

2010 2nd International Conference on Image Processing Theory, Tools and Applications

(IPTA 2010)

**Paris, France
7 – 10 July 2010**



**IEEE Catalog Number: CFP1062F-PRT
ISBN: 978-1-4244-7247-5**

Table of Contents

Invited speakers

Indexing of compressed video: methods, challenges, applications.....	3
<i>Jenny Benois-Pineau, University of Bordeaux, France</i>	
Multidimensional Particle Swarm Optimization and Applications in Data Clustering and Image Retrieval.....	5
<i>Moncef Gabbouj, University of Technology, Finland</i>	
Distributed Video Coding: Status, Challenges and Outlook.....	6
<i>Frédéric Dufaux, Swiss Federal Institute of Technology (EPFL), Switzerland</i>	
Augmented Reality: Issues, Trends and Challenges.....	8
<i>Malik Malle, University of Evry Val d'Essonne, France</i>	

Tutorials

Image and Video Descriptors.....	11
<i>Abdenour Hadid, University of Oulu, Finland</i>	
H.264 video watermarking: applications, principles, deadlocks, and future.....	13
<i>Marc Chaumont, University of Montpellier II, France</i>	
Medical image analysis using high-dimensional information theoretic criteria.....	14
<i>Nicolas Rougon, Institut Telecom SudParis ARTEMIS Department, France</i>	

GDR-ISIS Special session on Feature selection and kernel methods for image classification, image segmentation and pattern recognition

Fusion and classification of multi-source images by SVM with selected features in a kernel space.....	17
<i>Su Ruan, Nan Zhang, Stéphane Lebonvallet, Qingming Liao and Yuemin Zhu</i>	
Feature Subspaces Selection via One-Class SVM: Application to Textured Image Segmentation.....	21
<i>Xiyan He, Pierre Beausery and Andre Smolarz</i>	
Adaptive Feature Selection for Heterogeneous Image Databases.....	26
<i>Rostom Kachouri, Khalifa Djemal and Hichem Maaref</i>	
Comparison of Feature Selection Schemes for Color Texture Classification.....	32
<i>Alice Porebski, Nicolas Vandenbroucke and Ludovic Macaire</i>	
Connectivity feature extraction for spatio-functional clustering of fMRI data.....	38
<i>S. Emeriau, F. Blanchard, JB. Poline, L. Pierot and E. Bittar</i>	

Special session on Video Surveillance: Tools and Applications

Audio-Video Surveillance System for Public Transportation.....	47
<i>Quoc-Cuong Pham, Agnès Lapeyronnie, Christelle Baudry, Laurent Lucat, Patrick Sayd, Sébastien Ambellouis, David Sodoyer, Amaury Flancquart, Alain-Claude Barcelo, Frédéric Heer, Fabrice Ganansia and Vincent Delcourt</i>	
Pedestrian detection based on Adaboost algorithm with a pseudo-calibrated camera.....	54
<i>Damien Simonnet and Sergio A Velastin</i>	

People re-identification by classification of silhouettes based on sparse representation..... 60
Dung Nghi Truong Cong, Catherine Achard and Louahdi Khoudour

A Benchmark for Background Subtraction Algorithms in Monocular Vision: a Comparative Study..... 66
Yoann Dhome, Nicolas Tronson, Antoine Vacavant, Thierry Chateau, Christophe Gabard, Yann Goyat and Dominique Gruyer

Background Subtraction and 3D Localization of Moving and Stationary Obstacles at Level Crossings..... 72
Fakhfakh Nizar, Khoudour Louahdi, EL-Koursi El-Miloudi, Bruelle Jean-Luc, Dufaux Alain and Jacot Jacques

Special session on Medical Imaging

Points of Interest Detection in Cervical Spine Radiographs by Polygonal Approximation..... 81
Fabian Lecron, Mohammed Benjelloun and Saïd Mahmoudi

Comparison of Optimization Techniques for Regularized Statistical Reconstruction in X-Ray Tomography..... 87
Benoit Hamelin, Yves Goussard and Jean-Pierre Dussault

Intravascular Ultrasound Image Segmentation : A Helical Active Contour Method..... 92
Melissa Jourdain, Jean Meunier, Jean Séqueira, Guy Cloutier and Jean-Claude Tardif

Automatic Identification of Cell Files in Light Microscopic Images of Conifers Wood..... 98
Pol Kennel, g rard Subsol, micha l Gu roult and philippe Borianne

