EUROPEAN ASSOCIATION FOR SIGNAL PROCESSING
POZNAŃ UNIVERSITY OF TECHNOLOGY
PTETiS POZNAŃ SECTION

15th European Signal Processing Conference

EUSIPCO 2007

PROGRAMME

September 3-7, 2007
Poznań, Poland

The conference is organised under auspices of

Ryszard Grobelny

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and

Adam Hamrol

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EURASIP – European Association for Signal Processing

Poznań University of Technology,
Faculty of Electronics and Telecommunications

PTETiS
Polish Society for Theoretical
and Applied Electrical Engineering
Poznań Section

under auspices of

Signals, Network and Electronic Systems Section
of Electronics and Telecommunications Committee
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Registration and Information desks

Building 15, level B – entrance level

Monday	8:00 – 17:30 (the period 8:00 – 9:00 is intended especially for tutorial participants)
Tuesday	8:00 – 19:00
Wednesday	8:00 – 16:30
Thursday	8:00 – 18:30
Friday	8:00 – 18:30

Presentation download room

Building 15, level C, room 414

Computer room

Building 15, level D, room 501

Monday	10:00 – 17:30
Tuesday	8:00 – 19:00
Wednesday	8:00 – 16:00
Thursday	8:00 – 18:00
Friday	8:00 – 16:45

EURASIP meetings

Building 15, level C, room 401

Tuesday	11:30 – 14:00	Conference board meeting
Wednesday	11:00 – 13:30	Publications board meeting
Thursday	11:00 – 13:30	AdCom meeting
Friday	11:00 – 13:30	AdCom meeting, GRETSI

Programme

Morning Tutorials

Monday, 3 September 2007, 9:00-12:30

Room 403

What energy to minimize?

Mila Nikolova
Centre de Mathématiques et de Leurs Applications (CMLA),
ENS de Cachan, France

Room 402

Multirate Signal Processing in Communication Systems

Frederick Harris
San Diego State University, San Diego, California, USA

Room 401

Recent Advances in Video Coding

Thomas Wiegand
Fraunhofer Institute for Telecommunications, Berlin, Germany

Room 503

Deformable Models in Medical Image Processing - Advances in Image Guided Radiotherapy

Bogdan J. Matuszewski
Applied Digital Signal and Image Processing Research Centre
Department of Technology, University of Central Lancashire, United Kingdom
Christopher J. Moore
Christie Hospital NHS Trust, North Western Medical Physics,United Kingdom

Room 502

Image Fusion - Principles, Methods, and Applications

Jan Flusser, Filip Šroubek, Barbara Zitová
Institute of Information Theory and Automation,
Academy of Sciences of the Czech Republic

Afternoon Tutorials

Monday, 3 September 2007, 14:00-17:30

Room 402

Spatially adaptive local approximations in signal and image processing: varying-scale polynomials, anisotropic adaptation, shape-adaptive transforms.

Alessandro Foi, Vladimir Katkovnik, Karen Egiazarian
Institute of Signal Processing, Tampere University of Technology, Finland

Room 502

Power Line Communications

Stefano Galli
Panasonic, San Jose, California, USA

Room 503

Distributed Video Coding: Basics, Codecs and Applications

Christine Guillemot and Aline Roumy
AINRIA/IRISA, Campus Universitaire de Beaulieu, Rennes, France

Room 401

Visual Medicine: Techniques and Applications for Computer-assisted Surgery

Dirk Bartz, Oliver Burgert
University of Leipzig, ICCAS, Germany

Room 403

Biometric Identity Verification - Signal Processing Challenges

Andrzej Drygajło
Ecole Polytechnique Fédérale de Lausanne, Switzerland

Plenary Lecture
MULTI-WAY BLIND SOURCE SEPARATION USING NONNEGATIVE MATRIX FACTORIZATION AND SPARSE COMPONENT ANALYSIS

Tuesday, 4 September 2007, 9:00-10:30, Congress Hall

Marek Domański (Poznań University of Technology, Poland)

Andrzej Cichocki

RIKEN Laboratory, Japan

Nonnegative matrix factorization (NMF), Non-negative tensor factorization (NTF), parallel factor nalysis PARAFAC and TUCKER models with non-negativity constraints have been recently proposed as promising sparse and quite efficient representations of signals, images, or general data. From a viewpoint of multidimensional data analysis, NTF is very attractive because it takes into account spatial and temporal correlations between variables more accurately than 2D matrix factorizations, such as NMF or ICA and it provides usually sparse common factors or hidden (latent) components with physical or physiological meaning and interpretation. In this talk we review several general and flexible models with multilayer or recurrent structures. Especially, we discuss 3D tensors (also known as n-way arrays or multidimensional arrays) factorizations and discuss some potential applications ranging from neuroscience and bioinformatics. Application to biomedical signal processing and Brain Machine Interface (BMI) will be also briefly presented. We will present a new 3D tensor modeling (decomposition/factorization) approach and associated learning algorithms in applications to multi-way Blind Source Separation (BSS), multidimensional data analysis, and sparse image representations. Using generalized cost functions (alpha and beta divergences), we will present derivation and practical implementations of three classes of algorithms: Multiplicative, Fixed Point Alternating Least Squares (FPALS) and Alternating Interior-Point Gradient (AIPG) algorithms. Some of the proposed algorithms are characterized by improved efficiency and convergence rates and can be applied with various distributions of data and additive noise. We discuss various cost functions used in information theory, which allows us to obtain generalized forms of learning algorithms. We have confirmed by extensive simulations that our multilayer NTF approach with multi-start initializations improves performance of the proposed algorithms if a specific model is approximately valid. In this talk, we will also discuss briefly some alternative approaches and algorithms for blind signal decomposition, especially for ICA, and SCA in order to estimate unknown sources signals, to perform feature extraction, dimension reduction and object recognition, remove artifacts and denoising of multi-modal, multi-sensory data.

Poster Session
Channel Identification and Equalization

Tuesday, 4 September 2007, 10:30-12:30, Poster Area 1

Kostas Berberidis (University of Patras, Greece)

A Spectral Clustering Algorithm for Decoding Fast Time-Varying BPSK MIMO Channels

Steven Van Vaerenbergh, Emilio Estébanez, Ignacio Santamaría (University of Cantabria)

Equalization Based on Particle Filtering for Mobile Station Receivers

Ahmed Kora, Jean-Pierre Cances, Guillaume Ferré, Vahid Meghdadi (University of Limoges)

A Jointly Optimal Precoder and Block Decision Feedback Equaliser Design with Low Redundancy

Chi Hieu Ta, Stephan Weiss (University of Strathclyde)

Time-Frequency Based Robust OFDM Channel Equalization

Aydin Akan, Erol Önen (Istanbul University),
Luis F. Chaparro (University of Pittsburgh)

Channel Identification and Applications to OFDM Communication Systems with Limited Bandwidth

Lianming Sun (The University of Kitakyushu),
Akira Sano (Keio University)

Iterative Precoding Vs Decoding in Virtual MIMO Systems with Channel Mismatching Errors

Benjamín Béjar, Santiago Zazo, Ivana Raos (Universidad Politécnica de Madrid)

Joint Blind Adaptive Equalization Based on Shell Partitioned Multi-Modulus with Soft Switching and Orthogonal Basis for 256 and 1024 QAM

Grzegorz Haza, Ryszard Makowski (Wrocław University of Technology)

A Precoding and Equalisation Design Based on Oversampled Filter Banks for Dispersive Channels with Correlated Noise

Chunguang Liu, Chi Hieu Ta, Stephan Weiss (University of Strathclyde)

A Non-Block Based Approach to the Blind Equalization of Space-Time Block Codes Over Frequency Selective Channels

Samir Bendoukha, Stephan Weiss (University of Strathclyde)

Frequency Domain Errors-in-Variables Approach for Two-Channel SIMO System Identification

William Bobillet (Université Bordeaux 1),
Eric Grivel, Ioana Serban (UMR 5218 IMS, université bordeaux 1),
Sefano Serra Capizzano (Universita' dell'Insubria - sede di Como)

Time and Frequency Equalization for UWB Systems: a Comparison Study

Guillaume Ferré, Jean-Pierre Cances, Vahid Meghdadi (University of Limoges)

Poster Session
Signal Processing for Communications

Tuesday, 4 September 2007, 10:30-12:30, Poster Area 2

Peter Grant (University of Edinburgh, United Kingdom)

A Combined Approach for NLOS Mitigation in Cellular Positioning with TOA Measurements

Bora Zeytinci, Fernaz Alimoğlu, Frederic Kerem Harmanci, Emin Anarim, Fatih Alagöz (Boğaziçi University)

Stochastic Analysis of an Iterative Semi-Blind Adaptive Beamforming Algorithm

Myung-Hoon Yeon, John Shynk (University of California, Santa Barbara)

Performance of a new Chaos-based Communication Scheme: the Reduced-Delay-Masked-DCSK

Rhouma Rhouma, Safya Belghith (Ecole Nationale d'Ingénieurs de Tunis)

Deterministic Particle Filtering for GPS Navigation in the Presence of Multipath

Frederic Lehmann (GET/INT)

VDSL Power Back-Off Parameter Optimization for a Cable Bundle

Miloš Jakovljević (Ciudad Universitaria),
Driton Statovci (Telecommunications Research Center Vienna),
Tomas Nordström, Rickard Nilsson (FTW),
Santiago Zazo (Ciudad Universitaria)

Blind Frame Synchronization on Gaussian Channel

Rodrigue Imad, Sebastien Houcke, Catherine Douillard (ENST Bretagne)

Improvement of a Time Synchronization Algorithm for IEEE 802.11a/G WLAN Standard

Mª José Canet, Vicenç Almenar, Santiago Flores, Javier Valls (Universidad Politécnica de Valencia)

Performance Analysis of a Distributed Video Coding System - Application to Broadcasting Over an Error-Prone Channel

Joumana Farah (Holy-Spirit University of Kaslik),
Charles Yaacoub (Holy-Spirit University of Kaslik / Ecole Nationale Supérieure des Télécommunications),
François Marx (France Telecom R&D),
Béatrice Pesquet-Popescu (GET / Télécom Paris)

Quality of Service Differentiation in Multimedia 2D Optical CDMA Networks

Mikaël Morelle, Claire Goursaud-Brugeaud, Anne Julien-Vergonjanne, Jean-Pierre Cances (University of Limoges)

ASPROC: Adaptive Smith Predictor-Based Rate Oscillation Cancellation

Andrzej Szwabe (Poznań University of Technology)

Network-Adaptive and Energy-Efficient Multi-User Video Communication Over QoS Enabled WLAN

Xin Ji (Katholieke Universiteit Leuven),
Sofie Pollin, Gauthier Lafruit, Iole Moccagatta, Antoine Dejonghe, Francky Catthoor (IMEC)

Lecture Session
Multirate Filtering and Filter Banks

Tuesday, 4 September 2007, 10:50-12:30, Building 14A Ground Floor Hall

Frederick Harris (San Diego State University, USA)

10:50

A Lattice Structure for Support-Adapted Filter Banks

Riccardo Bernardini, Roberto Rinaldo (Università di Udine)

11:10

A Low-Order IIR QMF Banks Design with a Delay Selection Procedure

Seong-Ping Chuah, I-Kong Fong (National Taiwan University)

11:30

Improved Design of Oversampled Allpass Transformed DFT Filter-Banks with Near-Perfect Reconstruction

Heinrich Löllmann, Peter Vary (RWTH Aachen University)

11:50

A Simplified Lattice Structure of First-Order Linear-Phase Filter Banks

Yuichi Tanaka, Masaaki Ikehara (Keio University),
Truong Q. Nguyen (University of California, San Diego)

12:10

Modified DFT SBC-FDFMUX Filter Bank Systems for Flexible Frequency Reallocation

Mohammed Abdulazim, Thomas Kurbiel, Heinz Göckler (Ruhr-Universität Bochum)

Lecture Session
Machine Vision

Tuesday, 4 September 2007, 10:50-12:30, Building 14A First Floor Hall

Touradj Ebrahimi (Ecole Polytechnique Fédérale de Lausanne, Switzerland)

10:50

Complexity-Based Integration of Multi-Viewpoint Imagery for As-Is Roadway Map Generation

Kohji Kamejima (Osaka Institute of Technology)

11:10

Fisher's Discriminant and Relevant Component Analysis for Static Facial Expression Classification

Matteo Sorci, Gianluca Antonini, Jean-Philippe Thiran (Ecole Polytechnique Fédérale de Lausanne)

11:30

Automated Image Analysis for Electron Microscopy Specimen Assessment

Nicolas Coudray, Jean-Luc Buessler, Hubert Kihl, Jean-Philippe Urban (Université de Haute Alsace)

11:50

Extracting Distorted Grid Points for Compensation of Lens Radial Nonlinearities

Artur Nowakowski, Władysław Skarbek (Warsaw University of Technology)

12:10

Single Camera Pointing Gesture Recognition Using Spatial Features and Support Vector Machines

Zuzana Černeková (AIIA Laboratory),
Nikos Nikolaidis, Ioannis Pitas (Aristotle University of Thessaloniki)

Special Session
Coding and Processing of Multi-View Video

Tuesday, 4 September 2007, 10:50-12:30, Building 14A Second Floor Hall

André Kaup (University of Erlangen, Germany)

10:50

Complexity Evaluation of Random Access to Coded Multi-View Video Data

Ulrich Fecker, André Kaup (University of Erlangen-Nuremberg)

11:10

Coding Efficiency and Complexity Analysis of MVC Prediction Structures

Philipp Merkle, Aljoscha Smolic, Karsten Müller, Thomas Wiegand (Fraunhofer Institute for Telecommunications, Heinrich-Hertz-Institut)

11:30

Coarse Scene Geometry Estimation from Sparse Approximations of Multi-View Omnidirectional Images

Ivana Tosic, Pascal Frossard (Ecole Polytechnique Fédérale de Lausanne)

11:50

Motion-Compensated Orthogonal Transforms for Multiview Video Coding

Markus Flierl (Stanford University)

Special Session
Biometrics Recognition

Tuesday, 4 September 2007, 10:50-12:30, Room 402

Paulo Lobato Correia (Instituto Superior Técnico, Portugal)

10:50

An Introduction to Multibiometrics

Arun Ross (West Virginia University)

11:30

The Ear As a Biometric

David Hurley, Banafshe Arbab-Zavar, Mark Nixon (University of Southampton)

11:50

A Single Sensor Hand Biometric Multimodal System

Tiago Sanches, João Antunes (IT-IST),
Paulo Correia (Instituto Superior Técnico)

12:10

Ordinal Representations for Biometrics Recognition

Tieniu Tan, Zhenan Sun (Chinese Academy of Sciences)

Lecture Session
Video Enhancement

Tuesday, 4 September 2007, 10:50-12:30, Room 403

Ebroul Izquierdo (Queen Mary, University of London, United Kingdom)

10:50

Flicker Compensation for Archived Film Using a Mixed Segmentation/Block-Based Nonlinear Model

Guillaume Forbin, Theodore Vlachos, Simon Tredwell (University of Surrey)

11:10

Universal Spatial Up-Scaler with Nonlinear Edge Enhancement

Stefan Schiemenz, Christian Hentschel (Brandenburg University of Technology Cottbus)

11:30

Video Denoising by Sparse 3D Transform-Domain Collaborative Filtering

Kostadin Dabov, Alessandro Foi, Karen Egiazarian (Tampere University of Technology)

Lecture Session
Speech Enhancement and Noise Reduction I

Tuesday, 4 September 2007, 10:50-12:30, Room 502

Søren Holdt Jensen (Aalborg University, Denmark)

10:50

Speech Enhancement Based on Rayleigh Mixture Modeling of Speech Spectral Amplitude Distributions

Jan Erkelens, Jesper Jensen, Richard Heusdens (Delft University of Technology)

11:10

Integrating the Cochlea's Compressive Nonlinearity in the Bayesian Approach for Speech Enhancement

Eric Plourde, Benoît Champagne (McGill University)

11:30

Speech Enhancement Using Soft THRESHOLDING with DCT-EMD Based Hybrid Algorithm

Erhan Deger, Md. Khademul Islam Molla, Keikichi Hirose, Nobuaki Minematsu (The University of Tokyo),
Md. Kamrul Hasan (Bangladesh University of Engineering and Technology)

11:50

Restoration of Noisy and Band Limited Archived Speech Records with Linear Predictor and Harmonic Noise Models

Qin Yan (Hohai University, Nanjing),
Saeed Vaseghi, Esfandiar Zavarehei (Brunel University),
Ben Milner (University of East Anglia)

Lecture Session
Array Signal Processing

Tuesday, 4 September 2007, 10:50-12:30, Room 503

Chung Pei-Jung (University of Edinburgh, United Kingdom)

10:50

GLRT-Based Array Receivers to Detect a Known Signal Corrupted by Noncircular Interferences

Pascal Chevalier, Audrey Blin, François Pipon, François Delaveau (Thales-Communications)

11:10

Buried Spherical Shells Localization in Presence of Phase Uncertainties

Zineb Saidi (CRAN-ESSTIN),
Salah Bourennane (Institut Fresnel)

11:30

Resolving Manifold Ambiguities in Direction Finding Systems

Supawat Supakwong, Athanassios Manikas, Anthony Constantinides (Imperial College London)

11:50

Low Complexity Covariance-Based DoA Estimation Algorithm

Tadeu Ferreira, Sergio Netto, Paulo Diniz (Federal University of Rio de Janeiro)

12:10

Subspace Tracking Based on the Constrained Projection Approximation Approach

Amir Valizadeh, Mahmood Karimi (Shiraz University)

Plenary Lecture
CHANNEL - AWARE DISTRIBUTED ESTIMATION AND DETECTION USING WIRELESS SENSOR NETWORK

Tuesday, 4 September 2007, 14:00-15:00, Congress Hall

Maciej Niedźwiecki (Gdańsk University of Technology, Poland)

Georgios B. Giannakis

University of Minnesota, USA

Outline of Topics:

