

5th International Symposium on Image and Signal Processing and Analysis, ISPA 2007

Istanbul, Turkey, September 27-29, 2007

Technical Program

Thursday, September 27, 2007

Oral Sessions

	Track A	Track B	Track C
8:45-9:00	Opening Address		
9:00-10:00	Plenary Lecture: HAL: Human Activity Language Professor Yiannis Aloimonos Computer Vision Laboratory, University of Maryland, USA		
10:00-10:30	Coffee Break		
10:30-12:30	A.1 Biomedical Signal and Image Processing I	B.1 Video and Motion	C.1 Special Session on Advances in Design and Implementation of Multirate Filters and Filter Banks
12:30-13:30	Lunch Break		
13:30-14:30	Plenary Lecture: 3D Video for Entertainment Production Professor Adrian Hilton Centre for Vision Speech and Signal Processing, School of Electronics and Physical Sciences University of Surrey, Guildford, UK		
14:30-16:30	A.2 Biomedical Signal and Image Processing II	B.2 Computer Vision	C.2 Image Segmentation
16:30-17:00	Tea Break		
17:00-19:00	A.3 Speech Processing and Analysis	B.3 Filter Theory and Signal Processing	C.3 Biomedical Signal and Image processing III
20:00	Welcome Reception – Faculty Club of Boğaziçi University		

Friday, September 28, 2007

Oral Sessions

	Track A	Track B	Track C
9:00-10:00	Plenary Lecture: Support Vector Machines: A Geometric Point of View Professor Sergios Theodoridis Department of Informatics & Telecommunications, University of Athens, Greece		
10:00-10:30	Coffee Break		
10:30-12:30	A.4 Image Enhancement and Restoration	B.4 Image Compression and Coding	C.4 Special Session on Image-based Cardiovascular Modeling and Simulation
12:30-13:30	Lunch Break		
13:30-14:30	Plenary Lecture: Energy-Aware DSP Algorithm Design Professor Lars Wanhammar Division of Electronics Systems, Department of Electrical Engineering Linköping University, Sweden		
14:30-16:30	A.5 Image Processing and Analysis	B.5 Special Session on Digital shape: Analysis and Representation	C.5 Special Session on Mathematical Methods for Medical Image Processing and Analysis
16:30-17:00	Tea Break		
17:00-19:00	A.6 Special Session on Probabilistic Graphical Models for Computer Vision and Pattern Recognition I	B.6 Special Session on Advances and Applications in Bayesian Signal Processing I	C.6 Machine Vision
20:00	Gala Dinner – Bosphorus Cruise Ship		

Saturday, September 29, 2007

Oral Sessions

	Track A	Track B	Track C
9:00-10:00	Plenary Lecture: Splines and Operators: A Unifying Framework for Continuous-Discrete Signal Processing Professor Michael Unser Biomedical Imaging Group, EPFL, Lausanne, Switzerland		
10:00-10:30	Coffee Break		
10:30-12:30	A.7 Special Session on Advances and Applications in Bayesian Signal Processing II	B.7 Special Session on Medical Image Processing	C.7 Special Session on Probabilistic Graphical Models for Computer Vision and Pattern Recognition II
12:30-13:30	Lunch Break		
13:30	Social Event: Istanbul Sightseeing Tour		

Thursday, September 27, 2007

Session A.1: Biomedical Signal and Image Processing I

Chair: Maria Petrou

10:30-10:50 Identification of Aortic Stenosis and Mitral Regurgitation by Heart Sound Segmentation on Time-Frequency Domain

Daoud Boutana,, Mounir Djeddi, and Messaoud Benidir

10:50-11:10 Type-Specific Analysis of Morphometry of Dendrite Spines of Mice

Elvan Ceyhan, Lisa Fong, Tiffany N. Tasky, Monica K. Hurdal, Mirza F. Beg, Maryanne E. Martone, and John T. Ratnanather

11:10-11:30 Statistical Analysis of Morphometric Measures Based on Labeled Cortical Distance Maps

Elvan Ceyhan, Malini Hosakere, Tomoyuki Nishino, Jim Alexopoulos, Richard D. Todd, Kelly N. Botteron, Michael I. Miller, and John T. Ratnanather

11:30-11:50 A New Approach to Automatic Classification of the Curved Chromosomes

Mehrsan Javan Roshtkhari, and S. Kamaledin Setarehdan

Session B.1: Video and Motion

Chair: Adrian Hilton

10:30-10:50 FLIR Target Detection and Tracking Basing on Multiscale Morphological Filters

Hu Xin and Tang Shuo

10:50-11:10 Comparative Study of Block Matching Techniques Used in Video Images Motions Estimation