Coding and Compression

Spectrogram Image Encoding Based on Dynamic Hilbert Curve Routing..... 107
ChingShun Lin and DaRen Wang

Analysis of the robustness of wavelet-based perceptual signatures..... 112
Azhar Hadmi, William Puech, Brahim Ait Es Saïd and Abdellah Ait Ouahman

Improving Compression Times in Zero-Tree Based Image Coding Procedures..... 118
Jonas Valantinas and Deividas Kancelkis

Hyperspectral Image Compression Based on Tucker Decomposition and Discrete Cosine Transform..... 122
Azam Karami, Mehran Yazdi and Alireza Zolghadre Asli

Fast zonal DCT-based image compression for Wireless Camera Sensor Networks..... 126
Leila Makkaoui, Vincent Lecuire and Jean-Marie Moureaux

Video Coding

Memory Requirements and Simulation Platform for the Implementation of the H.264 Encoder Modules..... 133
Messaoudi Kamel, Bourennane El-Bay, Toumi Salah, Kerkouche Omar and Labbani Oassila

Temporal Transcoding of H.264/AVC Video to the H.264/SVC Format..... 138
Hussain Al-Muscati and Fabrice Labeau

Temporal Error Concealment Algorithm for H.264/AVC Using Omnidirectional Motion Similarity..... 144
Changki Min, Soonjong Jin, Hyeongchul Oh, Sang-Jun Park and Jechang Jeong

Robust Multiple Hypothesis Motion Compensated Prediction within the H.264/AVC Standard.. 149
Tamim Haroun and Fabrice Labeau

Image and Video Processing

Temporal Video Segmentation Using a Switched Affine Models Identification Technique..... 157
Khaled Boukharouba, Laurent Bako and Stéphane Lecoecuche

Enhancing Perceptual Quality of Watermarked High-Definition Video through Composite Mask..... 161
Tae-Woo Oh, Kyung-Su Kim, Hae-Yeon Lee, Ji-Won Lee and Heung-Kyu Le

Covariance-Based Adaptive Deinterlacing Method using Edge Map..... 166
Sang-Jun Park, Gwanggil Jeon and Jechang Jeong

Watermarking Ancient Documents Schema Using Wavelet Packets and Convolutional Code... 172
Mohamed Neji Maatouk, Majd Bellaj and Najoua Essoukri Ben Amara

Objective Evaluation of Compressed Video's Temporal Flickering..... 177
Salim Chebbo, Philippe Durieux and Béatrice Pesquet-Popescu

Key Frame-Based Video Super-Resolution Using Bi-Directional Overlapped Block Motion Compensation and Trained Dictionary..... 181
Byung Cheol Song, Shin-Cheol Jeong and Yanglim Choi

Image Reconstruction and Registration

The 2 and 3 materials scene reconstructed from some line Mojette projections..... 189
Jean-Pierre Guedon and Chuanlin Liu

Edgeworth-based approximation of Mutual Information for medical image registration..... 195
Mathieu Rubeaux, Jean-Claude Nunes, Laurent Albera and Mireille Garreau

Mojette Reconstruction from Noisy Projections..... 201
Benoit Recur, Pascal Desbarats and Jean-Philippe Domenger

Comparison of Interpolation Methods for Angular Resampling of Diffusion Weighted images. 207
Félix Renard, Vincent Noblet, Antoine Grigis, Christian Heinrich and Stéphane Kremer

Image Enhancement

Stego image quality: a subjective evaluation..... 215
Adel Almohammad and Gheorghita Ghinea

Empirical mode decomposition based visual enhancement of underwater images..... 221
Aysun Tasyapi Celebi and Sarp Erturk

An Adaptive Algorithm for Phase Retrieval from High Intensity Images..... 225
Eran Gur and Gilad Avidor

Human Visual System Based Mammogram Enhancement and Analysis..... 229
Yicong Zhou, Karen Panetta and Sos Agaian

Laplacian Pyramid Decomposition-Type Method for Resolution Enhancement of Ultrasound Images..... 235
Marie Ploquin, Jean-Marc Girault and Denis Kouamé