1. Motivation and Context

1a. Energy and Bandwidth Constraints

1b. Applications

2. Distributed Detection and Estimation

2a. Universal and Channel-Aware Detection

2b. Parameter Estimation and Tracking

2c. Dimensionality Reduction and Compression

2d. Performance and Distortion-Rate Analyses

3. Wireless Communication Issues

3a. Synchronization Algorithms

3b. Channel-Aware Detection and Estimation

3c. Multiple Access and Resource Allocation

4. Networking Issues

5. Summary and Future Directions

Poster Session
New Concepts in Signal Analysis, Modelling, and Reconstruction

Tuesday, 4 September 2007, 15:10-17:10, Poster Area 1

Björn Ottersten (Royal Institute of Technology (KTH), Stockholm, Sweden)

MSE Lower Bounds Conditioned by the Energy Detector
Eric Chaumette (Thales Air Defence),
Jerome Galy (University of Montpellier II),
Francois Vincent (ENSICA),
Alexandre Renaux (Washington University in St. Louis),
Pascal Larzabal (École Normale Superiéure de Cachan)

A New Discrete-Time Analytic Signal for Reducing Aliasing in Discrete Time-Frequency Distributions
John O'Toole (Perinatal Research Centre),
Mostefa Mesbah, Boualem Boashash (University of Queensland)

Gradient Based Robust Deconvolution
Philippe Neveux (Université d'Avignon et des Pays de Vaucluse),
Eric Blanco (Ecole Centrale de Lyon)

Discrete Time Observation of Almost Periodically Correlated Processes and Jitter Phenomena
Dominique Dehay (IRMAR, Université de Rennes I)

The Effective Rank: a Measure of Effective Dimensionality
Olivier Roy, Martin Vetterli (Ecole Polytechnique Fédérale de Lausanne)

About Magnitude Input Data in 1-D Discrete Phase Retrieval Problem
Corneliu Rusu (Technical University of Cluj-Napoca),
Jaakko Astola (Tampere University of Technology)

An Adaptive Beamforming Based Definition of the Narrowband Assumption
Marc Oudin, Jean-Pierre Delmas (GET/INT),
Claude Adnet, Frédéric Barbaresco (Thales/TAD/SR)

Hypercomplex Analytic Signals : Extension of the Analytic Signal Concept to Complex Signals
Stephen J. Sangwine (University of Essex),
Nicolas Le Bihan (GIPSA-Lab)

Joint Diagonalization of Complex Spatial-Wavelet Matrices for Blind Sources Separation of Non Stationary Sources

El Mostafa Fadaili, Vincent Vigneron (IBISC)

Poster Session
Image Data Compression

Tuesday, 4 September 2007, 15:10-17:10, Poster Area 2

Pascal Frossard (Ecole Polytechnique Fédérale de Lausanne, Switzerland)

Lossless and Gradual Coding of Hyperspectral Images by Lifting Scheme
Asma Chourou, Amel Benazza-Benyahia (Sup'Com)

Information Criteria and Arithmetic codings : an Illustration on Raw Images
Guilhem Coq, Christian Olivier, Olivier Alata, Marc Arnaudon (Université de Poitiers)

Low-Rate Shape Compression via an Extension to the Beamlet Transform
Zhihua He, Maja Bystrom (Boston University)

Efficient Encoder Design for JPEG2000 EBCOT Context Formation
Chi-Chin Chang (VIA Technologies, Inc),
Sau-Gee Chen (National Chiao Tung University),
Jui-Chiu Chiang (National Chung Cheng University)

A Lossless Compression Scheme for Bayer CFA Images
King-Hong Chung, Yuk-Hee Chan (The Hong Kong Polytechnic University)

Two Dimensional Incremental Parsing for Image Compression
Soo Hyun Bae, Biing-Hwang Juang (Georgia Institute of Technology)

A Novel Image Coding Scheme by Using Two-Channel Complex-Valued Filter Banks
Seisuke Kyochi, Yuichi Tanaka, Masaaki Ikehara (Keio University)

Poster Session
Video Data Compression

Tuesday, 4 September 2007, 15:10-17:10, Poster Area 3

André Kaup (University of Erlangen, Germany)

Protection-Enhanced Scalable Video Coding with Multiple Description Coding

Ottavio Campana (University of Padova),
Truong Q. Nguyen (University of California, San Diego)

Error Concealment Using a DVC Approach for Video Streaming Applications

Riccardo Bernardini (University of Udine),
Marco Fumagalli, Matteo Naccari (Politecnico di Milano),
Roberto Rinaldo (Università di Udine),
Marco Tagliasacchi, Stefano Tubaro (Politecnico di Milano),
Pamela Zontone (Università di Udine)

A Distributed Video Coder Based on the H.264/AVC Standard

Simone Milani, Giancarlo Calvagno (University of Padova)

Optimal Joint Source Channel Coding for Scalable Video Transmission Over Wireless Channels

Naeem Ramzan, Ebroul Izquierdo (Queen Mary, University of London)

An Estimation of Mismatch Error in IDCT Decoders Implemented with Hybrid-LNS Arithmetic

Peter Lee (University of Kent)

Lecture Session
Adaptive Filters I

Tuesday, 4 September 2007, 15:10-16:50, Building 14A Ground Floor Hall
Ewa Hermanowicz (Gdańsk University of Technology, Poland)

15:10
Variable Step-Size Least Mean Modulus Algorithm for Robust Filtering in Digital QAM Systems
Shin'ichi Koike (Consultant, Tokyo)

15:30
Two-Signal Extension of an Adaptive Notch Filter for Frequency Tracking
Yann Prudat, Jean-Marc Vesin (Swiss Federal Institute of Technology, Lausanne)

15:50
An Improved Partial Haar Dual Adaptive Filter for Sparse Echo Cancellation
Patrick Kechichian, Benoît Champagne (McGill University)

16:10
Mean-Square Error Analysis of the LMS-RVSS Adaptive Algorithm
Márcio Costa, José Carlos Bermudez (Universidade Federal de Santa Catarina)

16:30
Performance Comparison of the Blind Multi Channel Frequency Domain Normalized LMS and Variable Step-Size LMS with Noise
Ariful Haque, Kamrul Hasan (Bangladesh University of Engineering and Technology)

Lecture Session
Image Analysis

Tuesday, 4 September 2007, 15:10-16:50, Building 14A First Floor Hall

Marques Ferran (Technical University of Catalonia, Spain)

15:10

Bit-Plane Extension to a Class of Intensity-Based Corner Detection Algorithms

Ambar Dutta (Birla Institute of Technology, Mesra at Kolkata),
Animesh Mandal (Jadavpur University, Kolkata),
B. N. Chatterji (B. P. Poddar Institute of Management and Technology, Kolkata),
Avijit Kar (Jadavpur University, Kolkata)

15:30

Text Detection System for the Blind

Marcin Pazio, Maciej Niedźwiecki, Ryszard Kowalik, Jacek Lebiedź (Gdańsk University of Technology)

15:50

A 'gas of Circles' Phase Field Model and its Application to Tree Crown Extraction

Péter Horváth, Ian Jermyn (INRIA, Sophia Antipolis)

16:10

Registration of Multiple Regions Derived from the Optical Flow Model and the Active Contour Framework

Valérie Duay (Ecole Polytechnique Fédérale de Lausanne),
Xavier Bresson (University of California, Los Angeles),
Nawal Houhou, Meritxell Bach Cuadra, Jean-Philippe Thiran (Ecole Polytechnique Fédérale de Lausanne)

16:30

Classification Improvement by Dimensionality Reduction Based on Multilinear Algebra Tools

Nadine Renard, Salah Bourennane (Institut Fresnel),
Jacques Blanc-Talon (DGA/D4S/MRIS)

Special Session
Quality Evaluation in Image and Video Processing

Tuesday, 4 September 2007, 15:10-16:50, Building 14A Second Floor Hall

Paulo Lobato Correia (Instituto Superior Técnico, Portugal)

15:10

Video Quality and Beyond

Stefan Winkler (Symmetricom)

15:50

Blind Perceptual Quality Assessment Method for DCT-Based Encoded Images

Tomás Brandão (IT/ ISCTE-IUL),
Maria Paula Queluz (IT / IST-UTL)

16:10

Performance Evaluation of Mobile Video Quality Estimators

Michal Ries, Olivia Nemethova, Markus Rupp (Vienna University of Technology)

16:30

Display Awareness in Subjective and Objective Video Quality Evaluation

Sylvain Tourancheau (Université de Nantes, IRCCyN),
Patrick Le Callet (Ecole Polytechnique de L'Universitè de Nantes),
Kjell Brunnström (Acreo),
Dominique Barba (Université de Nantes, IRCCyN)

Special Session
Multimodal Biometrics and Smart Cards

Tuesday, 4 September 2007, 15:10-16:50, Room 402

Andrzej Drygajło (Ecole Polytechnique Fédérale de Lausanne, Switzerland)

15:10

Multimodal Biometrics for Identity Documents and Smart Cards: European Challenge

Andrzej Drygajło (Ecole Polytechnique Fédérale de Lausanne)

15:30

Optimisation of the Pre-Processing Stage of a Smart Card Face Verification System

Thirimachos Bourlai, Josef Kittler (University of Surrey)

15:50

Quality Measures in Unimodal and Multimodal Biometric Verification

Jonas Richiardi, Krzysztof Kryszczuk, Andrzej Drygajło (Swiss Federal Institute of Technology, Lausanne)

16:10

Study of Possibility of on-Pen Matching for Biometric Handwriting Verification

Tobias Scheidat, Claus Vielhauer, Jana Dittmann (Otto-von-Guericke-University of Magdeburg)

16:30

Iris Recognition with Match-on-Card

Adam Czajka (Research and Academic Computer Network NASK),
Przemek Strzelczyk, Marcin Chochowski, Andrzej Pacut (NASK and Warsaw University of Technology)

Lecture Session
Motion Analysis and Applications

Tuesday, 4 September 2007, 15:10-16:50, Room 403

Stefano Tubaro (Politecnico di Milano, Italy)

15:10

Facial Motion Tracking and Animation: an ICA-Based Approach

Lucas Daniel Terissi, Juan Carlos Gómez (Universidad Nacional de Rosario)

15:30

Low-Dimensional Motion Features for Audio-Visual Speech Recognition

Andrés Vallés Carboneras (Universidad Politécnica de Madrid),
Mihai Gurban, Jean-Philippe Thiran (Ecole Polytechnique Fédérale de Lausanne)

15:50

Optimal Second Order Derivative Filter Families for Transparent Motion Estimation

Hanno Scharr (Research Center Juelich)

16:10

Tracking Moving Objects in Video Using Enhanced Mean Shift and Region-Based Motion Field

Tiesheng Wang (Shanghai Jiao Tong University),
Irene Y.H. Gu, Mats Viberg, Zhongping Cao, Nuan Song (Chalmers University of Technology)

16:30

Visual Analysis for Drum Sequence Transcription

Kevin McGuinness (Dublin City University),
Olivier Gillet (ENST Télécom Paris),
Noel E. O'Connor (Dublin City University),
Gaël Richard (ENST Télécom Paris)

Lecture Session
Speech Enhancement and Noise Reduction II

Tuesday, 4 September 2007, 15:10-16:50, Room 502

Constantine Kotropoulos (Aristotle University of Thessaloniki, Greece)

15:10

New Frequency Domain Post-Filters for Noise Cancellation Using Two Closely Spaced Microphones

Mohamed Djendi (University of Rennes - IRISA / ENSSAT),
André Gilloire (France Telecom R&D),
Scalart Pascal (IRISA/ENSSAT)

15:30

A Low Delay, Variable Resolution, Perfect Reconstruction Spectral Analysis-Synthesis System for Speech Enhancement

Dirk Mauler, Rainer Martin (Ruhr-Universität Bochum)

15:50

Exploring the Feasibility of a Two-Layer NN-Based Sound Classifier for Hearing Aids

Enrique Alexandre, Lucas Cuadra, Lorena Álvarez, Manuel Utrilla (University of Alcalá)

16:10

Barge-in- and Noise-Free Spoken Dialogue Interface Based on Sound Field Control and Semi-Blind Source Separation

Shigeki Miyabe, Tomoya Takatani, Hiroshi Saruwatari, Kiyohiro Shikano (Nara Institute of Science and Technology),
Yosuke Tatekura (Shizuoka University)

16:30

A Probabilistic Speech Enhancement Filter Utilizing the Constructive and Destructive Interference of Noise

Taufiq Hasan (United International University),
Md. Kamrul Hasan (Bangladesh University of Engineering and Technology)

Lecture Session
Beamforming, DOA Estimation, and Space-Time Adaptive Processing

Tuesday, 4 September 2007, 15:10-16:50, Room 503

Georgios Giannakis (University of Minnesota, USA)

15:10

Robust ML Estimation for Unknown Numbers of Signals

Pei-Jung Chung (University of Edinburgh)

15:30

Multiple Snapshot Matching Pursuit for Direction of Arrival (DOA) Estimation

Shane Cotter (Union College)

15:50

Combined Beamspace and Element Space Technique for Partial Adaptive Concentric Ring Array

Luis Miguel Vicente (University of Missouri),
K. C. Ho (University of Missouri - Columbia)

16:10

Higher Order Direction Finding with Polarization Diversity: the PD-2Q-Music Algorithms

Pascal Chevalier, Anne Ferréol (Thales-Communications),
Laurent Albera, Gwenaël Birot (INSERM, U 642, LTSI)

16:30

A Clustering-Based Method for DOA Estimation in Wireless Communications

Romis Attux, Ricardo Suyama, Rafael Ferrari (University of Campinas),
Cynthia Junqueira (Institute of Aeronautics and Space),
Rafael Krummenauer (University of Campinas),
Pascal Larzabal (École Normale Superiéure de Cachan),
Amauri Lopes (University of Campinas)

Lecture Session
Adaptive Filters II

Tuesday, 4 September 2007, 17:10-18:50, Building 14A Ground Floor Hall
Jean-Marc Vesin (Ecole Polytechnique Fédérale de Lausanne, Switzerland)

17:10
An Improved Stochastic Model of the NLMS Algorithm for Correlated Input Data
Javier Kolodziej, Orlando Tobias, Rui Seara (Federal University of Santa Catarina)

17:30
Modified Leaky Delayed LMS Algorithm for Imperfect Estimate System Delay
Juan López, Orlando Tobias, Rui Seara (Federal University of Santa Catarina)

17:50
New Insights in Adaptive Cascaded FIR Structure: Application to Fully Adaptive Interpolated FIR Structures
Eduardo Batista, Orlando Tobias, Rui Seara (Federal University of Santa Catarina)

18:10
A Stochastic Model for a New Robust NLMS Algorithm
Leonardo Rey Vega, Hernán Rey (Universidad de Buenos Aires),
Jacob Benesty (University of Quebec),
Sara Tressens (Universidad de Buenos Aires)

18:30
Statistical Analysis of the Deficient Length Affine Projection Adaptive Algorithm
Sérgio Almeida (Universidade Católica de Pelotas),
Márcio Costa, José Carlos Bermudez (Universidade Federal de Santa Catarina)

Lecture Session
Medical Imaging I

Tuesday, 4 September 2007, 17:10-18:50, Building 14A First Floor Hall
Moshe Porat (Technion - Israel Institute of Technology, Haifa, Israel)

17:10
Segmentation of Retinal Blood Vessels Based on Analysis of the Hessian Matrix and Clustering Algorithm
Nancy Salem, Sameh Salem, Asoke Nandi (The University of Liverpool)

17:30
Stimulus Response Detection in fMRI Using Digital Filters, Temporal Clustering Analysis and a Three-Dimensional Selection Criterion
Sarah Lee, Fernando Zelaya, Stephanie Amiel, Michael Brammer (Kings College London, University of London)

17:50
Volumetric Mesh Construction from Scattered Prior Data: Application to Cardiac MR Image Analysis
Joël Schaerer, Arnaud Gelas, Rémy Prost, Patrick Clarysse, Isabelle Magnin (CREATIS, CNRS UMR 5220, Inserm U630, INSA de Lyon)

18:10
Pro or Cons Local Vs. Global Imagery Information for Identifying Cell Migratory Potential
Vincent Vigneron, Sylvie Lelandais, Cecile Charriere-Bertrand, Michel Malo, Adrien Ugon, Georgia Barlovatz-Meimon (IBISC)

18:30
A New Method for Colourizing of Multichannel MR Images Based on Real Colour of Human Brain
Mohammad Hossein Kadbi, Emadoddin Fatemizaheh, Abouzar Eslami, Maryam Khosroshahi (Sharif University of Technology)

Special Session
Multidimensional Signal Processing and Systems

Tuesday, 4 September 2007, 17:10-18:50, Building 14A Second Floor Hall

Krzysztof Gałkowski (University of Zielona Góra, Poland)
Anton Kummert (University of Wuppertal, Germany)

17:10

H-infinity Filtering for a Class of 2D Systems

Ligang Wu (Harbin Institute of Technology),
James Lam (The University of Hong Kong),
Wojciech Paszke, Krzysztof Gałkowski (University of Zielona Góra),
Eric Rogers (University of Southampton),
Anton Kummert (University of Wuppertal)

17:30

Influence of Initialization Method on Competitive Active Contours Segmentation

Piotr Steć (University of Zielona Góra)

17:50

3D Velocity Filters for the Detection of Moving Objects in Image Sequences

Sam Schauland, Joerg Velten, Anton Kummert (University of Wuppertal)

18:10

Two-Dimensional Tracking of Trajectories of Vehicles and Obstacles for a Headway Alert Application

Lars Hoehmann, Anton Kummert (University of Wuppertal),
Su-Birm Park (Delphi Electronics&Safety)

18:30

Application of Mixed Modeling Strategies for the Simulation of the 2D Wave Equation for Arbitrary Geometries

Stefan Petrausch, Rudolf Rabenstein (University Erlangen-Nuremberg)

Special Session
Sparse Modelling Approaches to Audio and Music Signal Processing

Tuesday, 4 September 2007, 17:10-18:50, Room 402

Simon Godsill (Cambridge University, United Kingdom)

17:10

In Greedy Pursuit of New Directions: (Nearly) Orthogonal Matching Pursuit by Directional Optimisation

