# Table of Contents

Simulation of Room Acoustics Using 2-D Digital Waveguide Meshes .................................................. 5171  
Antti Kelloniemi, Vesa Valimaki, Lauri Savioja

Wave Field Simulation with the Functional Transformation Method .................................................. 5175  
Stefan Petrasch, Rudolf Rabenstein

Sound Field Analysis with a Two-dimensional Microphone Array .................................................. 5179  
M. Guillaume, Y. Grenier

Distance Variation Function For Simulation Of Near-Field Virtual Auditory Space .......................... 5183  
Alan Kan, Craig Jin, André van Schaik

DEVELOPMENT OF MICRO-DODECAHEDRAL LOUDSPEAKER FOR MEASURING HEAD-  
RELATED TRANSFER FUNCTIONS IN THE PROXIMAL REGION .................................................. 5187  
Seiichiro Hosoe, Takanori Nishino, Katsunobu Itou, Kazuya Takeda

LISTENING THROUGH DIFFERENT EARS IN THE SYDNEY OPERA HOUSE .................................. 5191  
Angela Qian Li, Craig Jin, André van Schaik

HEADPHONE-BASED REPRODUCTION OF 3D AUDITORY SCENES CAPTURED BY  
Spherical/Hemispherical Microphone Arrays .................................................................................... 5195  
Zhiyun Li, Ramani Duraiswami

A NEW METHOD FOR BINAURAL 3-D LOCALIZATION BASED ON HRTFs ........................................... 5199  
Fakheredine Keyrouz, Youssef Naous, Klaus Diepold

Immersive Rendering Of Coded Audio Streams Using Reduced Rank Models Of Subband-Domain Head-  
Related Transfer Functions ............................................................................................................. 5203  
Pinaki Shankar Chanda, Sungjin Park

Automated Design of Digital Filters for 3-D Sound Localization in Embedded Applications ............ 5207  
Kosuke Tsujino, Wataru Kobayashi, Takao Onoye, Yukihiro Nakamura

Inverse Filter Design Using Minimax Approximation Techniques for 3-D Audio ......................... 5211  
Harsha I.K Rao, Y. John Mathews, Young-Cheol Park

Separation of Audio Signals into Direct and Diffuse Soundfields for Surround Sound ..................... 5215  
Benjamin S. Olswang, Zoran Cvetkovic

Scalable Resource Management for Video Streaming over IEEE802.11a/e ..................................... 5219  
Y. Andreopoulos, M. van der Schaar, Z. Hu, S. Heo, S. Suh

Improving the Robustness of the G.722 Wideband Speech Codec to Packet Losses for Voice over WLANs .................................................. 5223  
Niranjan Shetty, Jerry D. Gibson

Latency-Minimized Delivery for Multi-Resolution Mesh Geometry ................................................. 5227  
Ghassan AlRegib, Dihong Tian

Constructing dependency trees for rate-distortion optimized media streaming .......................... 5231  
Martin Roder, Jean Cardinal, Raouf Hamzaoui

Unequal Error Protection for H.263+ bitstreams over a wireless IP network .............................. 5235  
Catherine Lamy-Bergot, Nicolas Chauvet, Cyril Bergeron

PRICING BASED COLLABORATIVE MULTI-USER VIDEO STREAMMING OVER POWER  
CONSTRAINED WIRELESS DOWN LINK ...................................................................................... 5239  
Zhu Li, Jianwei Huang, Aggelos K. Katsaggelos

Informed Authentication Watermarking via Stego Data Reconstruction ..................................... 5243  
Chao-Yong Hsu, Chun-Shien Lu,

ESTIMATION OF QUANTIZATION STEP SIZE AGAINST AMPLITUDE MODIFICATION ATTACK  
IN SCALAR QUANTIZATION-BASED AUDIO WATERMARKING .............................................. 5247  
Siho Kim, Keunsung Bae

MAC Aware Coding Strategy for Multiple User Information Embedding .................................... 5251  
Abdellatif Zaidi, Pablo Piantanida
# Table of Contents

- **Image Watermarking Robust Against Non-Linear Value-Metric Scaling Based on Higher Order Statistics**
  