Image Segmentation and Detection

Co-parent selection for fast region merging in pyramidal image segmentation.....	243
<i>Milos Stojmenovic, Andres Solis Montero and Amiya Nayak</i>	
Estimation of uncertainty for Harris corner detector.....	249
<i>Marc Bertrand, Frédéric Bouchara and Sofiane Ramdani</i>	
Wavelet-Based Acoustic Seabed Discrimination System.....	253
<i>Reza Javidan</i>	
A new Descriptor for Textured Image Segmentation based on Fuzzy Type-2 Clustering Approach.....	258
<i>Lotfi Tlig, Mounir Sayadi, Farhat Fnaiech</i>	
Rooftop Detection using a Corner-Leaping based Contour Propagation Model.....	264
<i>Masoud S. Nosrati and Parvaneh Saeedi</i>	
A Markov Random Field description of fuzzy color segmentation.....	270
<i>Angela D'Angelo and Jean-Luc Dugelay</i>	

Medical Image Segmentation and Detection

Contiguity-constrained Hierarchical Clustering for Image Segmentation.....	279
<i>Eduardo R. Concepcion Morales and Yosu Yurramedi Mendizabal</i>	
Graph cut segmentation technique for MRI brain tumor extraction.....	284
<i>Victor Chen and Su Ruan</i>	
A New Segmentation Technique for Brain and Head from High Resolution MR Image Using Unique Histogram Features.....	288
<i>Somojit Saha, Sarit Kumar Das and Avijit Kar</i>	
New Feature-Based Detection of Blood Vessels and Exudates in Color Fundus Images.....	294
<i>Doaa Youssef, Nahed Solouma, Amr El-dib, Mai Mabrouk and Abu-Bakr Youssef</i>	
A Fast Geodesic Active Contour Model For Medical Images Segmentation using Prior Analysis.....	300
<i>S. Al-Sharif, M. Deriche and N. Maalej</i>	
Atlas-based Segmentation of Brain MR Images Using Least Square Support Vector Machines.....	306
<i>Keyvan Kasiri, Kamran Kazemi, Mohammad Javad Dehghani and Mohammad Sadegh Helfroush</i>	

Image Classification and Categorization

Improved Modified Suppressed Fuzzy C-Means.....	313
<i>Mohamed Fadhel SAAD and Adel M. ALIMI</i>	
Image Modeling Using Statistical Measures for Visual Object Categorization.....	319
<i>Huanzhang Fu, Alain Pujol, Emmanuel Dellandréa and Liming Chen</i>	
Support Vector Machine Fusion of Multisensor Imagery in Tropical Ecosystems.....	325
<i>Robin Pouteau, Benoît Stoll and Sébastien Chabrier</i>	
Texture classification for multi-spectral images using spatial and spectral gray level differences.....	330
<i>Riad Khelifi, Mouloud Adel and Salah Bourennane</i>	
Image Database Categorization using Robust Modeling of Finite Generalized Dirichlet Mixture.....	334

M. Maher Ben Ismail and Hichem Frigui

Image Indexing and Retrieval

- Query-by-Sketch based Image Retrieval using Diffusion Tensor Fields..... 343
Sang Min Yoon and Arjan Kuijper
- Multi-Level Visual Alphabets..... 349
Menno Israel, Jetske van der Schaar, Egon L. van der Broek, Marten den Uyl and Peter van der Putten
- Stroke feature extraction for lettrine indexing..... 355
Giap Nguyen, Mickaël Coustaty and Jean-Marc Ogier

Motion Estimation and Tracking

- Modular Ensemble Tracking..... 363
Thomas Penne, Christophe Tilmant, Thierry Château and Vincent Barra
- Improved Two-bit Transform-based Motion Estimation via Extension of Matching Criterion.... 369
Changryoul Choi and Jechang Jeong
- The computation of the Bhattacharyya distance between histograms without histograms..... 373
Séverine Dubuisson
- Full motion detection system with post-processing..... 379
Lounis Douadi, Louahdi Khoudour, Anis Chaari and Jacques Boonaert
- Eye Tracking for Foveation Video Coding and Simple Scene Description..... 385
Mauritz Panggabean, Stig Salater and Leif Arne Rønningen
- Particle filtering with fuzzy spatial relations for object tracking..... 391
Nicolas Widynski, Séverine Dubuisson and Isabelle Bloch