Thomas Blumensath, Michael Davies (University of Edinburgh)

17:30

Bayesian Computational Methods for Sparse Audio and Music Processing

Simon Godsill, Taylan Cemgil (university of cambridge),
Cedric Févotte (ENST Télécom Paris),
Patrick Wolfe (Harvard University)

17:50

Multi-Resolution Sound Texture Synthesis Using the Dual-Tree Complex Wavelet Transform

Deirdre O'Regan, Anil Kokaram (Trinity College, Dublin)

18:10

Sparse Time-Frequency Representations in Audio Processing, As Studied Through a Symmetrized Lognormal Model

Patrick Wolfe (Harvard University)

Lecture Session
Multicarrier Systems

Tuesday, 4 September 2007, 17:10-18:50, Room 403

Ahmed Tewfik (University of Minnesota, USA)

17:10

New Spreading Codes and Detection Algorithms for Low Complexity Post-Coded OFDM Systems

Syed Faisal Shah, Ahmed H. Tewfik (University of Minnesota, Twin Cities)

17:30

Blind Signal-to-Noise-Ratio Estimation for a Constant Envelope MIMO MC-CDMA System Using Cyclic Delay Diversity

M.M. Assadullah Galib, Gordon Stüber (Georgia Institute of Technology)

17:50

Classification of QAM Signals for Multicarrier Systems

Stefan Edinger, Markus Gaida, Norbert J. Fliege (University of Mannheim)

18:10

Multicarrier Transmission with Coordination in Cellular Environment

José Manuel Díaz Hernández, Santiago Zazo Bello, José Manuel Paez Borrallo (Universidad Politécnica de Madrid)

18:30

Optimum Multilevel Chaotic Sequences for Asynchronous Ds-CDMA Systems Over Rician Selective Fading Channel

Călin Vlădeanu, Constantin Paleologu (Politehnica University of Bucharest)

Lecture Session
Loudspeaker and Microphone Array Signal Processing I

Tuesday, 4 September 2007, 17:10-18:50, Room 502

Hiroshi Saruwatari (Nara Institute of Science and Technology, Ikoma-shi, Japan)

17:10

A Noise-Robust Dual Filter Approach to Multichannel Blind System Identification

Rehan Ahmad, Nikolay Gaubitch, Patrick Naylor (Imperial College London)

17:30

Blind Speech Dereverberation in the Presence of Common Acoustical Zeros

Xiang Lin, Nikolay Gaubitch, Patrick Naylor (Imperial College London)

17:50

A Distortion Free Learning Algorithm for Multi-Channel Convolutive Blind Source Separation

Akihide Horita, Kenji Nakayama, Akihiro Hirano (Kanazawa University)

18:10

A Feedback Approach to Over Complete BSS and its Learning Algorithm

Kenji Nakayama, Haruo Katou, Akihiro Hirano (Kanazawa University)

Lecture Session
Source Localization and Separation

Tuesday, 4 September 2007, 17:10-18:50, Room 503

Chung Pei-Jung (University of Edinburgh, United Kingdom)

17:10

Blind Deconvolution in a Noisy and Band-Limited Context

Dinh-Tuan Antoine Pham (University of Grenoble)

17:30

Time-Reversal Music Imaging Using a Recursive Approach

Alexandre Baussard, Thomas Boutin (ENSIETA)

17:50

Particle Swarm Optimization for Time-Difference-of-Arrival Based Localization

Wing Kin Lui, Jun Zheng, Hing Cheung So (City University of Hong Kong)

18:10

Reduction of Correlation Computation in the Permutation of the Frequency Domain ICA by Selecting DOAS Estimated in SUBARRAYS

Hao Yuan, Hisashi Kawai, Toshiharu Horiuchi (KDDI R&D Laboratories, Inc.)

18:30

Source Separation in Images via MRFs with Variational Approximation

Koray Kayabol (Istanbul University),
Bülent Sankur (Boğaziçi University),
Ercan Kuruoglu (Instituto di Scienza e Tecnologie dell'Informazione, CNR)

EURASIP Fellow Inaugural Lecture
REVIEV OF REAL WORLD MIMO SYSTEM PERFORMANCE

Wednesday, 5 September 2007, 9:00-10:00, Congress Hall

Marc Moonen, President EURASIP (Katholieke Universiteit Leuven, Belgium)

Peter Grant

University of Edinburgh, United Kingdom

This review lecture will introduce the basic techniques which are adopted in multiple input multiple output (MIMO) systems and show the potential theoretical increase in data throughput or transmission efficiency in bit/s/Hz. This is dependent on a rich multipath environment supporting many unique propagation modes. Modelling and actual results will be presented from the universities of Bristol and Illmeneau on typical channel characteristics and provide practically realisable channel capacity in urban LOS and non-LOS channels.

The presentation will also include real time hardware implementations of the receiver architectures from TU Vienna which use FPGA solutions. These provide particularly rapid design time. It will also describe simplified receiver designs using sphere decoders which achieve close to maximum likelihood performance combined with rapid FPGA implementation plus a high data rate capability.

Poster Session
Filter, Filter Bank, and Algorithm Structures

Wednesday, 5 September 2007, 10:00-12:00, Poster Area 1

Frederick Harris (San Diego State University, USA)

2-D FIR Filter Design: What Shape Is the Best ?
Bogdan Dumitrescu (Tampere University of Technology)

Radix-R FFT and IFFT Factorizations with Equal Stage-to-Stage INTERCONNECTION Pattern
Pere Marti-Puig (University of Vic)

A Lattice Structure of Biorthogonal Linear-Phase Filter Banks with Higher-Order Feasible Building Blocks
Yuichi Tanaka, Masaaki Ikehara (Keio University),
Truong Q. Nguyen (University of California, San Diego)

Maximally Flat FIR and IIR Fractional Delay Filters with Expanded Bandwidth
Martin Eichler, Arild Lacroix (Johann Wolfgang Goethe University Frankfurt)

A CORDIC-Based QR-RLS Multichannel Lattice Filter
João Gomes, Victor Barroso (ISR - Instituto Superior Técnico)

Design of Even and Odd Components of Lowpass Paraunitary 2-Channel Filters
M. Elena Dominguez Jiménez (Universidad Politécnica de Madrid)

Digital Filter for Quadrature Sub-Sample Delay Estimation
Ewa Hermanowicz (Gdańsk University of Technology)

Frequency-Weighted L2-Sensitivity Minimization for 2-D State-Space Digital Filters Subject to L2-Scaling Constraints by a Quasi-Newton Method
Takao Hinamoto, Osemekhian Omoifo (Hiroshima University),
Wu-Sheng Lu (University of Victoria)

Efficient 3-D Parallel FIR Filtering Algorithm
Mohamed Aziz (De Montfort University),
Said Boussakta (Newcastle University)

Poster Session
Image Enhancement III

Wednesday, 5 September 2007, 10:00-12:00, Poster Area 2
Aggelos K. Katsaggelos (Northwestern University, USA)

Enhancing the Resolution of MONOSCOPIC Images on Stereoscopic Displays
Robert Kutka (Siemens AG)

Post Beamforming Adaptive Second Order VOLTERRA Filter (ASOVF) for Pulse-Echo Ultrasonic Imaging
Mamoun Al-Mistarihi (Jordan University of Science and Technology)

Blind Filter Identification and Image Superresolution Using Subspace Methods
Muriel Gastaud, Saïd Ladjal, Henri Maître (GET / ENST)

A Soft thresholding Approach for MDL Denoising
Janne Ojanen, Jukka Heikkonen (Helsinki University of Technology)

Bayesian Regularization in Non-Linear Imaging: Reconstructions from Experimental Data in Microwave Tomography
Roberta Autieri (Università di Napoli Parthenope),
Giancarlo Ferraiuolo (Università di Napoli Federico II),
Vito Pascazio (Università di Napoli Parthenope)

Preliminary Results on Noise Reduction Using STACKGRAMS for (Low-Dose) X-Ray CT SINOGRAMS
Antti P Happonen (Tampere University of Technology),
Matti Koskinen (Tampere University Hospital)

Wavelet Denoising with Edge Detection for Speckle Reduction in SAR Images
Manuel Rosa-Zurera, Ana María Cóbreces-Álvarez, Jose Carlos Nieto-Borge, María Pilar Jarabo-Amores, David de la Mata-Moya (University of Alcalá)

Poster Session
Medical Imaging III

Wednesday, 5 September 2007, 10:00-12:00, Poster Area 3

Moshe Porat (Technion - Israel Institute of Technology, Haifa, Israel)

Dynamic Range Enhancement of Consumer Digital Camera Acquired Hip Prosthesis X-Ray Images

Laura Florea, Constantin Vertan, Corneliu Florea, Alina Oprea (Politehnica University of Bucharest)

Automatic Method for caveolar Structure Detection and Intensity Distribution Analysis from Microscopy Images

Harri Pölönen (Tampere University of Technology),
Maurice Jansen (University of Helsinki),
Jussi Tohka (Tampere University of Technology),
Elina Ikonen (University of Helsinki),
Ulla Ruotsalainen (Tampere University of Technology)

Mechanical Assessment of Porous Media Using Hybrid Skeleton Graph Analysis and Finite Elements. Application to Trabecular Bone.

Gabriel Aufort, Rachid Jennane, Rachid Harba, Alain Gasser, Damien Soulat (University of Orléans),
Claude-Laurent Benhamou (Equipe INSERM U658 Centre Hospitalier Régional d'Orléans)

Quantitation of the Premature Infant Brain Volume from MR Images Using Watershed Transform and Bayesian Segmentation

Harri Merisaari (Turku University),
Mika Teräs (Turku University Central Hospital),
Esa Alhoniemi, Riitta Parkkola, Olli Nevalainen (Turku University)

Automatic Approach for Analyzing the Endosome Movement in Fluorescence Video Microscopy

Carol Rus, Mikko Vänninen, Ulla Ruotsalainen (Tampere University of Technology)

Automated Tissue Classification in MRI Brain Images with the Use of Deformable Registration

Daniel Schwarz (Masaryk University),
Tomas Kasparek (The Faculty Hospital Brno)

Lecture Session
Biometrics

Wednesday, 5 September 2007, 10:20-12:00, Building 14A Ground Floor Hall
Paulo Lobato Correia (Instituto Superior Técnico, Portugal)

10:20
Designing a Tighter Searching Space for Pairwise Global Sequence Alignments Over Multiple Scoring Systems
Changjin Hong, Ahmed H. Tewfik (University of Minnesota, Twin Cities)

10:40
Morphological Synthesis of ECG Signals for Person Authentication
Gary Garcia Molina, Fons Bruekers, Cristian Presura, Marijn Damstra, Michiel Van der Veen (Philips Research Europe)

11:00
Chaotic Characterisation of Frontal Normal Gait for Human Identification
Tracey Lee (Singapore Polytechnic),
Mohammed Belkhatir, Poh Aun Lee (Monash University),
Saeid Sanei (Cardiff University),
Kia Fock Loe (Monash University)

11:20
An Experimental Study on the Feasibility of Footsteps As a Biometric
Ruben Vera Rodriguez (University of Wales Swansea),
Nicholas Evans (University of Wales Swansea and Laboratoire Informatique d'Avignon),
Richard Lewis, Benoit Fauve, John Mason (University of Wales Swansea)

11:40
A Study on Region-Based Recognition of 3D Faces with Expression Variations
Helin Dutağaci, Berk Gokberk, Bülent Sankur, Lale Akarun (Boğaziçi University)

Lecture Session
Image Coding I

Wednesday, 5 September 2007, 10:20-12:00, Building 14A First Floor Hall

Pascal Frossard (Ecole Polytechnique Fédérale de Lausanne, Switzerland)

10:20

Efficient zerotree-Based Image Compression with directionlets

Vladan Velisavljević (Deutsche Telekom, Laboratories),
Baltasar Beferull-Lozano (University of Valencia),
Martin Vetterli (Ecole Polytechnique Fédérale de Lausanne)

10:40

A Lossless Compression Algorithm for Color-Indexed Images Using Adaptive Palette Reordering

Ka-Chun Lui, Yuk-Hee Chan (The Hong Kong Polytechnic University)

11:00

Spatial Analysis-Synthesis for Improvement of Wavelet Coders

Benjamin Le Guen, Stéphane Pateux (France Telecom R&D),
Jacques Weiss (Supélec-scee/ietr-ac)

11:20

On a Perceptual Rate-Distortion Model for Color Image Coding

Evgeny Gershikov, Moshe Porat (Technion - Israel Institute of Technology)

11:40

Graph-Cut Rate-Distortion Optimization for Subband Image Compression

Maria Trocan, Béatrice Pesquet-Popescu (GET/Télécom Paris)

Special Session
Advanced Digital Signal Processing for Future Wireless System I

Wednesday, 5 September 2007, 10:20-12:00, Building 14A Second Floor Hall

Krzysztof Wesołowski (Poznań University of Technology, Poland)

10:20

A Physical Transmission Security Layer for Wireless Multiple Access Communication Systems

Gill Tsouri, Dov Wulich (Ben-Gurion University of the Negev)

10:40

Power Backoff Reduction for Generalized Multicarrier Waveforms

David Falconer, Florence Danilo-Lemoine, Chan-Tong Lam, Maryam Sabbaghian (Carleton University)

11:00

OFDMA Uplink Channel Predicion to Enable Frequency-Adaptive Multiuser Scheduling

Daniel Aronsson, Mikael Sternad (Uppsala University)

11:20

A Robust Pilot-Assisted Equaliser for the Partially Loaded Downlink UMTS TDD

Mahmoud Hadef (Queen Mary, University of London),
Adel Daas, Stephan Weiss (University of Strathclyde),
Josh Reiss, Xiaodong Chen (Queen Mary, University of London)

Special Session
The Semantic Gap in Visual Information Retrieval

Wednesday, 5 September 2007, 10:20-12:00, Room 402

Ebroul Izquierdo (Queen Mary, University of London, United Kingdom)

10:20

Combining Content and Context Information for Semantic Image Analysis and Classification

Georgios Th. Papadopoulos (Aristotle University of Thessaloniki),
Vasileios Mezaris, Ioannis Kompatsiaris (Informatics and Telematics Institute),
Michael G. Strintzis (Informatics and Telematics Institute / Aristotle University of Thessaloniki)

10:40

A Generic Approach for Motion-Based Video Parsing

Martin Haller, Andreas Krutz, Thomas Sikora (Technical University of Berlin)

11:00

User Driven Systems to Bridge the Semantic Gap

Divna Djordjevic, Ebroul Izquierdo, Marcin Grzegorzek (Queen Mary, University of London)

11:20

Image Classification with User Defined Ontology

Remi Vieux (University Bordeaux/LABRI),
Jenny Benois-Pineau (University Bordeaux /LABRI UMR 5800 CNRS),
Jean-Philippe Domenger, Achille Braquelaire (University Bordeaux/LABRI)

11:40

Affective Sports Highlight Detection

Reede Ren, Joemon Jose (University of Glasgow),
He Yin (IBM China)

Lecture Session
Architectures and VLSI Hardware

Wednesday, 5 September 2007, 10:20-12:00, Room 403

Stephen Sangwine (University of Essex, United Kingdom)

10:20

Efficient Parallel Memory Organization for Turbo Decoders

Perttu Salmela (Tampere University of Technology),
Ruirui Gu, Shuvra S. Bhattacharyya (University of Maryland),
Jarmo Takala (Tampere University of Technology)

10:40

H.264 Fractional Motion Estimation Refinement: a Real-Time and Low Complexity Hardware Solution for HD Sequences

Fabrice Urban, Ronan Poullaouec (Thomson R&D france),
Jean-François Nezan (IETR/Image and Remote Sensing Group),
Olivier Déforges (IETR/Image group Lab - UMR CNRS 6164)

11:00

Rapid Prototyping of Image Analysis Algorithms on an Adaptive FGPA Architecture

Zahir Larabi, Linlin Zhang, Virginie Fresse, Anne-Claire Legrand (University of Saint-Etienne - Jean Monnet)

11:20

Application of a Design Space Exploration Tool to Enhance Interleaver Generation

Cyrille Chavet (STMicroelectronics),
Philippe Coussy (Université de Bretagne Sud),
Pascal Urard (STMicroelectronics),
Eric Martin (Université de Bretagne Sud)

Lecture Session
Loudspeaker and Microphone Array Signal Processing II

Wednesday, 5 September 2007, 10:20-12:00, Room 502

Patrick Naylor (Imperial College, London, United Kingdom)

10:20

A Method for Source-Microphone Range Estimation, Using Arrays of Unknown Geometry, in Reverberant Room Environments

Denis McCarthy, Frank Boland (Trinity College, Dublin)

10:40

The Generalization of Narrowband Localization Methods to Broadband Environments via Parametrization of the Spatial Correlation Matrix

Jacek Dmochowski, Jacob Benesty, Sofiène Affes (INRS-EMT, Université du Québec)

11:00

Dictionary and Sparse Decomposition Method Selection for Underdetermined Blind Source Separation

B. Vikrham Gowreesunker, Ahmed H. Tewfik (University of Minnesota, Twin Cities)

11:20

Convex Optimization and Modal Analysis for Beamforming in Robotics: Theoretical and Implementation Issues

Sylvain Argentieri, Patrick Danès (LAAS-CNRS / Université de Toulouse)

11:40

A New DOA Estimation Method Using a Circular Microphone Array

Amin Karbasi (Ecole Polytechnique Fédérale de Lausanne),
Akihiko Sugiyama (NEC Corporation)

Lecture Session
Process Model Estimation

Wednesday, 5 September 2007, 10:20-12:00, Room 503

Amel Benazza (Ecole Supérieure des Communications de Tunis, Tunesia)

10:20

Reducing Noise Sensitivity in F-Esprit Using Weighting Matrices

Joakim Gunnarsson, Tomas McKelvey (Chalmers University of Technology)

10:40

Efficient Implementation of the HMARM Model Identification and its Application in Spectral Analysis

Chunjian Li, Søren Vang Andersen (Aalborg University)

11:00

Subspace-Based Blind Identification of IIR Wiener Systems

Juan Carlos Gómez (Universidad Nacional de Rosario),
Enrique Baeyens (Universidad de Valladolid, Spain)

11:20

Criteria to Measure the Quality of TVAR Estimation for Audio Signals

Imen Samaali (Ecole Nationale d'Ingénieurs de Tunis),
Gaël Mahé (Universite Paris Descartes),
Monia Turki-Hadj Alouane (Ecole Nationale d'Ingénieurs de Tunis)

11:40

A Corrected FPE Criterion for Autoregressive Processes

Mahmood Karimi (Shiraz University)

Plenary Lecture
REINVENTING COMPRESSION: THE NEW PARADIGM OF DISTRIBUTED VIDEO CODING

Wednesday, 5 September 2007, 13:30-14:30, Congress Hall

Sergios Theodoridis, EURASIP Past President (University of Athens, Greece)

Bernd Girod

Stanford University, USA

Distributed coding is a new paradigm for video compression, based on Slepian and Wolf's and Wyner and Ziv's information-theoretic results from the 1970s. This talk reviews the recent development of practical distributed video coding schemes. Wyner-Ziv coding, i.e., lossy compression with receiver side information, enables low-complexity video encoding where the bulk of the computation is shifted to the decoder. Since the interframe dependence of the video sequence is exploited only at the decoder, an intraframe encoder can be combined with an interframe decoder. Wyner-Ziv coding is also naturally robust against transmission errors and can be used for joint source-channel coding by protecting the signal waveform rather than a compressed bit-stream. It thus achieves graceful degradation under deteriorating channel conditions without a layered signal representation. Besides low-complexity encoding and robust transmission, the distributed coding paradigm enables novel solutions to diverse problems ranging from coding for random access to media authentication to compression of encrypted signals.