  *Fabrizio Guerrini, Riccardo Leonardi, Mauro Barni*

- **Non-Intrusive Forensic Analysis of Visual Sensors using Output Images**
  
  *Ashwin Swaminathan, Min Wu, K. J. Ray Liu*

- **On Optimal Collusion Strategies for Fingerprinting**
  
  *Negar Kiyavash, Pierre Moulin*

- **CHANNEL-AWARE FRAME DROPPING FOR CELLULAR VIDEO STREAMING**
  
  *Hao Liu, Wenjun Zhang, Songyu Yu, Xiaokang Yang*

- **PODS: Partially Ordered Delivery for 3D Scenes in Resource-Constrained Environments**
  
  *Dihong Tian, Ghassan AlRegib*

- **Emulate Large Sensor Array of Handheld Digital Camera**
  
  *Tsungnan Lin, Yennan Shen*

- **SONEL MAPPING: A STOCHASTIC ACOUSTICAL MODELING SYSTEM**
  
  *B. Kapralos, M. Jenkin, E. Milios*

- **A speech-music discriminator using HILN model based features**
  
  *Balaji Thoshkahna, V. Sudha, K. R. Ramakrishnan*

- **AN EMBEDDED PACKET TRAIN AND ADAPTIVE FEC SCHEME FOR VoIP OVER WIRED/WIRELESS IP NETWORKS**
  
  *Chih-Wei Huang, Somsak Sukittanon, James A. Ritcey, Aik Chindapol, Jenq-Neng Hwang*

- **Cross-layer Video Streaming Over 802.11e-Enabled Wireless Mesh Networks**
  
  *N. Mastronarde, Y. Andreopoulos, M. van der Schaar, D. Krishnaswamy, J. Vicente*

- **Network Resource Allocation for Perceptually based Unequal Packet Protection in Voice Communication**
  
  *Steffen Praeholm, Soren Skak Jensen, Soren Vang Andersen, Manohar N. Murthi*

- **Compressed Domain Video Editing**
  
  *Ragip Kurceren, Fehmi Chebil*

- **An Iterative Constrained Optimization Approach To Classifier Design**
  
  *Sibel Yaman, Chin-Hui Lee*

- **BER Analysis of A Cooperative Random Access Protocol in Rayleigh Fading Channels**
  
  *Hailong Yang, Athina P. Petropulu*

- **Cooperative Transmissions for Random Access Wireless Networks with Frequency Selective Fading**
  
  *L. Dong, J. Yu, A. P. Petropulu*

- **Real-Time Software Implementation of H.264 Baseline Profile Video Encoder for Mobile and Handheld Devices**
  
  *G Nageswara Rao, RSV Prasad, D Jaya Chandra, Srividya Narayanan*

- **Parameterization of Mouth Images by LLE and PCA for Image-based Facial Animation**
  
  *Kang Liu, Axel Weissenfeld, Joern Ostermann*

- **Secret Wavelet Packet Decompositions for JPEG 2000 Lightweight Encryption**
  
  *Dominik Engel, Andreas Uhl*

- **A SPATIAL HEARING MODEL BASED ON RECONSTRUCTION FROM WAVELET TRANSFORM MODULUS MAXIMA**
  
  *Jie Zhang, Zhenyang Wu*

- **PERCEPTION-BASED COMPRESSION OF HAPTIC DATA STREAMS USING KALMAN FILTERS**
  
  *P. Hinterseer, E. Steinbach, S. Chaudhuri*

- **A ROBUST BLIND WATERMARKING FOR 3D MESHES USING DISTRIBUTION OF SCALE COEFFICIENTS IN IRREGULAR WAVELET ANALYSIS**
  
  *Min-Su Kim, Jae-Won Cho, Ho-Youl Jung, Remy Prost*
### Table of Contents

**Individual Object Interaction for Camera Control and Multimedia Synchronization** .................................................. 5339  
Richard Y.D. Xu, Jesse S. Jin

**A Novel Embedding Method for an Anti-Collusion Fingerprinting by Embedding Both a Code and an Orthogonal Fingerprint** .................................................. 5343  
Dalwon Jang, Chang D. Yoo

**A Highly Efficient Parallel Algorithm for H.264 Video Encoder** .................................................. 5347  
Zhuo Zhao, Ping Liang

**Analyzing Human Body 3-D Motion of Golf Swing from Single-Camera Video Sequences** .................................................. 5351  
Ibrahim Karliga, Jenq-Neng Hwang

**Color Object Tracking System for Interactive Entertainment Applications** .................................................. 5355  
Jaeyong Chung, Kwanghyun Shim

**An Automatic Video Semantic Annotation Scheme Based on Combination of Complementary Predictors** .................................................. 5359  
Yan Song, Xian-Sheng Hua, Li-Rong Dai, Meng Wang, Ren-Hua Wang