Shape and Objects Recognition

- Volume estimation of 3D particles with known convex shapes from its projected areas..... 399
Benoît Presles, Johan Debayle, Ana Cameirao, Gilles Févotte and Jean-Charles Pinoli
- Recognition of Objects in Various Situations from Two Dimensional Images..... 405
Yuexing Han, Hideki Koike, Bing Wang and Masanori Idesawa
- Shape representation and analysis of 2D compact sets by shape diagrams..... 411
Severine Rivollier, Johan Debayle and Jean-Charles Pinoli
- Binary Pattern Matching from a Local Dissimilarity Measure..... 417
Frédéric Morain-Nicolier, Jérôme Landré and Su Ruan
- A New Combining Learning Method for Color Constancy..... 421
Tara Akhavan and Mohsen Ebrahimi Moghaddam
- Visual Object Recognition using Local Binary Patterns and Segment-based Feature..... 426
Chao Zhu, Huanzhang Fu, Charles-Edmond Bichot, Emmanuel Dellandrea and Liming Chen

Face and Iris Detection and Recognition

- Hybrid Super Resolution using Refined Face Logs..... 435
Kamal Nasrollahi and Thomas B. Moeslund
- Vision Based Human Interaction System for Disabled..... 441

Saurav Kumar, Atul Rai, Akhilesh Agarwal and Nisha Bachani

Bayesian Regularized Nonnegative Matrix Factorization Based Face Features Learning..... 447
Xueyi Zhao

Relevance analysis of 3D curvature-based shape descriptors on interest points of the face..... 452
Alexander Ceron, Augusto Salazar and Flavio Prieto

Localization of noncircular iris boundaries using Morphology and arched Hough transform..... 458
Hamed Ghodrati, Mohammad Javad Dehghani, Mohammad Sadegh Helfroush and Kamran Kazemi

An Algorithm for Iris Extraction..... 464
Tomas Fabian, Jan Gaura and Petr Kotas

Remote Sensing Applications

Multidimensional Image Processing for Remote Sensing Anomaly Detection..... 471
Dalton Rosario and Joao Romano

Improvement of the Space Resolution of the Optical Remote Sensing Image By the Principle of CCD Imaging..... 477
Qing Liu, Sun'an Wang, XiaoHui Zhang and Yun Hou

Detecting Potential Human Activities Using Coherent Change Detection..... 482
Nada Milisavljevic, Damien Closson and Isabelle Bloch

Augmented and Virtual Reality Techniques and Applications

Virtual Domotic Systems: a 3D Interaction Technique to Control Virtual Building Devices Using Residential Gateways..... 489
Francisco Pedro Luque, Francisco Javier Luque, Carmen Lastres, Asunción Santamaría, Iris Galloso and Jordi Muria

SURF applied in Panorama Image Stitching..... 495
Luo Juan and Gwun Oubong

SPIDAR Calibration using Support Vector Regression..... 500
Pierre Boudoin, Hichem Maaref, Samir Otmane and Malik Mallem

Measurement of laboratory fire spread experiments by stereovision..... 506
Lucile Rossi, Thierry Molinier, Moulay Akhloufi and Yves Tison

A visual attention focusing system using an active stereoscopic vision sensor..... 511
Yann Ducrocq, Shahram Bahrami, Luc Duvieubourg and François Cabestaing

Validation of a virtual agronomic image modelling..... 517
Gawain Jones, Christelle Gee, Sylvain Villette and Frédéric Truchetet

Image Processing Tools

Embedded System for Real-Time Human Motion Detection..... 523
Mohammad Mayya, Nizar Zarka and Mhd. Soubhi Alkadi

Exploration of an adaptive NoC architecture on FPGA dedicated to multi and hyperspectral algorithm for art authentication..... 529
Virginie Fresse, Junyan Tan and Frederic Rousseau

Automatic Generation of Analog Hardware Description Language (AHDL) Code from Cell Culture Images.....	535
<i>Alberto Yufera and Estefania Gallego</i>	
Implementation of a Reticle Seeker Missile Simulator for Jamming Effect Analysis.....	539
<i>Ga-Young Kim, Byoung-Ik Kim, Tae-Wuk Bae, Young-Choon Kim, Sang-Ho Ahn and Kyu-Ik Sohng</i>	
An efficient vision system to measure granule velocity and mass flow distribution in fertiliser centrifugal spreading.....	543
<i>Sylvain Villette, Christelle Gee, Emmanuel Piron, Richard Martin, Denis Miclet and Michel Paindavoine</i>	
Author index	549