Lecture Session
MIMO and Space-Time Processing

Wednesday, 5 September 2007, 14:40-16:20, Building 14A Ground Floor Hall

Peter Grant (University of Edinburgh, United Kingdom)

14:40

Sos-Based Blind Channel Estimation in Multiuser Space-Time Block Coded Systems

Javier Vía, Ignacio Santamaría (University of Cantabria),
Aydin Sezgin, Arogyaswami Paulraj (Stanford University)

15:00

Joint Estimation of I/Q Imbalance and Channel Response for MIMO OFDM System

Yuan-Hwui Chung, See-May Phoong (National Taiwan University)

15:20

Analytical Exit Functions for the Performance Evaluation of Iterative MIMO Receivers with Channel Estimation Error

Mikel Mendicute, Jon Altuna, Vicente Atxa (University of Mondragon)

15:40

MIMO Identical Eigenmode Transmission System (IETS) - a Channel Decomposition Perspective

Muhammad Zeeshan Shakir, Tariq Durrani (University of Strathclyde)

16:00

Iterative Joint Tone-Interference Cancellation and Decoding for MIMO-OFDM

Celal Eşli (ETH Zurich),
Mutlu Koca, Hakan Deliç (Boğaziçi University)

Lecture Session
Image Coding II

Wednesday, 5 September 2007, 14:40-16:20, Building 14A First Floor Hall
William Puech (University of Montpellier II, France)

14:40
A Simple Model for Image Self-Similarity and the Possible Use of Mutual Information
Simon Alexander (University of Houston),
Stanislav Kovačič (University of Ljubljana),
Edward Vrscay (University of Waterloo)

15:00
Lifting Schemes for Joint Coding of Stereoscopic Pairs of Satellite Images
Mounir Kaaniche, Amel Benazza-Benyahia (Sup'Com),
Jean-Christophe Pesquet (Universite de Paris-Est Marne-la-Vallee),
Béatrice Pesquet-Popescu (GET / Télécom Paris)

15:20
Correlation Vs. Decorrelation of Color Components in Image Compression - Which Is Preferred?
Evgeny Gershikov, Moshe Porat (Technion - Israel Institute of Technology)

15:40
New Simple Context-Based Predictive Technique for Lossless Image Compression
Grzegorz Ulacha (Szczecin University of Technology),
Ryszard Stasiński (Poznań University of Technology)

16:00
Image Coding Using a Complex Dual-Tree Wavelet Transform
James Fowler, Joseph Boettcher (Mississippi State University),
Béatrice Pesquet-Popescu (GET / Télécom Paris)

Special Session
Advanced Digital Signal Processing for Future Wireless System II

Wednesday, 5 September 2007, 14:40-16:20, Building 14A Second Floor Hall

Hanna Bogucka (Poznań University of Technology, Poland)

14:40

Resource Allocation for goodput Optimization in Parallel subchannels with Error Correction and Selective Repeat ARQ

Bertrand Devillers (Université catholique de Louvain),
Ana García Armada (Universidad Carlos III de Madrid),
Jérôme Louveaux (IRIT - Université Paul Sabatier),
Luc Vandendorpe (Université catholique de Louvain)

15:00

A New Standard Recognition Sensor for Cognitive Radio Terminals

Rachid Hachemani, Jacques Palicot, Christophe Moy (IETR / Supélec)

15:20

Channel-Adaptive Resource Allocation for Cognitive OFDMA Radios Based on Limited-Rate Feedback

Antonio Marques (Rey Juan Carlos University),
Xin Wang (Florida Atlantic University),
Georgios Giannakis (University of Minnesota, Twin Cities)

15:40

Efficient Channel Description in Time-Frequency Domain with Application to Flexible Radio

Thomas Hunziker, Ziyang Ju, Dirk Dahlhaus (University of Kassel)

16:00

GABOR-Based Waveform Generation for Parametrically Flexible, Multi-Standard Transmitters

Stelios Stefanatos, Andreas Polydoros (University of Athens)

Special Session
Bayesian Localization and Data Fusion Methods for Distributed Systems

Wednesday, 5 September 2007, 14:40-16:20, Room 402

Joaquín Míguez (Universidad Carlos III de Madrid, Spain)

14:40

Fast Particle Filters for Multi-Rate Sensors

Thomas Schön, David Törnqvist, Fredrik Gustafsson (Linköpings Universitet)

15:00

Rao-Blackwellized Variable Rate Particle Filtering for Handset Tracking in Communication and Sensor Networks

Carles Fernández Prades (CTTC),
Pau Closas, Juan Fernández Rubio (Universitat Politècnica de Catalunya)

15:20

Fusion of GPS, Ins and Odometric Data for Automotive Navigation

Mariana Spangenberg (TéSA/SUPAERO),
Vincent Calmettes (SUPAERO/TéSA),
Jean-Yves Tourneret (IRIT/ENSEEIHT/TéSA)

15:40

Fusion of Information from Biased Sensor Data by Particle Filtering

Mónica Bugallo, Ting Lu, Petar Djurić (Stony Brook University)

16:00

Distributed Sequential Monte Carlo Algorithms for Node Localization and Target Tracking in Wireless Sensor Networks

Joaquín Míguez, Antonio Artés-Rodríguez (Universidad Carlos III de Madrid)

Lecture Session
Design Methodology and Rapid Prototyping

Wednesday, 5 September 2007, 14:40-16:20, Room 403

Alexander Petrovsky (Białystok Technical University, Poland)

14:40

Analytical Accuracy Evaluation of Fixed-Point Systems

Romuald Rocher, Daniel Ménard, Olivier Sentieys, Pascal Scalart (ENSSAT/ IRISA, University of Rennes I)

15:00

A Regular Interconnection Scheme for Efficient Mapping of DSP Kernels Into Reconfigurable Hardware

Sotiris Xydis, George Economakos, Kiamal Pekmestzi (National Technical University of Athens)

15:20

Building Embedded DSP Applications in a Java Modeling Framework

Isidoros Sideris, Dimitris Pilitsos, George Economakos, Kiamal Pekmestzi (National Technical University of Athens)

15:40

Minimum Entropy Restoration Using FPGAS and High-Level Techniques

Robin Bruce (Nallatech Ltd./ University of Strathyclyde),
Caroline Ruet (INSA Rennes),
Stephen Marshall (University of Strathclyde),
Malachy Devlin (Nallatech Ltd.)

16:00

Roundoff Noise Analysis of Finite Wordlength Realizations with the Implicit State-Space Framework

Thibault Hilaire (IRISA - R2D2),
Daniel Ménard (University of Rennes I),
Olivier Sentieys (IRISA - University of Rennes I)

Lecture Session
Signal Processing for Music

Wednesday, 5 September 2007, 14:40-16:20, Room 502

Rudolf Rabenstein (University Erlangen-Nuremberg, Germany)

14:40

A Framework for Analysis of Music Similarity Measures

Jesper Højvang Jensen, Mads Græsbøll Christensen, Søren Holdt Jensen (Aalborg University)

15:00

Sound Separation of Polyphonic Music Using Instrument Prints

Kristóf Aczél, Szabolcs Iváncsy (Budapest University of Technology and Economics)

15:20

Hybrid Music Recommendation Based on Different Dimensions of Audio Content and an Entropy Measure

Zehra Çataltepe, Berna Altinel (Istanbul Technical University)

15:40

Musical Note and Instrument Classification with Likelihood-Frequency-Time Analysis and Support Vector Machines

Mehmet Erdal Özbek (Izmir Institute of Technology),
Claude Delpha, Pierre Duhamel (LSS/Supélec)

16:00

Learning and Clean-Up in a Large Scale Music Database

Lars Kai Hansen (Technical University of Denmark),
Tue Lehn-Schiøler, Kaare Brandt Petersen (Epital),
Jeronimo Arenas-García (University Carlos III of Madrid),
Jan Larsen (Technical University of Denmark),
Søren Holdt Jensen (Aalborg University)

Lecture Session
Parameter Estimation

Wednesday, 5 September 2007, 14:40-16:20, Room 503

Andreas Jakobsson (Karlstad University, Sweden)

14:40

Parameter Estimation for Sinusoidal Signals with Deterministic Amplitude Modulation

Stefan Schuster, Stefan Scheiblhofer, Andreas Stelzer (University of Linz)

15:00

An Unbiased PISARENKO Harmonic Decomposition Estimator for Single-Tone Frequency

Wing Kin Lui, Hing Cheung So (City University of Hong Kong)

15:20

Improvement of the Ziv-Zakai Lower Bound for Time Delay Estimation

Christian Musso (ONERA DTIM),
Jean-Philippe Ovarlez (ONERA DEMR/TSI)

15:40

Algebraic Parameter Estimation of Damped Exponentials

Aline Neves (Federal University of ABC),
Maria Miranda (State University of São Paulo),
Mamadou Mboup (Université René Descartes)

16:00

A PCA/ICA Based Feature Selection Method and its Application for Corn Fungi Detection

Zehra Çataltepe, Hakki Genc (Istanbul Technical University),
Tom Pearson (United States Department of Agriculture)

EURASIP Fellow Inaugural Lecture
SAMPLING SPARSE SIGNALS AT OCCAM'S RATE

Thursday, 6 September 2007, 9:00-10:00, Congress Hall

Marc Moonen, President EURASIP (Katholieke Universiteit Leuven, Belgium)

Martin Vetterli

Ecole Polytechnique Fédérale de Lausanne, Switzerland and University of California, Berkeley, USA

Joint work with T. Blu, L. Coulot, A. Hormati and P.L.Dragotti.

Shannon's sampling theorem gives a sufficient condition for reconstructing the projection of a signal onto the subspace of bandlimited functions, and this by taking inner products with a sinc function and its shifts. Recently, this framework has been extended to classes of non-bandlimited signals and their perfect reconstruction from a suitable projection. This gives a sharp result on the sampling and reconstruction of sparse continuous- time signals, namely that 2K measurements are necessary and sufficient to perfectly reconstruct a K-sparse continuous-time signal.

We first review this result and show that it relies on structured Vandermonde measurement matrices, of which the Fourier matrix is a particular case. Because of this structure, fast, O(K^3) methods exist. When then generalize these results to a number of cases where sparsity is present, including piecewise polynomials as well as local measurement kernels like splines.

Of course, real cases always involve noise, and thus, retrieval of sparse signals in noise is considered. Lower bounds by Cramer-Rao are given, and an iterative algorithm due to Cadzow is shown to perform close to optimal over a wide range of signal to noise ratios. This indicates the robustness of such methods.

Next, we consider the connection to compressive sampling, a recent approach involving random measurement matrices, a discrete set up, and retrieval based on convex optimization. We compared the two approaches, highlighting differences, similarities, and respective advantages.

Poster Session
Hardware and Software for Signal Processing

Thursday, 6 September 2007, 10:00-12:00, Poster Area 1

Alexander Petrovsky (Białystok Technical University, Poland)

Behavioral Description Model BDM for Design Space Exploration: a Case Study of His Algorithm for MC-CDMA System

Farhat Thabet, Philippe Coussy, Dominique Heller, Eric Martin (Université de Bretagne Sud)

Extended Precision Accumulation of Floating-Point Data for Digital Signal Generation and Processing

Adam Dąbrowski, Paweł Pawłowski (Poznań University of Technology)

Low-Power Implementation of an HMM-Based Sound Environment Classification Algorithm for Hearing Aid Application

Rong Dong, David Hermann, Etienne Cornu, Edward Chau (AMI Semiconductor)

A Graphics Processing Unit Implementation of the Particle Filter

Gustaf Hendeby, Jeroen Hol, Rickard Karlsson, Fredrik Gustafsson (Linköpings Universitet)

Automatic Code Generation for Multi-MicroBlaze System with SynDEx

Pengcheng Mu (IETR/CNRS UMR 6164),
Mickaël Raulet (IETR/Image group),
Jean-François Nezan (IETR/Image and Remote Sensing Group),
Jean-Gabriel Cousin (IETR)

Improved Median Filter Using Conditional Technique and its Hardware Implementation

Marek Kraft, Andrzej Kasiński (Poznań University of Technology)

Hardware Task Scheduling for Heterogeneous SoC Architectures

Imène Benkermi, Daniel Chillet, Sébastien Pillement (Rennes I University),
Olivier Sentieys (IRISA - University of Rennes I)

High-Level Synthesis Heuristics for Run-Time Reconfigurable Architectures

George Economakos, Sotiris Xydis (National Technical University of Athens)

Poster Session
Hardware and Software for Image Processing

Thursday, 6 September 2007, 10:00-12:00, Poster Area 2

Adam Dąbrowski (Poznań University of Technology, Poland)

2D Weather Radar Data Simulator Using Specific Reflectivity and Phase Measurements for the Rain Rate Estimation Algorithms Validation

Elmzoughi Amor (Vigo University),
R. Abdelfattah (Ecole Supérieure des Télécommunications),
Z. Belhadj (Ecole Nationale d'Ingénieurs de Tunis)

Framework for Efficient Cosimulation and Fast Prototyping on Multi-Components with AAA Methodology: Lar Codec Study Case

Erwan Flécher, Mickaël Raulet, Ghislain Roquier, Marie Babel, Olivier Déforges (IETR/Image group)

Efficient Hardware Architectures of Selected MPEG-7 Color Descriptors

Paweł Śniatała, Rafal Kapela, Radosław Rudnicki, Andrzej Rybarczyk (Poznań University of Technology)

Sensor Matrix Array for Image Processing in Visual Cortex

Yu-Ichi Matsui (The University of Shiga Prefecture)

An Efficient Detection Prototype Based on a Mixed Architecture for Gaia

Shan Mignot, Philippe Laporte, François Rigaud (Observatoire de Paris)

Trifocal Transfer on Commodity Graphics Hardware

Christian Weigel (Technische Universität Ilmenau),
Peter Schübel (TU Ilmenau)

A Lossless Compression System Realization Utilizing phit-Serial Network-on-Chip Paradigm

Piotr Dziurzański, Tomasz Mąka, Grzegorz Ulacha (Szczecin University of Technology), Ryszard Stasiński (Poznań University of Technology)

Lecture Session
Channel Modeling, Estimation and Equalization I

Thursday, 6 September 2007, 10:20-12:00, Building 14A Ground Floor Hall

John G. Proakis (University of California, USA)

10:20

Signal Processing Applications of Free Probability Theory

Øyvind Ryan (University of Oslo),
Merouane Debbah (SUPELEC)

10:40

Robust Super-Exponential Methods for Blind Deconvolution of MIMO-FIR Systems with Gaussian Noise

Kiyotaka Kohno, Yujiro Inouye (Shimane University),
Mitsuru Kawamoto (National Institute of Advanced Industrial Science and Technology)

11:00

Zero-Forcing Equalization of Space-Time Block Coded Transmissions Over Frequency Selective Channels

Yuan-Hwui Chung, See-May Phoong (National Taiwan University)

11:20

Data-Dependent Superimposed Training Based Channel Estimation and Symbol Detection Using Zero Correlation Zone (ZCZ) Sequences

Syed Mohsin Abbas Moosvi, Des McLernon (The University of Leeds)

11:40

Estimation of Kronecker Structured Channel Covariances Using Training Data

Karl Werner, Magnus Jansson (Royal Institute of Technology, KTH)

Lecture Session
Video Coding I

Thursday, 6 September 2007, 10:20-12:00, Building 14A First Floor Hall
Thomas Wiegand (Fraunhofer Inst. for Telecommunications, Germany)

10:20
Sparse Representation for Image Prediction
Aurélie Martin (IRISA - THOMSON),
Jean-Jacques Fuchs (IRISA),
Christine Guillemot (INRIA/IRISA),
Dominique Thoreau (Thomson R&D France)

10:40
An Efficient INTER-Coding Algorithm for H.264
Laeeq Aslam, Nadeem Khan (Lahore University of Management Sciences)

11:00
A Reduced Reference Video Quality Metric for AVC/H.264
Tobias Oelbaum, Klaus Diepold (Technische Universität München)

11:20
Improved Arithmetic Coding in H.264/AVC Using Context-Tree Weighting and Prediction by Partial Matching
Damian Karwowski (Poznań University of Technology)

11:40
Optimal Slice Size for Streaming Regions of High Resolution Video with Virtual Pan/Tilt/Zoom Functionality
Aditya Mavlankar, Pierpaolo Baccichet, David Varodayan, Bernd Girod (Stanford University)