**Content-Based Retrieval of MP3 Songs for One Singer Using Quantization Tree Indexing and Melody-Line Tracking Method** .................................................. 5363  
Tsung-Han Tsai, Jui-Hung Hung

**Soccer Video Retrieval Using Adaptive Time-Frequency Methods** .................................................. 5367  
Jonathan Marchal, Cornel Ioana, Emanuel Radoi, André Quinquis, Sridhar Krishnan

**Feature Extraction from Talking Mouths for Video-Based Bi-Modal Speaker Verification** .................................................. 5371  
Hua Ouyang, Tan Lee, W.N. Chan

**Feature Space Modification for Content-based Music Retrieval Based on User Preferences** .................................................. 5375  
Keiichiro Hoashi, Kazunori Matsumoto, Fumiaki Sugaya, Hiromi Ishizaki, Jiro Katto

**Fast Incremental Clustering of Gaussian Mixture Speaker Models for Scaling up Retrieval in On-line Broadcast** .................................................. 5379  
J. E. Rougui, M. Rziza, D. Aboutajdine, M. Gelgon, J. Martinez

**Mobile Video Capture Targeted Narrowband Audio Content Classification** .................................................. 5383  
Satur-Marija Mäkelä, Johannes Peltola, Mikko Myllyniemi

**A Stereo to Mono Downmixing Scheme for MPEG-4 Parametric Stereo Encoder** .................................................. 5387  
Samsudin, Evelyn Kurniawati, Ng Boon Poh, Farook Sattar, Sapna George

**Vibrato-Motivated Acoustic Features for Singer Identification** .................................................. 5391  
Haizhou Li, Tin Lay

**Motion Stream Segmentation and Recognition by Classification** .................................................. 5395  
Chuanjun Li, Punit R. Kulkarni, B. Prabhakaran

**Arbitrary Listening-Point Generation Using Sub-Band Representation of Sound Wave Ray-Space** .................................................. 5399  
Mehrdad Panahpour Tehrani, Yasushi Hirano, Toshiaki Fujii, Shoji Kajita, Kazuya Takeda, Kenji Mase

**Estimation of Mixtures of Symmetric Alpha Stable Distributions with an Unknown Number of Components** .................................................. 5403  
D. Salas-Gonzalez, E. E. Kuruoglu, D. P. Ruiz

**Maximum Confidence Hidden Markov Modeling** .................................................. 5407  
Chih-Pin Liao, Jen-Tzung Chien

**Hidden Markov Model Framework Using Independent Component Analysis Mixture Model** .................................................. 5411  
Jian Zhou, Xiao-Ping Zhang

**Outlier Detection in Benchmark Classification Tasks** .................................................. 5415  
Hongyu Li, Mahesan Niranjan
# Table of Contents

**AN AUGMENTED EXTENDED KALMAN FILTER ALGORITHM FOR COMPLEX-VALUED RECURRENT NEURAL NETWORKS**

Su Lee Goh, Danilo P. Mandic .......................................................... 5419

**An Optimal Basis for Feature Extraction with Support Vector Machine Classification using the Radius-Margin Bound**

J. Fortuna, D. Capson ...................................................................... 5423

**Kernel Density Estimation, Affinity-Based Clustering, and Typical Cuts**

Deniz Erdogmus, Miguel A. Carreira-Perpinan, Umut Ozertem .............. 5427

**An Explicit Construction of a Reproducing Gaussian Kernel Hilbert Space**

Jian-Wu Xu, Puskal P. Pokharel, Kyu-Hwa Jeong, Jose C. Principe .......... 5431

**Semi-Supervised Kernel Methods for Regression Estimation**

Alexei Pozdnyakov, Samy Bengio ................................................... 5435

**Sparse Forward-Backward using Minimum Divergence Beams for Fast Training of Conditional Random Fields**

Chris Pal, Charles Sutton, Andrew McCallum .................................. 5439

**Generalized Linear Kernels for One-Versus-All Classification: Application to Speaker Recognition**

Andrew O. Hatch, Andreas Stolcke ................................................. 5443

**Controlling False Alarms with Support Vector Machines**

Mark A. Davenport, Richard G. Baraniuk, Clayton D. Scott .................. 5447

**NORMALIZED INFORMATION THEORETIC CRITERIA FOR BLIND SIGNAL EXTRACTION**

Sergio Cruces, Iván Durán .............................................................. 5451