Kemal Laidi, M. A. Bailiche, and Mohamed Mehenni

11:10-11:30 Tracking a High Maneuver Target Based on Intelligent Matrix Covariance Resetting

Mohamad Hasan Bahari, Farzad Nejati Moharrami, Mohammad Ali Ebrahimi Ganjeh, and Ali Karsaz

11:30-11:50 Real Time Motion Tracking by Seismic Wave Analysis

Juan Pablo Marin Diaz, and Oscar Francisco Reina Hernandez

11:50-12:10 Object Motion in Bayesian Propagation of Ovals

Zhuhan Jiang and Zhuan Qing Huang

12:10-12:30 Edge Gradient Based Fast Inter Motion Estimation for H.264/AVC

Zhenyu Liu, Yang Song, Yiqing Huang, Lingfeng Li, Satoshi Goto, and Takeshi Ikenaga

Session C.1: Special Session on Advances in Design and Implementation of Multirate Filters and Filter Banks

Chairs: Ljiljana Milić and Tapio Saramäki

10:30-10:50 An Efficient Method for Designing Low-Delay Nonuniform Oversampled M -channel Filterbanks

Robert Bregović, Bogdan Dumitrescu, and Tapio Saramäki

10:50-11:10 Minimum MSE Filter Banks Design Using Correlated Signal Dependent Quantization Noise Model

Are Hjørungnes

11:10-11:30 Tree-Structured MIMO FIR Filter Banks for Flexible Frequency Reallocation

Heinz G. Göckler and Mohammed Abdulazim

11:30-11:50 Flexible Frequency-Band Reallocation MIMO Networks for Real Signals

Amir Eghbali, Håkan Johansson and Per Löwenborg

11:50-12:10 Practical Design of Filter Banks for Automatic Music Transcription

Filipe Diniz, Luiz Biscaíno, and Sergio Netto

12:10-12:30 On the Sensitivity of Two-Channel IIR Filter Banks with Variable Crossover Frequency

Jelena Čertić and Ljiljana Milić

Session A.2: Biomedical Signal and Image Processing II

Chair: Sven Lončarić

- 14:30-14:50 A Fully Automated Method for Segmentation and Thickness Map Estimation of Femoral and Acetabular Cartilages in 3D CT Images of the Hip
Ayoub Baniasadipour, Reza A. Zoroofi, Yoshinobu Sato, Takashi Nishii, Katsuyuki Nakanishi, Hisashi Tanaka, Nobuhiko Sugano, Hideki Yoshikawa, Hironobu Nakamura, and Shinichi Tamura
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- 14:50-15:10 Another Approach to Detection of Abnormalities in MR-Images Using Support Vector Machines
Ehsan Behnamghader, Reza Dehestani Ardekani, Meysam Torabi, and Emad Fatemizadeh
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- 15:10-15:30 Neural, Fuzzy And Neurofuzzy Approach To Classification Of Normal And Alcoholic Electroencephalograms
Ashkan Yazdani, Pedram Ataee, Kamaledin Setarehdan, Caro Lucas, and Babak Nadjar Araabi
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- 15:30-15:50 Genetic Algorithm for Selection of Best Feature and Window Length for a Discriminate Pre-seizure and Normal State Classification
Pedram Ataee, Ashkan Yazdani, Kamaledin Setarehdan, and Hossein Ahmadi Noubari

Session B.2: Computer Vision

Chair: Yiannis Aloimonos

- 14:30-14:50 An Image-Based Measurement System for Quality Control in Civil Engineering
Alexander Reiterer and Martin Lehmann
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- 14:50-15:10 Directional Spatial Color Descriptor in a Perceptual Model: Proximity Grids
Serkan Kiranyaz, Murat Birinci, and Moncef Gabbouj
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- 15:10-15:30 A Fast Closed-Form Solution for Single-View Pose Determination
Ben St. John and Gerald Madlmayr
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- 15:30-15:50 SIFT-CCH: Increasing the SIFT Distinctness by Color Co-occurrence Histograms
Cosmin Ancuti
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- 15:50-16:10 Reconstructing Some hv-Convex Binary Images from Three or Four Projections
Péter Balázs
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- 16:10-16:30 Real-time Finger Tracking for Interaction
Mohamed Abou Zliekha, and Noor Shaker