Special Session
Implementations of MIMO Wireless Communication Systems

Thursday, 6 September 2007, 10:20-12:00, Building 14A Second Floor Hall

Andreas Burg (ETH Zurich, Switzerland)

10:20

An Efficient FPGA Based MIMO-MMSE Detector

Hun-Seok Kim (University of California, Los Angeles),
Weijun Zhu, Jatin Bhatia (Silvus Communication Systems Inc.),
Karim Mohammed, Anish Shah, Babak Daneshrad (University of California, Los Angeles)

10:40

Implementation Aspects of Downlink Multiuser MIMO System with Distributed and Coherently-Coordinated Transmit Antennas

Dragan Samardzija, Howard Huang, Clark Woodworth, Sue Walker, Reinaldo Valenzuela, Theodore Sizer (Bell Labs, Alcatel-Lucent)

11:00

Energy-Efficient Software-Defined Radio Solutions for MIMO-Based Broadband Communication

Bruno Bougard, Andre Bourdoux, Frederik Naessens, Miguel Glassee, Veerle Derudder, Liesbet Van der Perre (IMEC)

11:20

System-Level Characterization of a Real-Time 4x4 MIMO-OFDM Transceiver on FPGA

Simon Haene, David Perels, Wolfgang Fichtner (ETH Zurich)

11:40

A Real Time 4x4 MIMO-OFDM SDR for Wireless Networking Research

Jesse Chen (University of California, Los Angeles),
Weijun Zhu (Silvus Communication Systems Inc.),
Babak Daneshrad (University of California, Los Angeles),
Jatin Bhatia (Silvus Communication Systems Inc.),
Hun-Seok Kim, Karim Mohammed (University of California, Los Angeles),
Sandeep Sasi (Silvus Communication Systems Inc.),
Anish Shah (University of California, Los Angeles)

Special Session
New Methods for the Analysis of Deformation Signals of Natural and Artificial Structures

Thursday, 6 September 2007, 10:20-12:00, Room 402

Andreas Eichhorn (Vienna University of Technology, Austria)

10:20

Tasks and Newest Trends in Geodetic Deformation Analysis: a Tutorial

Andreas Eichhorn (Vienna University of Technology)

10:40

Determination of Synthetic Covariance Matrices - an Application to GPS Monitoring Measurements

Volker Schwieger (University Stuttgart)

11:00

A Wavelet-Based Approach for the Detection and Modelling of Non-Stationary Effects in Structural Deformation Analysis

Hans Neuner (Leibniz University of Hannover)

11:20

Vision Based Deformation Monitoring of a Masonry Wall Under Simulated Earthquake Conditions

Matthew Tait, Isabelle Couloigner, Monica Guzman, Shelley Lissel (University of Calgary)

11:40

A Kalman Filter Extension for the Analysis of Imprecise Time Series

Ingo Neumann, Hansjörg Kutterer (Leibniz University of Hannover)

Lecture Session
Speech Recognition

Thursday, 6 September 2007, 10:20-12:00, Room 403

Sergios Theodoridis (National and Kapodistrian University of Athens, Greece)

10:20

Speech Event Detection by Non Negative Matrix Deconvolution

Carla Lopes, Fernando Perdigão (Instituto de Telecomunicações)

10:40

A N-Gram Approach to Overcome Time and Parameter Independence Assumptions of HMM for Speech Recognition

Marta Casar, José A.R. Fonollosa (Universitat Politècnica de Catalunya)

11:00

Multimodal Fusion for Cued Speech Language Recognition

Savvas Argyropoulos, Dimitrios Tzovaras (Informatics and Telematics Institute), Michael G. Strintzis (Informatics and Telematics Institute / Aristotle University of Thessaloniki)

11:20

Simultaneous Multispeaker Segmentation for Automatic Meeting Recognition

Kornel Laskowski (Carnegie Mellon University),
Christian Fügen (Universität Karlsruhe),
Tanja Schultz (Carnegie Mellon University)

11:40

Maximum Likelihood Estimation of a Reverberation Model for Robust Distant-Talking Speech Recognition

Armin Sehr, Yuanhang Zheng, Elmar Nöth, Walter Kellermann (University of Erlangen-Nuremberg)

Lecture Session
Audio Signal Analysis

Thursday, 6 September 2007, 10:20-12:00, Room 502

Saeid Sanei (Cardiff University, United Kingdom)

10:20

Using Auditory Saliency to Understand Complex Auditory Scenes

Varinthira Duangudom, David Anderson (Georgia Institute of Technology)

10:40

Lattice-Structured Schur-Type Elimination of Narrow-Band Back Ground Disturbances from Acoustic Signals of Vehicles in Motion

Maksymilian Górski, Jan Zarzycki (Wrocław University of Technology)

11:00

Scream and Gunshot Detection in Noisy Environments

Luigi Gerosa, Giuseppe Valenzise, Marco Tagliasacchi, Fabio Antonacci, Augusto Sarti (Politecnico di Milano)

11:20

On Bedrosian Condition in Application to Chirp Sounds

Ewa Hermanowicz, Mirosław Rojewski (Gdańsk University of Technology)

11:40

A Dynamic Programming Approach to Speech/Music Discrimination of Radio Recordings

Aggelos Pikrakis, Theodoros Giannakopoulos, Sergios Theodoridis (University of Athens)

Lecture Session
Biomedical Processing I

Thursday, 6 September 2007, 10:20-12:00, Room 503

Ahmed Tewfik (University of Minnesota, USA)

10:20

Separation of Heart Sound Signal from Lung Sound Signal by Adaptive Line Enhancement

Thato Tsalaile, Saeid Sanei (Cardiff University)

10:40

Seizure Signals Separation Using Constrained Topographic Blind Source Separation

Min Jing, Saeid Sanei (Cardiff University)

11:00

A Channel Selection Method for EEG Classification in Emotion Assessment Based on Synchronization Likelihood

Karim Ansari-Asl, Guillaume Chanel, Thierry Pun (University of Geneva)

11:20

Modelling Newborn EEG Background Using a Time-Varying Fractional Brownian Process

Nathan Stevenson, L. Rankine, Mostefa Mesbah, Boualem Boashash (University of Queensland)

11:40

Geometrical Parameters Estimation of the Retina Images for Blood Vessels Pathology Diagnostics

Alexander Kupriyanov, Nataly Ilyasova, Michail Ananin (Image Processing Systems Institute of Russian Academy of Sciences)

Plenary Lecture
EQUALIZATION OF MIMO CHANNELS

Thursday, 6 September 2007, 13:30-14:30, Congress Hall

Krzysztof Wesołowski (Poznań University of Technology, Poland)

John Proakis

Department of Electrical and Computer Engineering, University of California at San Diego

Joint work with P. Amihood.

We consider the equalization of multiple-input, multipleoutput (MIMO) wireless communication systems that employ multiple transmit and receive antennas to increase the data rate and achieve signal diversity in fading multipath channels. Two scenarios in the equalization of MIMO systems are treated. The first is a point-to-point MIMO system in which the channel characteristics are known at the receiver only and, hence, the equalization is performed at the receiver. The second is a point-to-multipoint (broadcast) MIMO system in which the channel characteristics are known at the transmitter. In this case, the equalization is performed at the transmitter. Both linear and nonlinear equalization algorithms are treated.

Poster Session
Nonlinear Signal Processing, Neural Networks, and Related Topics

Thursday, 6 September 2007, 14:40-16:40, Poster Area 1

Constantine Kotropoulos (Aristotle University of Thessaloniki, Greece)

An Application of the Spectral Kurtosis for Early Detection of Subterranean Termites

Juan-Jose González de-la-Rosa (University of Cádiz),
Antonio Moreno (University of Córdoba),
Angel Quirós, J.M. Guerrero (University of Cádiz),
Carlos G. Puntonet (University of Granada)

Exact Principal Geodesic Analysis for Data on So(3)

Salem Said (GIPSA-Lab),
Nicolas Courty (University de Bretagne Sud),
Nicolas Le Bihan (GIPSA-Lab),
Stephen J. Sangwine (University of Essex)

Higher Order Statistics for Laser-Extinction Measurements

Bernard Lacaze (TéSA/ENSEEIHT),
Marie Chabert (ENSEEIHT/IRIT)

Efficient Geometric Methods for Kernel Density Estimation Based Independent Component Analysis

Hao Shen (National ICA Australia, and The Australian National University),
Martin Kleinsteuber (University of Wuerzburg),
Knut Hüper (National ICT Australia, Canberra Research Laboratory / The Australian National University)

On the Boundedness Behavior of the Spectral Factorization in the Wiener Algebra for FIR Data

Holger Boche, Volker Pohl (Technische Universität Berlin)

Stochastic Model of the LMS VOLTERRA Filter

Eduardo Batista, Orlando Tobias, Rui Seara (Federal University of Santa Catarina)

Sparse Signal Recovery by Iterative Proximal Thresholding

Patrick Combettes (Université Pierre et Marie Curie),
Jean-Christophe Pesquet (Universite de Paris-Est Marne-la-Vallee)

A Fast Algorithm for Blind Separation of Non-Gaussian and Time-Correlated Signals
Germán Gómez-Herrero (Tampere University of Technology),
Zbyněk Koldovský, Petr Tichavský (Institute of Information Theory and Automation, Prague),
Karen Egiazarian (Tampere University of Technology)

Robustness with Respect to the Signal-to-Noise Ratio of MLP-Based Detectors in Weibull Clutter
Raúl Vicen-Bueno, María Pilar Jarabo-Amores, Manuel Rosa-Zurera, David Mata-Moya, Roberto Gil-Pita (University of Alcalá)

Early Detection of Abnormal Emergent Behaviour
Lambert Spaanenburg (Lund University)

Subspace Based Blind Identification and Equalization of Linear FIR MIMO Systems and FIR SIMO Volterra Systems
Diamantis Kotoulas, Panos Koukoulas, Nicholas Kalouptsidis (University of Athens)

A Hybrid Algorithm Based on Neuron-Fuzz and Wavelet Transforms for Wideband Sonar Detection in a Reverberation-Limited Environment
Jason Tseng, Marina Cole (University of Warwick)

Poster Session
Image and Video Analysis

Thursday, 6 September 2007, 14:40-16:40, Poster Area 2
Krzysztof Gałkowski (University of Zielona Góra, Poland)

Blur Invariant Registration of Rotated, Scaled and Shifted Images
Ville Ojansivu, Janne Heikkilä (University of Oulu)

Adaptive Multi-Way Analysis of Images
Damien Letexier (Institut Fresnel/GSM),
Salah Bourennane (Institut Fresnel)

Underwater Video Analysis for NORWAY Lobster Stock Quantification Using Multiple Visual Attention Features
Paulo Correia (Instituto Superior Técnico),
Yee Lau (Instituo de Telecomunicações),
Paulo Fonseca, Aida Campos (IPIMAR)

Active Contours and Information Theory for Supervised Segmentation on Scalar Images
Valérie Duay (Ecole Polytechnique Fédérale de Lausanne),
Sara Luti, Gloria Menegaz (Universita' Degli Studi di Siena),
Jean-Philippe Thiran (Ecole Polytechnique Fédérale de Lausanne)

Neural Network High Precision Processing for Astronomical Images
Rossella Cancelliere (University of Turin),
Mario Gai (Astronomical Observatory of Turin)

Shot Boundary Detection Using Spectral Clustering
Uros Damnjanovic, Ebroul Izquierdo, Marcin Grzegorzek (Queen Mary, University of London)

Video Summarization Using a Visual Attention Model
Sophie Marat, Mickäel Guironnet, Denis Pellerin (GIPSA-lab)

On Interpolation of Differentially Structured Images
Hagai Kirshner, Moshe Porat (Technion - Israel Institute of Technology)

Fire and Smoke Detection without Sensors: Image Processing Based Approach
Turgay Çelik, Hüseyin Özkaramanlı, Hasan Demirel (Eastern Mediterranean University)

Fast Algorithm for Image Database Indexing Based on Lattice

Mahmoud Mejdoub (Engineering National School of Sfax / University of Nice-Sophia Antipolis),
Leonardo Fonteles (University of Nice-Sophia Antipolis),
Chokri Benamar (Engineering National School of Sfax),
Marc Antonini (University of Nice-Sophia Antipolis)

A Regionalized Content-Based Image Retrieval Framework

Stefan Uhlmann, Serkan Kiranyaz, Moncef Gabbouj (Tampere University of Technology)

Poster Session
Motion Estimation and Segmentation

Thursday, 6 September 2007, 14:40-16:40, Poster Area 3

Stefano Tubaro (Politecnico di Milano, Italy)

VLSI Friendly Edge Gradient Detection Based Multiple Reference Frames Motion Estimation Optimization for H.264/AVC

Zhenyu Liu, Yiqing Huang, Yang Song, Satoshi Goto, Takeshi Ikenaga (Waseda University)

Sparse Projections and Motion Estimation in Colour Filter Arrays

Alexander Sibiryakov (Mitsubishi Electric ITE-BV)

Robust Method of Video Stabilization

Marius Tico, Markku Vehvilainen (Nokia Research Center)

Global Motion Estimation Using Block Matching with Uncertainty Analysis

Pekka Sangi, Jari Hannuksela, Janne Heikkilä (University of Oulu)

MovieCut - Dynamic Object Segmentation in Image Sequences

Christian Ruwwe, Udo Zölzer (Helmut-Schmidt-University)

Lecture Session
Channel Modeling, Estimation and Equalization II

Thursday, 6 September 2007, 14:40-16:20, Building 14A Ground Floor Hall

Desmond McLernon (University of Leeds, United Kingdom)

14:40

Semi-Blind Interference Cancellation with Distributed Training

Alexandr Kuzminskiy (Alcatel-Lucent),
Yuri Abramovich (Defence Science and Technology Organisation)

15:00

A Novel Computationally Efficient Time-Domain Equalizer for ADSL/VDSL System

Stanisław Skowronek, Paweł Sroka, Krzysztof Wesołowski (Poznań University of Technology)

15:20

An Adaptive Neural Network Pre-Distorter for Non Stationary HPA in OFDM Systems

Rafik Zayani (Sup'Com),
Ridha Bouallegue (Sup'Com / Sousse University),
Daniel Roviras (ENSEEIHT)

15:40

The Impact of a PRIORI Information on the Map Equalizer Performance with M-PSK Modulation

Sihem Chaabouni (Sup'Com),
Noura Sellami (ISECS),
Aline Roumy (IRISA - INRIA)

Lecture Session
Video Coding II

Thursday, 6 September 2007, 14:40-16:20, Building 14A First Floor Hall
Bernd Girod (Stanford University, USA)

14:40
Towards Optimised Context Selection in Scalable Wavelet Based Video Coding
Toni Zgaljic, Marta Mrak, Ebroul Izquierdo (Queen Mary, University of London)

15:00
A Generic Context Model for Uniform-Reconstruction Based SNR-Scalable Representations of Residual Texture Signals
Heiner Kirchhoffer, Detlev Marpe, Thomas Wiegand (Fraunhofer Institute for Telecommunications, Heinrich-Hertz-Institut)

15:20
Wavelet-Domain Distributed Video Coding Based on Continuous-Valued Syndromes
Lorenzo Cappellari (University of Padova)

15:40
An Efficient Request Stopping Method at the Turbo Decoder in Distributed Video Coding
Marco Tagliasacchi (Politecnico di Milano),
José Pedro, Fernando Pereira (Instituto Superior Técnico),
Stefano Tubaro (Politecnico di Milano)

16:00
Robust Video Transmission Based on Distributed Multiple Description Coding
Olivier Crave (IRISA),
Christine Guillemot (INRIA/IRISA),
Béatrice Pesquet-Popescu (GET / Télécom Paris),
Christophe Tillier (GET / ENST / Télécom Paris)

Special Session
Optimization of Wireless Multiuser MIMO Communication Systems

Thursday, 6 September 2007, 14:40-16:20, Building 14A Second Floor Hall

Christoph Mecklenbräuker (Vienna University of Technology, Austria)

14:40

Design of Spatially Multiplexed LDPC Codes for Multi-User Detection

Gottfried Lechner (Telecommunications Research Center Vienna),
Andreas Burg (ETH Zurich)

15:00

Information Lossless Space-Time Coding for Rayleigh Faded Multiple Access Systems

Antonio Fasano, Sergio Barbarossa (University of Rome La Sapienza)

15:20

Delay-Differentiated Scheduling in a Randomized MIMO Relay Network

Ari Hottinen (Nokia Research Center),
Tiina Heikkinen (University of Helsinki)

15:40

Non-Symmetric Nash Bargaining Solution for Resource Allocation in Wireless Networks and Connection to Interference Calculus

Holger Boche (Fraunhofer Heinrich Hertz Institute / Technical University of Berlin / Fraunhofer German-Sino Lab fo),
Martin Schubert (Fraunhofer Heinrich Hertz Institute),
Nikola Vucic, Siddharth Naik (Fraunhofer German-Sino Lab MCI)

Special Session
Hypercomplex Digital Signal Processing: Fundamentals and Applications

Thursday, 6 September 2007, 14:40-16:20, Room 402

Heinz Göckler (Ruhr University Bochum, Germany)
Stephen Sangwine (University of Essex, United Kingdom)

14:40

Hypercomplex Algebras in Digital Signal Processing: Benefits and Drawbacks

Daniel Alfsmann, Heinz Göckler (University of Bochum),
Stephen Sangwine (University of Essex),
Todd Ell (Goodrich Sensor Systems)

15:00

Dependencies Between Coding Gain and Filter Length in PARAUNITARY Filter Banks Designed Using QUATERNIONIC Approach

Marek Parfieniuk, Alexander Petrovsky (Białystok Technical University)

15:20

On Hyperbolic Complex LTI Digital Systems

Daniel Alfsmann, Heinz Göckler (University of Bochum)

15:40

Quaternions and Biquaternions for Symmetric Markov-Chain System Analysis

Soo-Chang Pei, Jian-Jiun Ding (National Taiwan University)

Lecture Session
Texture Analysis

Thursday, 6 September 2007, 14:40-16:20, Room 403

Adam Dąbrowski (Poznań University of Technology, Poland)