**Optimal Filtering for Partially Observed Point Processes using Trans-Dimensional Sequential Monte Carlo**

Arnaud Doucet, Luis Montesano, Ajay Jasra ..................................... 5455

**Bayesian Inference for Continuous-time ARMA Models Driven by non-Gaussian Levy Processes**

Simon J. Godsill, Gary (Ligong) Yang .............................................. 5459

**BAYESIAN LI-NORM SPARSE LEARNING**

Yuanqing Lin, Daniel D. Lee .......................................................... 5463

**A Normalized Minimum Error Entropy Stochastic Algorithm**

Seungju Han, Sudhir Rao, Kyu-Hwa Jeong, Jose Principe ................. 5467

**A REWARD-DIRECTED BAYESIAN CLASSIFIER**

Hui Li, Xuejun Liao, Lawrence Carin ............................................. 5471

**Statistical Inference of Missing Speech Data in the ICA Domain**

Justinian Rosca, Timo Gerkmann, Doru-Cristian Balcan .................... 5475

**New Algorithms for Non-Negative Matrix Factorization in Applications to Blind Source Separation**

Andrzej CICHOCKI, Rafal ZDUNEK, Shun-ichi AMARI ....................... 5479

**Blind Separation of Reflections with Relative Spatial Shifts**

Efrat Be'ery, Arie Yeredor ............................................................ 5483

**A Novel Approach to Automated Source Separation in Multispeaker Environments**

Robert M. Nickel, Ananth N. Iyer .................................................. 5487

**Stability Analysis of Complex-valued Nonlinearities for Maximization of Nongaussianity**

Mike Novey, Tulay Adali .................................................................. 5491

**A Biologically-Inspired Approach to the Cocktail Party Problem**

Mounya Elhilali, Shihab Shamma .................................................... 5495

**A Normalised Kurtosis Based Blind Source Extraction Algorithm for Noisy Mixtures**

Wei Liu, Danilo P. Mandic .............................................................. 5499

**Wavelet based independent component analysis for multi-channel source separation**

Rachid Moussaouil, Jean Rouat, Roch Lefebvre ............................... 5503
Table of Contents

A Gibbs Sampling Approach to Independent Factor Analysis........................................5507
Omolabake A. Adenle, William J. Fitzgerald

SOUND SOURCE SEPARATION USING SHIFTED NON-NEGATIVE TENSOR FACTORIZATION........5511
Derry Fitzgerald, Matt Cranitch, Eugene Coyle

Blind separation of more sources than sensors in convolutive mixtures..........................5515
Rasmus Kongsgaard Olsson, Lars Kai Hansen

Robust Super-Exponential Methods for Blind Equalization of MIMO-IIR Systems..................5519
Kiyotaka Kohno, Yuijiro Inouyey, Mitsuura Kawamoto

A NEW DIAGONAL HESSIAN ALGORITHM FOR BLIND SIGNAL SEPARATION..........................5523
M. Elsabrouty, T. Aboulnasr, M. Bouchard

Kernel PCA based estimation of the mixing matrix in linear instantaneous mixtures of sparse sources...........5527
Frédéric Desobry, Cédric Févotte

The maximum likelihood approach to complex ICA.........................................................5531
Jean-François Cardoso, Tulay Adalt

Frequency Domain Blind Source Separation Exploiting Higher-Order Dependencies................5535
Taesu Kim, Hagai Attias, Soo-Young Lee, Te-Won Lee

On-line K-Plane Clustering Learning Algorithm for Sparse Component Analysis....................5539
Yoshikazu Washizawa, Andrzej Cichocki

A Simple and Robust FastICA Algorithm Using the Huber M-Estimator Cost Function...............5543
Jih-Cheng Chao, Scott C. Douglas

System Identification with Unbounded Loss Functions under Algorithmic Deficiency..................5547
Majid Fozunbal, Mat C. Hans, Ronald W. Schafer

Object Detection in Video with Graphical Models .......................................................5551
David Liu, Tsuhan Chen

FUZZY INTEGRAL-BASED MIXTURE TO SPEED UP THE ONE-AGAINST-ALL MULTICLASS SVM..............5555
H. Nemmour, Y. Chibani

Sequential Detection using Least Squares Temporal Difference Methods................................5559
Anthony Kuh, Danilo Mandic

A Fixed-Point Algorithm For Finding The Optimal Covariance Matrix in Kernel Density Modeling........5563
Jose M. Leiva-Murillo, Antonio Artes-Rodriguez

Sparseness by iterative projections onto spheres ..................................................................5567
Fabian J. Theis, Yoshihisa Tanaka