Session C.2: Image Segmentation

Chair: Andreas Uhl

- 14:30-14:50 A Boosted Skin Detection Method based on Pixel and Block Information
Hedieh Sajedi and Mehran Najafi
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- 14:50-15:10 Level Set Constrained Segmentation Using Local Curvature
Fahima Djabelkhir, Mohammed Khamadja, and Christophe Odet
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- 15:10-15:30 Narrow Band Region Approach for Active Contours and Surfaces
Julien Mille, Romuald Boné, Pascal Makris, and Hubert Cardot
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- 15:30-15:50 Hierarchical Mesh Segmentation Using Waterfall and Dynamics
Hubert Cardot and Romuald Boné
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- 15:50-16:10 Properties of Natural Ordering Relation for Octogonal Neighborhood Sequences
Attila Fazekas, Lajos Hajdu, and Andras Hajdu
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- 16:10-16:30 Towards an Automated Generation of Tree Ring Profiles from CT-Images
Andreas Uhl, Karl Entacher, and Dietmar Planitzer

Session A.3: Speech Processing and Analysis

Chair: Mohammad Hasan Savoji

17:00-17:20 An Accuracy Optimization of a Dialog ASR System Utilizing Evolutional Strategies
Juraj Kacur and Jan Korosi

17:20-17:40 Nonlinear Speech Coding Using Backward Adaptive Variable-Length Quadratic Filters
Ghasem Alipoor and c

17:40-18:00 Improved Hybrid Approach for Bilingual Language Recognition from Text
Eniko Beatrice Bilcu and Jaakko Astola

18:00-18:20 A New Hilbert Transformer Based on Parametric Wavelet Kernel: Application to Analytic Signal Decomposition of Speech Sub-bands
Milad Omid and Mohommad Hassan Savoji

Session B.3: Filter Theory and Signal Processing

Chair: Tapio Saramäki

17:00-17:20 On the Complexity of Multiplierless Direct and Polyphase FIR Filter Structures
Amir Eghbali, Oscar Gustafsson, Håkan Johansson, and Per Löwenborg

17:20-17:40 Synthesis of Circulator-Tree Wave Digital Filters
Lars Wanhammar, Baharak Soltanian, Kenny Johansson, and Oscar Gustafsson

17:40-18:00 Low-Complexity Constant Multiplication Using Carry-Save Arithmetic for High-Speed Digital Filters
Oscar Gustafsson and Lars Wanhammar

18:00-18:20 A New Two-Stage CIC-Based Decimation Filter
Gordana Jovanovic Dolecek and Sanjit Mitra

18:20-18:40 A Practical Review on Higher-Order Statistics Interpretation. Application to Electrical Transients Characterization
Juan Jose Gonzalez de la Rosa, Antonio Moreno, and Carlos G. Puntonet

18:40-19:00 Limits on the Resolution of Closely Spaced Multipath Signals
Alon Amar and Anthony Weiss

Session C.3: Biomedical Signal and Image Processing III

Chair: Andres Santos

17:00-17:20 PVC Arrhythmia Detection Using Neural Networks
Ali Gharaviri, Mohammad Teshnehlab, and Hamid Abrishami Moghaddam

17:20-17:40 Locating Information Maximization Time in EEG Signals Recorded During Mental Tasks
Farnaz Abdollahi, Kamaledin Setarehdan, and Ali Nasrabadi

17:40-18:00 Basic Linear Filters in Extracting of Auditory Evoked Potentials
Serap Aydin, Buyurman Baykal, and Nevzat Gencer

18:00-18:20 An Assessment of Tikhonov Regularizations to Evoked Brain Signals
Serap Aydin, Nevzat Gencer, and Buyurman Baykal

Friday, September 28, 2007

Session A.4: Image Enhancement and Restoration

Chair: Ilkay Ulusoy

- 10:30-10:50 Generalized Vector Median Filter
Bogdan Smolka and Michal Perczak
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- 10:50-11:10 Automatic Removal of Photographic Paper Texture from Digitised Images
James Orwell
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- 11:10-11:30 Deblurring of UAV Aerial Images for Civil Structures Inspections Using Mumford-Shah / Total Variation Regularisation
Alexandre Hammer
-
- 11:30-11:50 A Novel Tone Mapping Method for Image Contrast Enhancement
Radu Ciprian Bilcu and Markku Vehviläinen
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- 11:50-12:10 New Scene-Based Nonuniformity Correction Algorithm of Infrared Focal-Plane Arrays
Yongjin Liu, Hong Zhu, and Yigong Zhao
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- 12:10-12:30 A Mathematical Model to Estimate Out of Focus Blur
Mohsen Ebrahimi Moghaddam