14:40

Outer Factor 2-D Ma Models for Purely Indeterministic Fields and Wold-Type Texture Decompositions

Fernando Merchan, Flavius Turcu, Mohamed Najim (University Bordeaux 1)

15:00

Shape and Data Driven Texture Segmentation Using Local Binary Patterns

Erkin Tekeli, Müjdat Çetin, Aytül Erçil (Sabanci University)

15:20

Forest Fire Detection Based on Gaussian Field Analysis

Florent Lafarge, Xavier Descombes, Josiane Zerubia (INRIA)

15:40

Comparative Study of Texture Feature for Rotation Invariant Recognition

Adel Hafiane, Chirstophe Rosenberger, Hélène Laurent (École Nationale Supérieure of Engineers of Bourges, Universite d'Orleans)

16:00

A Gaussian-Mixture Based Approach to Spatial Image Background Modeling and Compensation

Afsar Saranli (Middle East Technical University)

Lecture Session
Audio and Speech Coding

Thursday, 6 September 2007, 14:40-16:20, Room 502

Mariusz Ziólko (AGH University of Science and Technology, Kraków, Poland)

14:40

Sinusoidal Modeling of Spot Microphone Signals Based on Noise Transplantation for Multichannel Audio Coding

Christos Tzagkarakis, Athanasios Mouchtaris, Panagiotis Tsakalides (FORTH-ICS)

15:00

Low Bit Rate Coding of Sparse Audio Spectra Using Frequency Shift and Interleaved MDCT

Maciej Bartkowiak (Poznań University of Technology)

15:20

Quality and Computation Load Reduction Achieved by Applying Smart TRANSCODING Between CELP Speech Codecs

Christophe Beaugeant, Hervé Taddei (Nokia Siemens Networks)

15:40

Multiple-Description Coding of Speech Using Forward Error Correction Codes

Kai Clüver, Jan Weil, Thomas Sikora (Technische Universität Berlin)

16:00

Modified CELP Coder Using Root Cepstrum

Vahid Abolghasemi, Hossein Marvi (Shahrood University of Technology)

Lecture Session
Biomedical Processing II

Thursday, 6 September 2007, 14:40-16:20, Room 503

Saeid Sanei (Cardiff University, United Kingdom)

14:40

Near Real Time Noise Detection During Heart Sound Acquisition

Dinesh Kumar, Paulo Carvalho (University of Coimbra),
Manuel Antunes (University Hospital of Coimbra),
Jorge Henriques (University of Coimbra),
Ralf Schmidt, Joerg Habetha (Philips Research Laboratories, Aachen)

15:00

Descriptive Properties of a Set of Selected Tasks for Dyslexia Screening in French School Age Children

Guylaine Le Jan, Nathalie Costet (Université de Rennes1),
Régine Le Bouquin Jeannès, Gérard Faucon (INSERM and Université de Rennes 1),
Pascal Scalart (IRISA - University of Rennes I)

15:20

VQ Classification Based on MPEG-7 Visual Descriptors for Video Endoscopic Capsule Localization in the Gastrointestinal Tract

Krzysztof Duda, Tomasz Zieliński (AGH University of Science and Technology),
Mariusz Duplaga (Jagiellonian University),
Michał Grega, Mikołaj Leszczuk (AGH University of Science and Technology)

15:40

Optimum Wavelet Transform-Based ECG Compression and Dissimilarity Measure Based Noise Performance Analysis

Mustafa Namdar, Lütfiye Durak (Yildiz Technical University)

16:00

Pitch Synchronous Wavelet and Hidden Semi-Markov Models Based Method for ECG Analysis

Samar Krimi, Kaïs Ouni (National Engineering School of Tunis),
Noureddine Ellouze (Laboratory of Systems and Signal Processing (LSTS), National Engineering School of Tunis (ENIT))

Lecture Session
Channel Modeling, Estimation and Equalization III

Thursday, 6 September 2007, 16:40-18:20, Building 14A Ground Floor Hall
Kutluyıl Doğançay (University of South Australia, Australia)

16:40
Maximum Likelihood Frequency Offset Estimation for Frequency Selective MIMO Channels: an Average Periodogram Interpretation and Iterative Techniques
Kanapathippillai Cumanan, Ranaji Krishna, Qiang Yu, Sangarapillai Lambotharan (Cardiff University)

17:00
Blind Tensor-Based Identification of Memoryless Multiuser Volterra Channels Using Sos and Modulation Codes
Carlos Alexandre Rolim Fernandes (I3S Laboratory),
Gérard Favier (University of Nice Sophia - Antipolis),
João Cesar Moura Mota (Federal University of Ceara)

17:20
Blind Joint Identification and Equalization of Wiener-Hammerstein Communication Channels Using PARATUCK-2 Tensor Decomposition
Alain Kibangou (University of Toulouse),
Gérard Favier (University of Nice Sophia - Antipolis)

17:40
An Adaptive Blind Channel Shortening Algorithm for MCM Systems
Cenk Toker, Gökhan Altın (Hacettepe University)

18:00
Adaptive Decision Feedback Equalizer for Sui Channel Models
Bassem Zayen, Monia Turki, Mériem Jaïdane-Saïdane (Unité Signaux et Systèmes (U2S), École Nationale d'Ingénieurs de Tunis)

Lecture Session
Pattern Recognition I

Thursday, 6 September 2007, 16:40-18:20, Building 14A First Floor Hall

Tadashi Shibata (University of Tokyo, Japan)

16:40

Image Retrieval Using Efficient Feature Vectors Generated from Compressed Domain

Daidi Zhong, Irek Defée (Tampere University of Technology)

17:00

Statistical 3D Object Classification and Localization with Context Modeling

Marcin Grzegorzek, Ebroul Izquierdo (Queen Mary, University of London)

17:20

A Speed Adaptive Ego-Motion Detection System Using Edge-Histograms Produced by Variable Graduation Method

Jia Hao, Tadashi Shibata (The University of Tokyo)

17:40

Tree Species Classification Using Radiometry, Texture and Shape Based Features

Maria Kulikova (INRIA/I3S),
Meena Mani (INRIA/I3S),
Anuj Srivastava (Florida State University),
Xavier Descombes, Josiane Zerubia (INRIA/I3S)

Special Session
Content and Network Aware Video Streaming

Thursday, 6 September 2007, 16:40-18:20, Building 14A Second Floor Hall

Béatrice Pesquet-Popescu (École Nationale Supérieure des Télécommunications ENST, France)

Markus Rupp (Vienna University of Technology, Austria)

16:40

Video Streaming Over Wireless Networks

Xiaoqing Zhu, Bernd Girod (Stanford University)

17:20

Distortion-Minimizing Network-Aware Scheduling for UMTS Video Streaming

Olivia Nemethova, Wolfgang Karner (Vienna University of Technology),
Claudio Weidmann (Telecommunications Research Center Vienna),
Markus Rupp (Vienna University of Technology)

17:40

Adaptive and Robust Media Streaming Over Multiple Channels with Bursty Losses

Jean-Paul Wagner, Pascal Frossard (Ecole Polytechnique Fédérale de Lausanne)

18:00

Content Based QoS Differentiation for Video Streaming in a Wireless Environment

Nicolas Tizon, Béatrice Pesquet-Popescu (GET - Télécom Paris)

Lecture Session
Image Enhancement I

Thursday, 6 September 2007, 16:40-18:20, Room 402

Alessandro Foi (Tampere University of Technology, Finland)

16:40

Regularization of Multivalued Images by Means of a Wavelet-Based Partial Differential Equation

Aldo Maalouf, Philippe Carré, Bertrand Augereau, Christine Fernandez-Maloigne (University of Poitiers)

17:00

A Filter Design Algorithm for Subpixel Rendering on Matrix Displays

Jun-Seong Kim, Chang-Su Kim (School of Electrical Engineering, Korea University, Seoul)

17:20

Releasing Aperture Filter Constraints

Jakub Chłapiński (Technical University of Łódź),
Stephen Marshall (University of Strathclyde)

17:40

Super Resolution of Multispectral Images Using Locally Adaptive Models

Rafael Molina (Universidad de Granada),
Javier Mateos, Miguel Vega (University of Granada),
Aggelos K. Katsaggelos (Northwestern University)

18:00

High Resolution Image Reconstruction Using Multiscale Projected Image Patches Integration

Krzysztof Malczewski, Ryszard Stasiński (Poznań University of Technology)

Lecture Session
Room Equalization and Echo Cancellation

Thursday, 6 September 2007, 16:40-18:20, Room 403

Patrick Naylor (Imperial College, London, United Kingdom)

16:40

An Hybrid Approach of Low Frequency Room Equalization: Notch Filters Based on Common Acoustical Pole Modeling

Gaetan Ndo (ENIT, Unité Signaux et Systèmes),
Hmaied Shaiek (GET, ENST de Bretagne),
Mériem Jaïdane-Saïdane (Unité Signaux et Systèmes (U2S), Ecole Nationale d'Ingénieurs de Tunis),
Jean Marc Boucher (GET, ENST de Bretagne)

17:00

Fast Adaptation of Frequency-Domain Volterra Filters Using Inherent Recursions of Iterated Coefficient Updates

Marcus Zeller, Walter Kellermann (University of Erlangen-Nuremberg)

17:20

Dually Regularized Recursive Prediction Error Identification for Acoustic Feedback and Echo Cancellation

Toon van Waterschoot, Geert Rombouts, Marc Moonen (Katholieke Universiteit Leuven)

17:40

Objective Measurement of Colouration in Reverberation

Jimi Wen, Patrick Naylor (Imperial College London)

18:00

Enhancement of Residual Echo for Improved Acoustic Echo Cancellation

Ted Wada, Biing-Hwang Juang (Georgia Intitute of Technology)

Lecture Session
Audio Indexing and Retrieval

Thursday, 6 September 2007, 16:40-18:20, Room 502

Constantine Kotropoulos (Aristotle University of Thessaloniki, Greece)

16:40

Visually-based Audio Texture Segmentation For Audio Scene Analysis

Raja Ghozi, Olfa Fraj, Mériem Jaïdane-Saïdane (Unité Signaux et Systèmes (U2S), Ecole Nationale d'Ingénieurs de Tunis)

17:00

Singing Voice Characterization for Audio Indexing

Hélène Lachambre, Régine André-Obrecht, Julien Pinquier (IRIT-UPS)

17:20

MPEG-7 Audio Spectrum Basis As a Signature of Violin Sound

Aleksander Kaminiarz, Ewa Łukasik (Poznań University of Technology)

17:40

Cepstral Features for Classification of an Impulse Response with Varying Sample Size Dataset

Cyril Hory (CNRS-ENST),
William Christmas (University of Surrey)

18:00

Speech - Nonspeech Discrimination Based on Speech-Relevant Spectrogram Modulations

Michael Wohlmayr (University of Crete),
Maria Markaki (Multimedia Informatics Lab),
Yiannis Stylianou (University of Crete)

Lecture Session
Biomedical Processing III

Thursday, 6 September 2007, 16:40-18:20, Room 503

Tomasz Zieliński (AGH University of Science and Technology, Kraków, Poland)

16:40

Generalization Capability of a Wearable Early Morning Activity Detection System

Cheol-Hong Min, Nuri Firat Ince, Ahmed H. Tewfik (University of Minnesota, Twin Cities)

17:00

Retrieval Accuracy of Very Large DNA-Based Databases of Digital Signals

Sotirios Tsaftaris, Aggelos K. Katsaggelos (Northwestern University)

17:20

One-Dimensional Modeling of DNA Sequences

Alain Tchagang, Ahmed H. Tewfik (University of Minnesota, Twin Cities)

17:40

Comprehensive Study of DNA Copy Number Analysis Using Sigma Filter

Abdullah Alqallaf, Ahmed H. Tewfik (University of Minnesota, Twin Cities)

18:00

Multilevel Statistical Inference from Functional Near Infrared Spectroscopy Signals

Koray Ciftci, Bülent Sankur, Yasemin Kahya, Ata Akýn (Boğaziçi University)

Plenary Lecture
RECENT ADVANCES IN VIDEO CODING AND TRANSMISSION

Friday, 7 September 2007, 9:00-10:00, Congress Hall

Tomasz Zieliński (AGH University of Science and Technology, Poland)

Thomas Wiegand

Fraunhofer Institute for Telecommunications, Heinrich-Hertz-Institut, Germany

Higher compression gains, improved error robustness, increased adaptability and more functionality in light of the continuous evolution of networks and end devices are the most challenging factors of modern video coding and transmission. This talk aims to address those aspects by discussing the current state of H.264/AVC video coding standardization and its upcoming extensions together with the technical ecosystem and related research. For H.264/AVC, the state-of-the-art is reviewed and new optimization approaches for encoders as well as new techniques for enhanced video compression are discussed.

One new extension of H.264/AVC is called Multi-view Video Coding (MVC) to efficiently represent video signals simultaneously acquired by multiple cameras. MVC aims at applications such as 3D Television and Free Viewpoint Video. These new applications enable new user experiences including stereoscopic and head motion parallax viewing as well as free viewpoint navigation through scenes. Also alternative techniques such as single/multi-view plus depth and computer graphics compression are analyzed.

Another extension of H.264/AVC is scalable video coding. Modern video transmission systems using the Internet and mobile networks are typically characterized by a wide range of connection qualities and receiving devices. Scalable video coding providing adaptation to error rates, throughput, power resources and spatial formats is a highly attractive option for modern video transmission applications as will be shown. These functionalities provide enhancements to transmission applications such as video streaming over 3GPP mobile, ad-hoc and peer-to-peer networks, mobile TV, as well as video conferencing.

Poster Session
Audio and Speech Processing Techniques

Friday, 7 September 2007, 10:00-12:00, Poster Area 1

Ewa Łukasik (Poznań University of Technology, Poland)

A Physiologically Based Model for Temporal Envelope Encoding in Human Primary Auditory Cortex

Pierre Dugué, Régine Le Bouquin Jeannès, Gérard Faucon (INSERM / Université de Rennes 1)

Enhanced Robustness to Unvoiced Speech and Noise in the DYPSA Algorithm for Identification of Glottal Closure Instants

Hania Maqsood, Jon Gudnason, Patrick Naylor (Imperial College London)

"Gaussianization" Method for Identification of memoryless Nonlinear Audio Systems

Imen Marrakchi (Université Tunis el Manar),
Gaël Mahé (Universite Paris Descartes),
Mériem Jaïdane-Saïdane, Sonia Djaziri-Larbi, Monia Turki-Hadj Alouane (Unité Signaux et Systèmes (U2S), Ecole Nationale d'Ingénieurs de Tunis)

Sound-Based Classification of Objects Using a Robust Fingerprinting Approach

Fabio Antonacci, Luigi Gerosa, Augusto Sarti, Stefano Tubaro, Giuseppe Valenzise (Politecnico di Milano)

Personalized Head Related Transfer Function Measurement and Verification Through Sound Localization Resolution

Michał Pec, Michał Bujacz, Paweł Strumiłło (Technical University of Łódź)

Limitations in the Extrapolation of Wave Fields from Circular Measurements

Achim Kuntz, Rudolf Rabenstein (University Erlangen-Nuremberg)

Accurate Speech Decomposition Into Periodic and Aperiodic Components Based on Discrete Harmonic Transform

Piotr Zubrycki, Alexander Petrovsky (Białystok Technical University)

Temporal Asymmetry in Relations of Acoustic and Visual Features of Speech
Gergely Feldhoffer, Tamás Bárdi, György Takács, Attila Tihanyi (Péter Pázmány Catholic University)

Choice of Analog-to-Digital Converters for Audio Measurements Using MLS Algorithm
Daniel Król (Higher State Vocational School in Tarnów)

Bandwidth Extension of Narrowband Speech Based on Blind Model Adaptation
Sheng Yao, Cheung Fat Chan (City University of Hong Kong)

Poster Session
Speech, Speaker and Language Recognition

Friday, 7 September 2007, 10:00-12:00, Poster Area 2

Saeed Vaseghi (Brunel University West London, UK)

Improved Autocorrelation-Based Noise Robust Speech Recognition Using Kernel-Based Cross Correlation and Overestimation Parameters

Gholamreza Farahani, Seyed Mohammad Ahadi, Mohammad Mehdi Homayounpour (Amirkabir University of Technology)

Detection of Overlapping Speech in Meeting Recordings Using the Modified Exponential Fitting Test

Angela Quinlan, Futoshi Asano (AIST Tsukuba)

Cross-Entropic Comparison of the Effects of Accent, Speaker and Database Recording on Spectral Features of English Accents

Seyed Ghorshi, Saeed Vaseghi (Brunel University),
Qin Yan (Hohai University, Nanjing)

Pair-of-Sequences SVM Speaker Verification

Jérôme Louradour (IRIT - Université Paul Sabatier),
Khalid Daoudi (IRIT - INRIA)

Automatic Language Recognition with Tonal and Non-Tonal Language Pre-Classification

Liang Wang, Eliathamby Ambikairajah (The University of New South Wales),
Eric H.C. Choi (National ICT Australia)

Home-Environment Adaptation of Phoneme Factorial Hidden Markov Models

Agnieszka Betkowska, Koichi Shinoda, Sadaoki Furui (Tokyo Institute of Technology)

Early Auditory Processing Inspired Features for Robust Automatic Speech Recognition

Ozlem Kalinli, Shrikanth Narayanan (University of Southern California)

The Use of a Formant Diagram in Audiovisual Speech Activity Detection

Karl van Bree, Harm Belt (Philips Research)

Front-End Post-Processing Using Histogram Equalization Combined with ARMA Filtering for Noise Robust Speech Recognition

Seyedeh Saloomeh Shariati (Iran University of Science and Technology),
Seyed Mohammad Ahadi (Amirkabir University of Technology),
Karim Mohammadi (Iran University of Science and Technology)

Employment of Voicing Information of Speech Spectra for Noise-Robust Speaker Identification

Peter Jančovič, Münevver Köküer (University of Birmingham)

A Method to Integrate Additional Knowledge Sources Into HMM Based on Junction Tree Decomposition

Sakriani Sakti, Konstantin Markov, Satoshi Nakamura (National Institute of Information and Communications Technology / ATR Spoken Language Communication)

Two Novel Visual Voice Activity Detectors Based on Appearance Models and Retinal Filtering

Andrew Aubrey (Cardiff University),
Bertrand Rivet (Stendhal University),
Yulia Hicks (Cardiff University),
Laurent Girin (Stendhal University),
Jonathon Chambers (Cardiff University),
Christian Jutten (Grenoble Institute of Technology)

Lecture Session
Machine Learning and Pattern Recognition

Friday, 7 September 2007, 10:20-12:00, Building 14A Ground Floor Hall

Constantine Kotropoulos (Aristotle University of Thessaloniki, Greece)

10:20

Feature Generation Using Genetic Programming Based on Fisher Criterion

Hong Guo, Qing Zhang, Asoke Nandi (The University of Liverpool)

10:40

Variational Approximation Data Association Filter

Hirofumi Kanazaki, Takehisa Yairi, Kazuo Machida (The University of Tokyo), Kenji Kondo, Yoshihiko Matsukawa (Matsushita Electric Industrial Co., Ltd.)