Iterative Constrained Maximum Likelihood Estimation via Expectation Propagation................5571
John MacLaren Walsh, Phillip A. Regalia

A Numerical Method to Compute Cramér-Rao-Type Bounds for Challenging Estimation Problems........5575
Justin Daunwels, Sascha Korl

COMPARISON OF SEQUENCE DISCRIMINANT SUPPORT VECTOR MACHINES FOR ACOUSTIC EVENT CLASSIFICATION.................................................................5579
Andrey Temko, Enric Monte, Climent Nadeu

SELF ORGANIZING MAPS FOR REDUCING THE NUMBER OF CLUSTERS BY ONE ON SIMPLEX SUBSPACES.................................................................5583
Constantine Kotropoulos, Vassiliki Moschou

Block Diagonal Linear Discriminant Analysis with Sequential Embedded Feature Selection........5587
Roger Pique-Regi, Antonio Ortega

Offering Pattern Mining Using High Yield Partition Trees ..............................................5591
Jianying Hu, Aleksandra Mojsilovic
# Table of Contents

Face Recognition based on Separable Lattice HMMs .................................................. 5595
Daisuke Kurata, Yoshihiko Nankaku, Keiichi Tokuda, Tadashi Kitamura, Zoubin Ghahramani

Location Tracking in Wireless Local Area Networks with Adaptive Radio Maps ........... 5599
A. Kushki, K.N. Plataniotis, A.N. Venetsanopoulos

INTEGRATED DETECTION, TRACKING AND RECOGNITION FOR IR VIDEO-BASED VEHICLE
CLASSIFICATION ....................................................................................................... 5603
Xue Mei, Shaohua Kevin Zhou, Hao Wu

Continuous HMM-based volcano monitoring at Deception Island, Antarctica ............. 5607

A CHERNOFF...BASED APPROACH TO THE ESTIMATION OF TRANSFORMATION MATRICES
FOR BINARY HYPOTHESIS TESTING ..................................................................... 5611

Reduced Complexity and Scaling for Asynchronous HMMs in a Bimodal Input Fusion Application .................................................. 5615
Marc Al-Hames, Gerhard Rigoll

ROBUST AUDIO WATERMARK DECODING BY SUPERVISED LEARNING ................. 5619
Serap Kirbiz, Bilge Günsel

KERNEL BASED SYNTHETIC DISCRIMINANT FUNCTION FOR OBJECT RECOGNITION ..... 5623
Kyun-Hwa Jeong, Puskal P. Pokharel, Jian-Wu Xu, Seungju Han, Jose C. Principe

Estimating the Number of Marine Mammals using Recordings of Clicks from One Microphone .................................................. 5627
Xanadu C. Halkias, Daniel P. W. Ellis

Fast Incremental Techniques For Learning Production Rule Probabilities In Radar Electronic Support .................................................. 5631
Guillaume Latombe, Eric Granger, Fred A. Dilkes

Fast Training and Efficient Linear Learning Machine ............................................. 5635
Abdenour BOUNSIAR, Pierre BEAUSEROY, Edith GRALL

GAUSSIAN PROCESSES FOR DIGITAL COMMUNICATIONS ............................... 5639
Fernando Perez-Cruz, Juan Jose Murillo-Fuentes

An Adaptive Paraunitary Approach For Blind Equalization of All Equalizable MIMO Channels .................................................. 5643
Alper Tunga Erdogan

A Sliding-Window Kernel RLS Algorithm and its Application to Nonlinear Channel Identification .................................................. 5647
Steven Van Vaerenbergh, Javier Via, Ignacio Santamaria

Automatic Speech Processing Methods for Bioacoustic Signal Analysis: A Case Study of Cross-disciplinary Acoustic Research .................................................. 5651
John G. Harris, Mark D. Skowronski

A Markov-Chain Monte-Carlo Approach to Musical Audio Segmentation .............. 5655
Christophe Rhodes, Michael Casey, Samer Abdallah, Mark Sandler

Room Acoustic Parameter Extraction from Music Signals ...................................... 5659
Paul Kendrick, Trevor J. Cox, Yonggang Zhang, Jonathon A. Chambers, Francis F. Li

A STUDY OF PERCEPTRON MAPPING CAPABILITY TO DESIGN SPEECH EVENT DETECTORS .................................................. 5663
Sabato M. Siniscalchi, Mark A. Clements, Antonio Gentile, Giorgio Vassallo, Filippo Sorbello