Session B.4: Image Compression and Coding

Chair: Benedek Nagy

- 10:30-10:50 Image Compression with Neural Networks Using Complexity Level of Images
Hadi Veisi and Mansour Jamzad
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- 10:50-11:10 Color Image Compression Using Block-Based Independent Component Analysis
Vrijendra Singh, Sandeep Yadav, Neeraj Singh, and Prem K. Kalra
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- 11:10-11:30 A Lagrange Interpolation Based Error Correction Coding for the Images
Hossein Ajorloo, Mohammad-Tagh Manzuri-Shalmani
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- 11:30-11:50 A Kind VLSI Design of Vector Quantization Algorithm for Image Compression
Xiang Wang
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- 11:50-12:10 A Robust Indexing and Retrieval Method for Lossy Compressed Color Images
Maria Luszczkiewicz and Bogdan Smolka
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- 12:10-12:30 Optimal Neighborhood Sequences on the Hexagonal Grid
Benedek Nagy

Session C.4: Special Session on Image-Based Cardiovascular Modeling and Simulation

Chairs: Bart Bijmens and Alejandro Frangi

- 10:30-10:50 Assessment of the Regional Myocardial Displacement by a New Method Using Spectral Tissue Doppler Comparing with Tissue Tracking
Hassan Moladoust, Manijhe Mokhtari-Dizaji, Zahra Ojaghi-Haghighi, Feridoun Noohi, and Amir Khajavi
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- 10:50-11:10 Analysis of Doppler Ultrasound Outflow Profiles for the Detection of changes in Cardiac Function
Hrvoje Kalinić, Sven Lončarić, Maja Čikeš, A. Baltabaeva, C. Parsai, J. Šeparović, I. Čikeš, G. R. Sutherland, and Bart Bijmens
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- 11:10-11:30 An Integrated Framework for the Assessment of Cardiac Function – Description and Illustrated Applications
Bart Bijmens, Piet Claus, Chirine Parsai, Maja Čikeš, Sven Lončarić, Lisa Anderson, and George Sutherland
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- 11:30-11:50 Computational Anatomy Atlas of the Heart
Sebastian Ordas, Estanislao Oubel, Rafael Sebastian, and Alejandro F. Frangi

Session A.5: Image Processing and Analysis

Chair: Andreas Uhl

14:30-14:50 The Use of Top-View Finger Image for Personal Identification

Panyayot Chaikan and Montri Karnjanadecha

14:50-15:10 A Reference Point Detection Algorithm for Top-View Finger Image Recognition

Panyayot Chaikan and Montri Karnjanadecha

15:10-15:30 Face Detection Using AdaBoosted RVM-based Component Classifier

Alireza Bayesteh, Abolghasem Sayadiyan, and Seyyed Majid Valiollahzadeh

15:30-15:50 Feature Extraction for Face Recognition using Recursive Bayesian Linear Discriminant

Dong Huang, Cheng Xiang, and Shuzhi Ge

15:50-16:10 Effective Image Fusion Rules of Multi-scale Image Decomposition

Youzhi Zheng, Xiaodong Hou, Tiantian Bian, and Zheng Qin

16:10-16:30 Pseudo Multivariate Morphological Operators based on Alpha-trimmed Lexicographical Extrema

Erchan Aptoula and Lefevre Sebastien

Session B.5: Special Session on Digital Shape: Analysis and Representation

Chair: Natasa Sladoje and Joakim Lindblad

14:30-14:50 Defuzzification by Feature Distance Minimization Based on DC Programming

Joakim Lindblad, Tibor Lukic, and Natasa Sladoje

14:50-15:10 Minimal Cost-Path for Path-Based Distances

Robin Strand, Filip Malmberg, and Stina Svensson

15:10-15:30 Adaptive Mesh Simplification using Distance to Focus of Attention for Multiple Points of View

Susana Mata, Luis Pastor, Angel Rodriguez

15:30-15:50 Theory of Neighborhood Sequences on Hexagonal Grids

Benedek Nagy

15:50-16:10 Shape Representation with Maximal Path-Points for Path-Based Distances

Robin Strand

Session C.5: Special Session on Mathematical Methods for Medical Image Processing and Analysis

Chairs: Patrick Clarysse and Andres Santos

14:30-15:10 Recent Technical Developments of Image Guided Interventions in XMR Suites

Invited presentation by Cengizhan Ozturk

15:10-15:30 SOM Based Diffusion Tensor MR Analysis

Dilek Goksel Duru and Mehmed Ozkan

15:30-15:50 3-D Vascular Tree Segmentation Using Level-Set Deformable Model

Kresimir Dekanić and Sven Lončarić

15:50-16:10 Alignment of 3D DCE-MRI Abdominal Series for Optimal Quantification of Kidney Function

Rosario Sance, Maria J. Ledesma-Carbayo, Arvid Lundervold, and Andres Santos

Session A.6: Special Session on Probabilistic Graphical Models for Computer Vision and Pattern Recognition I