11:00

Subset Selection with Structured Dictionaries in Classification

Nuri Firat Ince, Fikri Goksu, Ahmed H. Tewfik (University of Minnesota, Twin Cities), Ibrahim Onaran, A. Enis Cetin (Bilkent University)

11:20

Hidden Markov Models for Digital Modulation Classification in Unknown isi Channels

Anchalee Puengnim (IRIT/ENSEEIHT/TéSA),
Thierry Robert (CNES),
Nathalie Thomas (IRIT/ENSEEIHT/TéSA),
Josep Vidal (Universitat Politècnica de Catalunya)

11:40

A New Algorithm for Fast Search of the K Nearest Patterns

Roberto Gil-Pita, Manuel Rosa-Zurera, Raúl Vicen-Bueno, Francisco López Ferreras (University of Alcalá)

Lecture Session
Pattern Recognition II

Friday, 7 September 2007, 10:20-12:00, Building 14A First Floor Hall
Irek Defée (Tampere University of Technology, Finland)

10:20
Validating Directional Edge-Based Image Feature Representations in Face Recognition by Spatial Correlation-Based Clustering
Yasufumi Suzuki, Tadashi Shibata (The University of Tokyo)

10:40
Global Feature Based Female Facial Beauty Decision System
Irem Türkmen, Zeyneb Kurt, Mine Elif Karsligil (Yildiz Technical University)

11:00
A Facial Pattern Recognition Approach for Detection of Temporomandibular Disorder
Mansoureh Ghodsi, Saeid Sanei, Yulia Hicks (Cardiff University),
Tracey Lee (Singapore Polytechnic),
Stephen Dunne (Kings College London, University of London)

11:20
Face Detection and Segmentation on a Hierarchical Image Representation
Veronica Vilaplana, Ferran Marques (Technical University of Catalonia)

11:40
Comparison of Fourier Descriptors and Hu Moments for Hand Posture Recognition
Simon Conseil, Salah Bourennane (Institut Fresnel),
Lionel Martin (ST Microelectronics)

Special Session
Signal Processing in
Wireless Testbeds and Prototyping

Friday, 7 September 2007, 10:20-12:00, Building 14A Second Floor Hall

Markus Rupp (Vienna University of Technology, Austria)

10:20

Challenges in Building MIMO Testbeds

Markus Rupp, Sebastian Caban, Christian Mehlführer (Vienna University of Technology)

11:00

An 8-Bit Programmable Fine Delay Circuit with Step Size 65ps for an Ultrawideband Pulse Position Modulation Testbed

Olaf Albert (Siemens AG Austria),
Christoph Mecklenbraeuker (Vienna University of Technology)

11:20

A Real-Time PRE-MIMO-LTE Software Radio Testbed

Ronald Chen (mimoOn GmbH),
Qipeng Cai (Universität Hannover),
Karsten Alecke, Onoriu Lazar, Thomas Kaiser (mimoOn GmbH)

11:40

MIMO-OFDM for a Cellular Deployment - Concepts, Real-Time Implementation and Measurements Towards 3GPP-LTE

Thomas Haustein, Josef Eichinger, Wolfgang Zirwas, Egon Schulz (Siemens Networks),
Andreas Forck, Holger Gäbler, Volker Jungnickel, Sander Wahls (Fraunhofer Heinrich Hertz Institute),
Christoph Juchems (IAF GmbH)

Special Session
Nonstationary Process Analysis, Estimation, and Applications I

Friday, 7 September 2007, 10:20-12:00, Room 402

Antonio Napolitano (Parthenope University of Naples, Italy)

10:20

Subsampling for APC Stochastic Processes

Dominique Dehay (IRMAR, Université de Rennes I),
Jacek Leśkow (The Graduate School of Business WSB-National-Louis University, Nowy Sącz)

10:40

Algorithms for Separating the Periodically Correlated Random Processes Into Harmonic Series Representation

Ihor Javorskyj (Physico-Mechanical Institute of NAS of Ukraine / Technological and Life Science University, Poland),
Ihor Isayev, Ihor Kravets (Physico-Mechanical Institute of NAS of Ukraine)

11:00

Comparison of the Coherent and the Component Methods for Estimating the Characteristics of the Periodically Correlated Random Processes

Ihor Isayev (Physico-Mechanical Institute of NAS of Ukraine),
Ihor Javorskyj (Physico-Mechanical Institute of NAS of Ukraine / Technological and Life Science University, Poland),
Roman Yuzefofych (Physico-Mechanical Institute of NAS of Ukraine)

Lecture Session
Sampling, Interpolation, and Extrapolation

Friday, 7 September 2007, 10:20-12:00, Room 403

Ewa Hermanowicz (Gdańsk University of Technology, Poland)

10:20

Algorithms for Downsampling Non-Uniformly Sampled Data

Frida Eng, Fredrik Gustafsson (Linköpings Universitet)

10:40

A New Formula for Lost Sample Restoration

Marie Chabert (ENSEEIHT/IRIT),
Bernard Lacaze (TéSA/ENSEEIHT)

11:00

Implementation Aspects of Generalized Bandpass Sampling

Yiran Sun, Svante Signell (KTH-Royal Institute of Technology)

11:20

Characterization of the Reconstruction Behavior of Generalized Sampling Series for Bandlimited Paley-Wiener Functions

Holger Boche, Ullrich Mönich (Berlin University of Technology)

11:40

Torwards a General Formulation for Over-Sampling and Under-Sampling

Akira Hirabayashi (Yamaguchi University),
Laurent Condat (GSF-IBB)

Lecture Session
Color Image Processing

Friday, 7 September 2007, 10:20-12:00, Room 502

Touradj Ebrahimi (Ecole Polytechnique Fédérale de Lausanne, Switzerland)

10:20

Colour Gradient Using Geometric Algebra

Patrice Denis, Philippe Carré (University of Poitiers)

10:40

CCD Image DEMOSAICING Using Localized Correlations

Ronen Sher, Moshe Porat (Technion - Israel Institute of Technology)

11:00

Modeling and Compensation of Geometric Distortions of Multispectral Cameras with Optical Bandpass Filter Wheels

Johannes Brauers, Nils Schulte, Til Aach (Institute of Imaging & Computer Vision, RWTH Aachen University)

11:20

A Probabilistic Shading Invariant Color Distance Measure

Slawo Wesolkowski (DRDC),
Paul Fieguth (University of Waterloo)

11:40

GPU-Based Background Illumination Correction for Blue Screen Matting

Nicolas Ley, Christian Weigel (Technische Universit¨at Ilmenau)

Lecture Session
Sensing

Friday, 7 September 2007, 10:20-12:00, Room 503

Kostas Berberidis (University of Patras, Greece)

10:20

DSP Based Acoustic Vehicle Classification for Multi-Sensor Real-Time Traffic Surveillance

Andreas Klausner, Allan Tengg, Stefan Erb, Bernhard Rinner (Technical University of Graz)

10:40

Distributed Cancellation-Based Multiple-Source Localization for Wireless Sensor Networks

Dimitris Ampeliotis, Kostas Berberidis (University of Patras and C.T.I. R & D)

11:00

Travelling Waves in the Occurrence of Earthquake in Taiwan

Fu-Tai Wang (Hwa Hsia Institute of Technology),
Jenny Chih-Yu Lee (National Kaohsiung Marine University),
Shun-Hsyung Chang (National Taiwan Ocean University),
Jhih-Jhen Chen, Chiu-Hung Su, Chen-Chain Hwu, Haw-Jyi Lin (Hwa Hsia Institute of Technology)

11:20

Automatic Object-Level Change Interpretation for Multispectral Remote Sensing Imagery

Karin Griffis, Maja Bystrom (Boston University)

11:40

Optimized Path Planning for UAVs with AOA/Scan Based Sensors

Kutluyıl Doğançay (University of South Australia)

Plenary Lecture
3-D DISPLAYS AND SIGNAL PROCESSING: AN ANSWER TO 3-D ILLS?

Friday, 7 September 2007, 13:30-14:30, Congress Hall

Ryszard Stasiński (Poznań University of Technology, Poland)

Janusz Konrad

Boston University, USA

Three-dimensional perception of our surroundings is a natural part of daily life. Over the last 100+ years many attempts have been made to replicate the 3-D experience by means of various photo-, film- or print-based systems. While some have achieved limited commercial success, none have attained equal status to their 2-D counterparts. However, recent advances in electronic display technologies, digital signal processing techniques and computer graphics tools, promise a new era for 3-D displays. In fact, signal processing algorithms tuned to the unique problems of 3-D imaging will likely be the enabling technology for the emerging 3-D display systems.

In this talk. I will discuss the major 3-D display technologies in use today, from simple glasses-based systems (colored, polarized, shuttered), through glasses-free parallax-barrier and microlens displays, to holographic, and volumetric display devices. I will describe the underlying physics as well as the associated benefits and deficiencies. I will emphasize the common principles that all 3-D displays share, and discuss issues such as sampling, multiplexing and rendering, particularly critical to dynamic 3-D display systems. I will highlight the role signal processing has played in addressing deficiencies of some 3-D displays, and will also point out the still unsolved problems awaiting signal processing solutions.

Poster Session
Applications of Statistical Signal and Array Processing

Friday, 7 September 2007, 14:40-16:40, Poster Area 1

Jean-Christophe Pesquet (Université Marne-La-Vallée, France)

A Study on Two-Sided Linear Prediction Approach for Land Mine Detection

Thomas Chin Tao Chan, Hing Cheung So (City University of Hong Kong),
K. C. Ho (University of Missouri - Columbia)

EMD Algorithm Based on Bandwidth and the Application on One Economic Data Analysis

Xie Qiwei (University of Science and Technology of China),
Xuan Bo, Li Jianping, Xu Weixuan, Han Hua (Chinese Academy of Sciences)

Comparison of the Extended Kalman Filter and the Unscented Kalman Filter for Parameter Estimation in Combustion Engines

Christoph Kallenberger, Haris Hamedović (Robert Bosch GmbH),
Abdelhak M. Zoubir (Darmstadt University of Technology)

Efficient Localization and Tracking of Two Acoustic Sources Using Particle Filters with Swarm Intelligence

Fabio Antonacci, Davide Riva, Augusto Sarti, Marco Tagliasacchi, Stefano Tubaro (Politecnico di Milano)

Robust Detection of Polymorphic NQR Signals

Naveed Razzaq Butt (Karlstad University),
Samuel Somasundaram (Kings College London, University of London),
Andreas Jakobsson (Karlstad University)

Opportunistic Random Access for Distributed Parameter Estimation in Wireless Sensor Networks

Javier Matamoros, Carles Antón-Haro (Centre Tecnològic de Telecomunicacions de Catalunya)

Applying Non-Negative Matrix Factorization for Global Signal Elimination from Electromagnetic Signals

Motoaki Mouri, Arao Funase (Nagoya Institute of Technology),
Andrzej Cichocki (Brain Science Institute, RIKEN),
Ichi Takumi (Nagoya Institute of Techonoly),
Hiroshi Yasukawa (Aichi Prefectural University),
Masayasu Hata (Chubu University)

Asymptotic Generalized Eigenvalue Distribution of Block Toeplitz Matrices and Application to Space-Time Beamforming
Marc Oudin, Jean-Pierre Delmas (GET/INT)

Source Localisation in Shallow Ocean Using a Vertical Array of Acoustic Vector Sensors
G.V. Anand, K.P. Arunkumar (Indian Institute of Science)

Data Preprocessing for Decametre Wavelength exoplanet Detection: an Example of cyclostationary rfi Detector
Rodolphe Weber (University of Orléans),
Philippe Zarka (Université Paris Diderot),
Volodymyr Ryabov (Future University Hakodate),
Rym Feliachi (University of Orléans),
Jean-Mathias Grießmeier (Université Paris Diderot),
Laurent Denis (Station of Radioastronomy of Nancay),
Vladimir Kozhyn, Vladimir Vinogradov (National Academy of Sciences of Ukraine),
Philippe Ravier (University of Orléans)

A Signal Representation Approach for Discrimination Between Full and Empty Hazelnuts
Ibrahim Onaran (Bilkent University),
Nuri Firat Ince, Ahmed H. Tewfik (University of Minnesota, Twin Cities),
A. Enis Cetin (Bilkent University)

Parameters and DOA Estimation Based on Wavelet Packets Selection for Transient Signals in Colored Noise
Marwa Chendeb, Guy Plantier, Anthony Sourice (Ecole Supérieure d'Electronique de l'Ouest)

Poster Session
Biomedical Signal Processing and Biometrics

Friday, 7 September 2007, 14:40-16:40, Poster Area 2

Tomasz Zieliński (AGH University of Science and Technology, Kraków, Poland)

Human Computer Interaction- Applying Fuzzy C-Means, Recurrent Neural Network and Wavelet Transforms for Voluntary Eye Blink Detection

Alireza Akhbardeh, Arezou Akbarian Azar (Tampere University of Technology / Drexel University)

Spectral Analysis Techniques of Stationary Point Processes Used for the Estimation of Cross-Correlation

George Karavasilis, Alexandros Rigas (Democritus University of Thrace)

An Algorithm for Decomposition of Heart Sounds Based on S-Method

Ervin Sejdić (The University of Western Ontario),
Predrag Raković, Miloš Daković, Ljubiša Stanković (University of Montenegro)

A New Beamforming Approach for the Localisation of Event Related Potentials

Loukianos Spyrou, Saeid Sanei (Cardiff University)

On 3D Tracking for Echocardiographic Classification of Acute Myocardial Infarction

Eyal Braiman, Moshe Porat (Technion - Israel Institute of Technology)

Comparison of Three Time-Varying Delay Estimators with Application to Electromyography

Frederic Leclerc, Philippe Ravier, Olivier Buttelli (University of Orléans),
Jean-Claude Jouanin (Institut de Médecine Aérospatiale du Service de Santé des Armées)

An ECG Compression Approach Based on a Segment Dictionary and Bezier Approximations

Mário Brito, Jorge Henriques, Paulo Carvalho, Bernardete Ribeiro (University of Coimbra),
Manuel Antunes (University Hospital of Coimbra)

CT Data Processing and Visualization Aspects of Virtual Colonoscopy

Andrzej Skalski, Mirosław Socha, Tomasz Zieliński (AGH University of Science and Technology),
Mariusz Duplaga (Jagiellonian University)

Stochastic Integrate-and-Fire Model for the Retina

Sérgio Capela, Pedro Tomás, Leonel Sousa (INESC-ID)

Poster Session
Multimedia Watermarking and Data Hiding I

Friday, 7 September 2007, 14:40-16:40, Poster Area 3

Patrizio Campisi (Universita degli Studi Roma Tre, Italy)

An Efficient Data-Hiding Method Based on Lossless JPEG2000 for a Scalable and Synchronized Visualization of 3D Terrains

Khizar Hayat (University of Montpellier II),
William Puech (University of Montpellier),
Gilles Gesquiere (University of Marseille)

A Data Hiding Method Based on the Topology Change of a 3D Triangular Mesh

Philippe Amat (University of Montpellier II),
William Puech (University of Montpellier),
Sébastien Druon (University of Montpellier II),
Jean-Pierre Pedeboy (STRATEGIES Society)

A Practical Protocol for Digital and Printed Document Authentication

Paulo Borges, Joceli Mayer (Federal University of Santa Catarina),
Ebroul Izquierdo (Queen Mary, University of London)

Colour Spread Transform Data Hiding Capacity Using Complex Wavelets

Alastair Thompson, Ahmed Bouridane, Fatih Kurugollu (Queen's University Belfast)

Morphological Wavelet Domain Watermarking

Deepayan Bhowmik, G C K Abhayaratne (University of Sheffield)

3D-DCT Video Watermarking Using Quantization-Based Methods

Patrizio Campisi (Università degli studi Roma TRE),
Alessandro Neri (University of Roma TRE)

Lecture Session
Ultrawideband and Spread Spectrum Systems

Friday, 7 September 2007, 14:40-16:20, Building 14A Ground Floor Hall

Christoph Mecklenbräuker (Vienna University of Technology, Austria)

14:40

Coverage and Density of a Low Power, Low Data Rate, Spread Spectrum Wireless Sensor Network for Agricultural Monitoring

Louise Crockett, Eugen Pfann, Robert Stewart (University of Strathclyde)

15:00

Pulsed Multi-Band MIMO for UWB Systems

Craig Mitchell, Pedro Crespo, Javier Del Ser (University of Navarra)

15:20

Mitigating Multi-User Interference (MUI) in Ultra Wideband (UWB) System Using Ds-CDMA Based ofdm

Himanshukumar Soni, Uday Desai, S.N. Merchant (Indian Institute of Technology, Bombay)

15:40

Robust Frequency-Domain Channel Estimation and Detection for Ultra-Wideband Signals Under Non-Gaussian Noise

Ersen Ekrem, Mutlu Koca, Hakan Deliç (Boğaziçi University)

Lecture Session
3D and Multiview Image and Video

Friday, 7 September 2007, 14:40-16:20, Building 14A First Floor Hall
Janusz Konrad (Boston University, USA)

