal Images . . . . .	717
<i>B. Antal, A. Hajdu</i>	Evaluation of Preprocessing Methods for Microaneurysm Detection . . . . .	723
<i>B. Nagy, B. Antal, A. Hajdu</i>	Image Database Clustering to Improve Exudate Detection in Color Fundus Images . . . . .	727
Special Session on Hardware-Software Co-Design Methodologies for Streaming Processing in Digital Media Technologies . . . . .		732
<i>H. Yviquel, E. Casseau, M. Raulet, P. Jääskeläinen, J. Takala</i>	Towards Run-Time Actor Mapping of Dynamic Dataflow Programs onto Multi-Core Platforms . . .	732
<i>S. C. Brunet, C. Alberti, M. Mattavelli, J. W. Janneck</i>	Design Space Exploration of High Level Stream Programs on Parallel Architectures: A Focus on the Buffer Size Minimization and Optimization Problem . . . . .	738
<i>F. Palumbo, C. Sau, L. Raffo</i>	DSE and Profiling of Multi-Context Coarse-Grained Reconfigurable Systems . . . . .	744
<i>E. Bezati, M. Mattavelli, J. W. Janneck</i>	High-Level Synthesis of Dataflow Programs for Signal Processing Systems . . . . .	750

<i>L. Minati</i>	Emergence of Chaos in Transistor Circuits Evolved Towards Maximization of Approximate Signal Entropy . . . . .	755
	Special Session on Multichannel Audio Algorithms: New Trends and Innovative Applications . . . . .	761
<i>S. Cecchi, L. Romoli, F. Piazza, A. Carini</i>	A Multichannel and Multiple Position Adaptive Room Response Equalizer in Warped Domain . . . . .	761
<i>P. Thüne, G. Enzner</i>	Trends in Adaptive MISO System Identification for Multichannel Audio Reproduction and Speech Communication . . . . .	767
<i>F. Beritelli, A. Gallotta, S. Palazzo, C. Rametta</i>	Dual Stream Transmission to Improve Mobile VoIP Services over HSPA: A Practical Test Bed . . . . .	773
<i>D. Communiello, S. Scardapane, M. Scarpinitia, R. Parisi, A. Uncini</i>	Convex Combination of MIMO Filters for Multichannel Acoustic Echo Cancellation . . . . .	778
<i>L. Romoli, S. Cecchi, F. Piazza</i>	Evaluation of a Channel Decorrelation Approach for Stereo Acoustic Echo Cancellation . . . . .	783
	Special Session on Theory and Applications of Digital Geometry and Non-Traditional Grids . . . . .	789
<i>P. Kardos, K. Palágyi</i>	On Topology Preservation in Triangular, Square, and Hexagonal Grids . . . . .	789
<i>N. Hantos, P. Balázs</i>	A Uniqueness Result for Reconstructing <i>hv</i> -Convex Polyominoes from Horizontal and Vertical Projections and Morphological Skeleton . . . . .	795
<i>B. Nagy, E. V. Moisi, V.-I. Cretu</i>	Discrete Tomography on the Triangular Grid Based on Ryser's Results . . . . .	801
	Special Session on Real-Time and Mobile Vision Algorithms . . . . .	807
<i>D. Thuerck, A. Kuijper</i>	Nonlinear Diffusion at Your Fingertips: Theory and Mobile Applications . . . . .	807
<i>E. Juhász, A. Tanács, Z. Kato</i>	Evaluation of Point Matching Methods for Wide-Baseline Stereo Correspondence on Mobile Platforms	813
<i>V. Varjas, A. Tanács</i>	Car Recognition from Frontal Images in Mobile Environment . . . . .	819
<b>Author Index</b> . . . . .		<b>823</b>