A Speech/music Discriminator for Radio Recordings Using Bayesian Networks ........ 5667
Theodoros Giannakopoulos, Aggelos Pikrakis, Sergios Theodoridis

AUDIO BASED EVENT DETECTION FOR MULTIMEDIA SURVEILLANCE ............ 5671
Pradeep K. Atrey, Namunu C. Maddage, Mohan S. Kankanhalli

Hierarchical Classification of Musical Instruments on Solo Recordings .................... 5675
Slim ESSID, Gael RICHARD, Bertrand DAVID
# Table of Contents

Latent Dirichlet Decomposition for Single Channel Speaker Separation ........................................... 5679  
Bhiksha Raj, Madhusudana V. S. Shashanka, Paris Smaragdis  

A Block Factor Analysis based Receiver for Blind Multi-User Access in Wireless Communications .............. 5683  
Dimitri Nion, Lieven De Lathauwer  

Blind Signal Separation Using a Criterion Based on Principle of Minimal Disturbance .......................... 5687  
Uttachai Mamontri, Patrick A. Naylor  

Enhanced Source Separation by Morphological Component Analysis .................................................. 5691  
J. Bobin, Y. Mouadden, J.-L. Starck  

Frequency Domain Blind Source Separation of a Reduced Amount of Data Using Frequency Normalization .... 5695  
Enrique Robledo-Arnuncio, Hiroshi Sawada, Shoji Makino  

Eigenvector Algorithms Using Reference Signals ..................................................................................... 5699  
Mitsuru Kawamoto, Kiyotaka Kohno, Yujiro Inouye  

Iterative Projection Approximation Algorithms for PCA ....................................................................... 5703  
Seungjin Choi, Jong-Hoon Ahn, Andrzej Cichocki  

Blind Source Separation of Nonlinearly Constrained Mixed Sources using Polynomial Series Reversion ...... 5707  
P. Gao, L.C. Khor, W.L. Woo, S.S. Dlay  

A time-frequency correlation-based blind source separation method for time-delayed mixtures ............... 5711  
Matthieu Puigt, Yannick Deville  

MoTIF: an Efficient Algorithm for Learning Translation Invariant Dictionaries ...................................... 5715  
Philippe Jost, Pierre Vandergheynst, Sylvain Lesage, Remi Gribonval  

Post-Nonlinear Undercomplete Blind Signal Separation: A Bayesian Approach .................................... 5719  
C. Wei, L.C. Khor, W.L. Woo, S.S. Dlay  

FAST NOISE COMPENSATION FOR SPEECH SEPARATION IN DIFFUSE NOISE ................................ 5723  
Rong Hu, Yunxin Zhao  

PHONEMES AS SHORT TIME COGNITIVE COMPONENTS .................................................................... 5727  
Ling Feng, Lars Kai Hansen  

Methods of Fair Comparison of Performance of Linear ICA Techniques in Presence of Additive Noise .............. 5731  
Zbynek Koldovsky, Petr Tichavsky  

Exploring Three-Base Periodicity for DNA Compression and Modeling ............................................... 5735  
Paulo J. S. G. Ferreira, Antonio J. R. Neves, Vera Afreixo, Armando J. Pinho  

Spoke Sorting using Non Parametric Clustering via Cauchy Schwartz pdf Divergence ............................. 5739  
Sudhir Rao, Justin C. Sanchez, Seunjiu Han, Jose C. Principe  

A Mixture Model for Spike Train Ensemble Analysis Using Spectral Clustering ........................................ 5743  
Rong Jin, Yasir Suhail, Karim Oweiss  

AUGMENTING INFORMATION CHANNELS IN HEARING AIDS AND COCHLEAR IMPLANTS UNDER ADVERSE CONDITIONS ............................................................ 5747  
Yasir Suhail, Karim G. Oweiss  

Constrained Non-negative Matrix Factorization Method for EEG Analysis in Early Detection of Alzheimer Disease ..................................................................................................................... 5751  
Zhe Chen, Andrzej Cichocki, Tomasz M. Rutkowski  

Detection of Hand Extension Movements in the Context of a 3-State Asynchronous Brain Interface ................ 5755  
Ali Bashashati, Rabab K. Ward, Gary E. Birch  

Majority Vote and Decision Template Based Ensemble Classifiers Trained on Event Related Potentials for Early Diagnosis of Alzheimer’s Disease ................................................................. 5759  
Nicholas Stepensky, Deborah Green, John Kounios, Christopher M. Clark, Robi Polikar