Chair: Ilkay Ulusoy

17:00-17:40 Invited lecture: Generative Image Models and Jigsaws

John Winn, Microsoft Research, Cambridge, UK

17:40-18:00 Image Processing in Polarimetric SAR Images Using a Hybrid Entropy Decomposition and Maximum Likelihood (EDML)

Chue Poh Tan, Ka Sing Lim, and Hong Tat Ewe

18:00-18:20 Generative Model for Human Motion Recognition

David Excell, A. Taylan Cemgil, and William Fitzgerald

18:20-18:40 Comparison of Human and Automatic Facial Emotions and Emotion Intensity Levels Recognition

Marián Beszédeš, Phil Culverhouse

Session B.6: Special Session on Advances and Applications in Bayesian Signal Processing I

Chair: Taylan Cemgil

17:00-17:20 Bayesian Generalized Linear Models in a Terabyte World

Onno Zoeter

17:20-17:40 Non-Linear Variable Selection in a Regression Context

Simon Hill

17:40-18:00 Output Grouping using Dirichlet Mixtures of Linear Gaussian State-Space Models

Silvia Chiappa and David Barber

18:00-18:20 Separating Solo and Orchestra from Monaural Audio Using Mixture Models

Christopher Raphael and Yushen Han

Session C.6: Machine Vision

Chair: Aytul Ercil

17:00-17:20 A Machine Vision System with an Irregular Imaging Function

Zhenwei Su, Jinwei Wang, Mingfei Huang, Chunhua Gao, and Maria Petrou

17:20-17:40 Improved Non-parametric Subtraction for Detection of Wafer Defect

Hye Won Kim and Suk In Yoo

17:40-18:00 Rotation Angle Estimation Algorithms for Textures and Their Real-Time Implementation on the FU-SmartCam

Onur Toker

18:00-18:20 The Evaluation of Performances of Automatic Method for the Object Detection in GPR Images

Mikhail Golovko

18:20-18:40 Application of Discrete Wavelet Transform (DWT) in Combustion Failure Detection of IC Engines

Farzad Shirazi and Mohammad Mahjoob

18:40-19:00 A New Spatio-Temporal Fast Motion Estimation Algorithm

Vassilis Fotopoulos and Athanassios Skodras

Saturday, September 29, 2007

Session A.7: Special Session on Advances and Applications in Bayesian Signal Processing II

Chair: Taylan Cemgil

10:30-10:50 Graphical Model-based Approaches to Target Tracking in Sensor Networks: An Overview of Some Recent Work and Challenges
Murat Üney and Müjdat Çetin

10:50-11:10 Simultaneous Localization and Tracking in Sensor Networks
Sumeetpal S. Singh, Nikolaos Kantas, and Arnaud Doucet

11:10-11:30 Models and Algorithms for Detection and Tracking of Coordinated Groups
Simon Godsill, Jun-Feng Li, and Sze Kim Pang

11:30-11:50 Auxiliary Particle Implementation of the Probability Hypothesis Density Filter
Nick Whiteley, Sumeetpal S. Singh, and Simon Godsill

Session B.7: Special Session on Medical Image Processing

Chair: Andrew Todd-Pokropek

10:30-10:50 Comparison of k-NN, SVM, and NN in Pit Pattern Classification of Zoom-Endoscopic Colon Images using Co-Occurrence Histograms
Andreas Uhl

10:50-11:10 Spermatozoon Segmentation Towards an Objective Analysis of Human Sperm
Henry Carrillo, Jorge Villarreal, Miguel Sotaquira, Alvaro Goelkel and Ricardo Gutierrez

11:10-11:30 Iterative Preconditioned Steepest Descent Reconstruction using Blob-Based Basis Functions
Edward Ho and Andrew Todd-Prokropek

11:30-11:50 Elimination of RF Inhomogeneity Effects in Segmentation
Onur Agus, Mehmed Ozkan, Kubilay Aydin

11:50-12:10 Automatic Segmentation of Low Resolution Fetal Cardiac Data Using Snakes With Shape Priors
Irving Dindoyal, Tryphon Lambrou, Jing Deng, and Andrew Todd-Pokropek

Session C.7: Special Session on Probabilistic Graphical Models for Computer Vision and Pattern Recognition II

Chair: Ilkay Ulusoy

10:30-10:50 Graph Partition Based Scene Boundary Detection
Ufuk Sakarya and Ziya Telatar

10:50-11:10 A Robust Facial Feature Point Tracker using Graphical Models
Serhan Cosar, Mujdat Cetin, and Aytul Ercil