14:40
Obstacle Localization in 3D Scenes from Stereoscopic Sequences
Piotr Skulimowski, Paweł Strumiłło (Technical University of Łódź)

15:00
MULTIVIEW Distributed Video Coding with Encoder Driven Fusion
Mourad Ouaret, Frederic Dufaux, Touradj Ebrahimi (Ecole Polytechnique Fédérale de Lausanne)

15:20
Motion-Based Mesh Clustering for MCDWT Compression of 3D Animated Meshes
Yasmine Boulfani-Cuisinaud (I3S Laboratory),
Marc Antonini (University of Nice-Sophia Antipolis),
Frédéric Payan (I3S Laboratoy)

15:40
Stereoscopic Images Quality Assessment
Patrizio Campisi (Università degli studi Roma TRE),
Patrick Le Callet (Ecole Polytechnique de L'Universitè de Nantes),
Enrico Marini (Università degli studi Roma TRE)

16:00
Multicamera Audio-Visual Analysis of Dance Figures Using Segmented Body Model
Ferda Ofli, Yasemin Demir, Engin Erzin, Yucel Yemez, A. Murat Tekalp (Koç University)

Special Session
Multiple Description Coding (MDC)

Friday, 7 September 2007, 14:40-16:20, Building 14A Second Floor Hall

Adrian Munteanu (Vrije Universiteit Brussel, Belgium)
Peter Schelkens (Vrije Universiteit Brussel, Belgium)

14:40

The Evolution of Multiple Description Coding Based on Scalar Quantization

Fabio Verdicchio, Adrian Munteanu, Jan Cornelis, Peter Schelkens (Vrije Universiteit Brussel)

15:20

Error-Resilient Transmission of H.264 SVC Streams Over DVB-T/H and WiMAX Channels with Multiple Description Coding Techniques

Peter Schelkens, Augustin Gavrilescu, Adrian Munteanu (Vrije Universiteit Brussel),
Yves D'Hondt, Kenneth Vermeirsch, Rik Van de Walle (Ghent University),
Olivier Guye (VITEC Multimedia),
Stewart Worrall (University of Surrey),
Antonio Navarro (Telecommunications Institute)

15:40

A Sequence-Based Error Recovery Algorithm for a Multiple Description P2P Video Transmission System

Marco Fumagalli, Rosa Lancini, Stefano Tubaro (Politecnico di Milano)

16:00

A Comparison of Four Video Multiple Description Coding Schemes

Christophe Tillier (GET / ENST / Télécom Paris),
Olivier Crave (GET / Télécom Paris and INRIA/IRISA),
Béatrice Pesquet-Popescu (GET / Télécom Paris),
Christine Guillemot (INRIA/IRISA)

Special Session
Nonstationary Process Analysis, Estimation, and Applications II

Friday, 7 September 2007, 14:40-16:20, Room 402

Antonio Napolitano (Parthenope University of Naples, Italy)

14:40

On Discrete-Time Estimators of Second-Order Moments of Generalized Almost-Cyclostationary Processes

Antonio Napolitano (Universita di Napoli Parthenope)

15:00

On Smoothing Opportunities in Identification of Time-Varying Systems - Beyond the Posterior Cramer-Rao Bound

Maciej Niedźwiecki (Gdańsk University of Technology)

15:20

Testing Stationarity with Time-Frequency Surrogates

Jun Xiao (ENS Lyon),
Pierre Borgnat, Patrick Flandrin (CNRS - ENS Lyon)

Lecture Session
Transforms and Fast Algorithms

Friday, 7 September 2007, 14:40-16:20, Room 403

Asoke Nandi (University of Liverpool, United Kingdom)

14:40

A SVD-Based Algorithm for Dense Nonuniform Fast Fourier Transform

Salvatore Caporale, Luca De Marchi, Nicolò Speciale (University of Bologna)

15:00

Efficient Implementation of the Local Capon Spectral Estimate

Stephen Alty (Kings College London, University of London),
Jacob Benesty (University of Quebec),
Andreas Jacobsson (Karlstad University)

15:20

Properties and Relations of New Fastest Linearly Independent Arithmetic Transforms for Ternary Functions

Bogdan Falkowski, Cicilia Lozano (Nanyang Technological University),
Tadeusz Łuba (Warsaw University of Technology)

15:40

Calculation of Composite Spectra for Boolean Functions in Haar Domain

Bogdan Falkowski (Nanyang Technological University),
Shixing Yan (HP Labs China)

16:00

Computationally Efficient Adaptive Rate Sampling and Filtering

Saeed Mian Qaisar, Laurent Fesquet, Marc Renaudin (Laboratory TIMA)

Lecture Session
Speech Analysis I

Friday, 7 September 2007, 14:40-16:20, Room 502

Ulrich Heute (Christian-Albrechts-University of Kiel, Germany)

14:40

Time-Varying Linear Prediction for Speech Analysis

Karl Schnell, Arild Lacroix (Johann Wolfgang Goethe University Frankfurt)

15:00

A Study of Temporal Structure of Glottal Flow Derivative Estimates Obtained via Inverse Filtering

Emir Turajlic (Sarajevo School of Science and Technology),
Saeed Vaseghi (Brunel University)

15:20

Automatic Phonemic Segmentation Using the Bayesian Information Criterion with Generalised Gamma Priors

George Almpanidis, Constantine Kotropoulos (Aristotle University of Thessaloniki)

15:40

Multichannel DYPSA for Estimation of Glottal Closure Instants in Reverberant Speech

Mark Thomas, Nikolay Gaubitch, Patrick Naylor (Imperial College London)

16:00

A Non-Causal Approach to Voice Activity Detection in Adverse Environments Using a Novel Noise Estimator

Alireza Esmaeili, Seyed Mohammad Ahadi, Mir Abolhasan Fassihi (Amirkabir University of Technology)

Lecture Session
Radar

Friday, 7 September 2007, 14:40-16:20, Room 503
Kutluyıl Doğançay (University of South Australia, Australia)

14:40
Radar-Vision Fusion for Vehicle Detection by Means of Improved Haar-Like Feature and AdaBoost Approach
Anselm Haselhoff, Anton Kummert (University of Wuppertal),
Georg Schneider (Audi Electronics Venture GmbH)

15:00
A Reduced Rank Stap with Change of PRF
Samira Dib (ENST Télécom Paris),
Mourad Barkat (American University of Sharjah),
Jean-Marie Nicolas (ENST/TSI, Télécom Paris),
Mourad Grimes (University of Jije)

15:20
Clutter Rejection Using Range-Recursive Space-Time Adaptive Processing (STAP) Algorithms in Non sidelooking Configuration
Sophie Beau, Sylvie Marcos (Laboratoire des Signaux et Systèmes, CNRS, Supelec)

15:40
Some Improvements of the Linear Subspace Algorithm Swede for Time Delay Estimation
Cédric Le Bastard, Vincent Baltazart (Laboratoire Central des Ponts et Chaussées),
Yide Wang (Institut de Recherche en Electrotechnique et Electronique de Nantes Atlantique)

16:00
Joint Estimation of Scan Rate and Emitter Location in Scan Based Passive Localization Systems
Hatem Hmam (DSTO),
Kutluyıl Doğançay (University of South Australia)

Lecture Session
Multiuser Communication

Friday, 7 September 2007, 16:40-18:20, Building 14A Ground Floor Hall
Krzysztof Wesołowski (Poznań University of Technology, Poland)

16:40
Robust Sequential Interference Cancellation for Space Division Multiple Access Communications
Amir Leshem, Sharon Gannot (Bar-Ilan University)

17:00
Broadcast Channel Optimal Spectrum Balancing (BC-OSB) with Per-Modem Total Power Constraints for Downstream DSL
Vincent Le Nir, Marc Moonen (Katholieke Universiteit Leuven),
Mamoun Guenach, Jan Verlinden (Alcatel-Lucent)

17:20
A New Transmission Strategy for Scalable Multimedia Data on OFDM Systems
Heykel Houas, Cléo Baras, Inbar Fijalkow (ETIS)

17:40
Constrained Space-Time Spreading for MIMO-CDMA Systems: Tensor Modeling and Blind Detection
André de Almeida (Laboratoire I3S - CNRS - UNSA),
Gérard Favier (University of Nice Sophia - Antipolis),
João Mota (GTEL/DETI/UFC)

18:00
Root Minimum Variance TOA Estimation for Wireless Location
Luis Blanco, Jordi Serra (Universitat Politècnica de Catalunya),
Montse Nájar (Universitat Politècnica de Catalunya / Centre Tecnològic de Telecomunicacions de Catalunya)

Lecture Session
Medical Imaging II

Friday, 7 September 2007, 16:40-18:20, Building 14A First Floor Hall
Asoke Nandi (University of Liverpool, United Kingdom)

16:40
Imaging D2-Dopamine Receptor Concentration in Non-Human Primate Brain Using 18F-Fallypride
Mustafa Ersel Kamasak (Istanbul Technical University),
Charles A Bouman (Purdue University),
Bradley T Christian (University of Wisconsin-Madison),
Evan D Morris (Indiana University Purdue University at Indianapolis)

17:00
Morphological Enhancement of Medical Images in a Logarithmic Image Environment Toolbox
Eugen Zaharescu (OVIDIUS University of Constanta)

17:20
Frequency Selective Height-from-Stereo Reconstruction: Application to Retinal Oedemas Detection
Slaven Marusic (The University of Melbourne),
Petr Dokladal (School of Mines, Paris),
Ali Erginay (Hôpital Lariboisière, Paris),
Jean-Claude Klein (School of Mines, Paris),
M Palaniswami (The University of Melbourne)

17:40
Clustering Dynamic Pet Images on the Gaussian Distributed Sinogram Domain
Mustafa Ersel Kamasak (Istanbul Technical University)

18:00
Multimodal Medical Image Registration Using a Novel Implementation of the ICP Algorithm
Almhdie Almhdie (Université d'Orléans / University of Sebha),
Christophe Léger (Université d'Orléans),
Mohamed Deriche (King Fahd University Of Petroleum & Minerals, Dhahran),
Roger Lédée (Université d'Orléans)

Special Session
LTE Signal Processing

Friday, 7 September 2007, 16:40-18:20, Building 14A Second Floor Hall

Thomas Kaiser (Leibniz University of Hannover, Germany)

16:40

Introduction to Single Carrier FDMA

Hyung Myung (Qualcomm/Flarion)

17:00

Implementation of a K-Best Based MIMO-OFDM Detector Algorithm

Johanna Kerttula, Markus Myllylä, Markku Juntti (University of Oulu)

17:20

Comparison of Localized, Interleaved and Block-Interleaved FDMA in Terms of Pilot Multiplexing and Channel Estimation

Anja Sohl, Anja Klein (Darmstadt University of Technology)

Lecture Session
Image Enhancement II

Friday, 7 September 2007, 16:40-18:20, Room 402

Aggelos K. Katsaggelos (Northwestern University, USA)

16:40

Signal-Dependent Noise Removal in Pointwise Shape-Adaptive DCT Domain with Locally Adaptive Variance

Alessandro Foi, Vladimir Katkovnik, Karen Egiazarian (Tampere University of Technology)

17:00

Total Variation Blind Deconvolution Using a Variational Approach to Parameter, Image, and Blur Estimation

Sevket Derin Babacan (Northwestern University),
Rafael Molina (Universidad de Granada),
Aggelos K. Katsaggelos (Northwestern University)

17:20

Doubly-Rotated Matched Filtering

Matthias Mühlich, Thorsten Dahmen, Til Aach (RWTH Aachen University)

17:40

Multispectral Image Enhancement Based on Fusion and Super-Resolution

Valery Starovoitov, Aliaksei Makarau (United Institute of Informatics Problems),
Igor Zakharov, Dmitry Dovnar (Institute of Technolory of Metals)

18:00

Local Enhancement of Car Image for License Plate Detection

Vahid Abolghasemi, Alireza Ahmadyfard (Shahrood University of Technology)

Lecture Session
Multimedia Watermarking and Data Hiding II

Friday, 7 September 2007, 16:40-18:20, Room 403

Patrizio Campisi (Universita degli Studi Roma Tre, Italy)

16:40

Spread Transform Video Watermarking Using 3D Complex Wavelets

Alastair Thompson, Ahmed Bouridane, Fatih Kurugollu (Queen's University Belfast)

17:00

Video-DNA: Large-Scale Server-Side Watermarking

Ivan Kopilovic (Nokia Siemens Networks GmbH & Co. KG),
Virginie Drugeon (Panasonic R&D Center Germany),
Marcel Wagner (Nokia Siemens Networks GmbH & Co. KG)

17:20

Blind City Maps Watermarking Utilizing Road Width Information

Elias Horness, Nikos Nikolaidis, Ioannis Pitas (Aristotle University of Thessaloniki)

17:40

Watermarking for Light Field Rendering

Alper Koz, Cevahir Çığla, A. Aydin Alatan (Middle East Technical University)

18:00

Data Hiding in H.264 Video for Lossless Reconstruction of Region of Interest

Peter Meuel, Marc Chaumont, William Puech (Laboratory of Data processing, Robotics and Micro-electronics of Montpellier)

Lecture Session
Speech Analysis II

Friday, 7 September 2007, 16:40-18:20, Room 502

Patrick Naylor (Imperial College, London, United Kingdom)

16:40

Improving Speech Emotion Recognition Using Adaptive Genetic Algorithms

Mohammad Sedaaghi, Dimitrios Ververidis, Constantine Kotropoulos (Aristotle University of Thessaloniki)

17:00

Vocal Fold Pathology Detection Using Modified Wavelet-Like Features and Support Vector Machines

Petr Kukharchik, Dmitry Martynov, Igor Kheidorov, Oleg Kotov (Belarusian State University)

17:20

Group Delay for Acoustic Event Representation and its Application for Speech Aperiodicity Analysis

Hideki Kawahara, Masanori Morise, Toru Takahashi, Toshio Irino (Wakayama University),
Hideki Banno (Meijo University),
Osamu Fujimura (Ohio State University)

17:40

Automated Characterization of Esophageal and Severely Injured Voices by Means of Acoustic Parameters

Begonya García, Ibon Ruiz, Amaia Méndez, Javier Vicente, Mikel Mendezona (University of Deusto)

18:00

Screening for High Risk Suicidal States Using Mel-CEPSTRAL Coefficients and Energy in Frequency Bands

Hande Kaymaz Keskinpala, Thaweesak Yingthawornsuk, D. Mitch Wilkes, Richard G. Shiavi, Ronald M. Salomon (Vanderbilt University)

Lecture Session
Time-Frequency Signal Analysis

Friday, 7 September 2007, 16:40-18:20, Room 503

Gabriel Cristobal (Consejo Superior de Investigaciones Científicas, Spain)

16:40

A Model-Based Quality Improvement and Assessment of Hazy Degraded Images

Salvador Gabarda, Gabriel Cristobal (Instituto de Optica / Superior Council of Investigaciones Científicas),
Filip Šroubek (Academy of Sciences of Czech Republic)

17:00

Wigner Distributions of Noise and Telecommunication Stochastic Processes

Kajetana Snopek (Warsaw University of Technology)

17:20

Discrete-to-Discrete Prolate Spheroidal Wave Functions and Finite Duration Discrete Fractional Fourier Transform

Soo-Chang Pei, Jian-Jiun Ding (National Taiwan University)

17:40

On-Line Detection of Transients in Spectrograms

Jüri Sildam (Defence Research and Development Canada Atlantic)

18:00

Time-Frequency Representation Based Chirp-Like Signal Analysis Using Multiple Level Crossings

Modris Greitans (Institute of Electronics and Computer Science, Riga)

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MONDAY, SEPTEMBER 3, 2007

	MORNING TUTORIALS
09:00- -10:30	**Room 403** **What energy to minimize?** Mila Nikolova *Centre de Mathématiques et de Leurs Applications (CMLA), ENS de Cachan, France* **Room 402** **Multirate Signal Processing in Communication Systems** Frederick Harris *San Diego State University, San Diego, California, USA* **Room 401** **Recent Advances in Video Coding** Thomas Wiegand *Fraunhofer Institute for Telecommunications, Berlin, Germany* **Room 503** **Deformable Models in Medical Image Processing** **- Advances in Image Guided Radiotherapy** Bogdan J. Matuszewski *Applied Digital Signal and Image Processing Research Centre* *Department of Technology, University of Central Lancashire, United Kingdom* Christopher J. Moore *Christie Hospital NHS Trust, North Western Medical Physics,United Kingdom* **Room 502** **Image Fusion - Principles, Methods, and Applications** Jan Flusser, Filip Šroubek, Barbara Zitová *Institute of Information Theory and Automation,* *Academy of Sciences of the Czech Republic*
10:30- -11:00	Coffee Break (served in front of the Congress Hall)
11:00- -12:30	MORNING TUTORIALS (continued)
12:30- -14:00	Lunch Break

MONDAY, SEPTEMBER 3, 2007

	AFTERNOON TUTORIALS
14:00- -15:30	**Room 402** **Spatially adaptive local approximations in signal and image processing: varying-scale polynomials, anisotropic adaptation, shape-adaptive transforms**. Alessandro Foi, Vladimir Katkovnik, Karen Egiazarian *Institute of Signal Processing, Tampere University of Technology, Finland* **Room 502** **Power Line Communications** Stefano Galli *Panasonic, San Jose, California, USA* **Room 503** **Distributed Video Coding: Basics, Codecs and Applications** Christine Guillemot and Aline Roumy *AINRIA/IRISA, Campus Universitaire de Beaulieu, Rennes, France* **Room 401** **Visual Medicine: Techniques and Applications for Computer-assisted Surgery** Dirk Bartz, Oliver Burgert *University of Leipzig, ICCAS, Germany* **Room 403** **Biometric Identity Verification - Signal Processing Challenges** Andrzej Drygajło *Ecole Polytechnique Fédérale de Lausanne, Switzerland*
15:30- -16:00	Coffee Break (served in front of the Congress Hall)
16:00- -17:30	AFTERNOON TUTORIALS (continued)
17:30- -20:00	"Get together" in Palm House (for details see Guide booklet)

TUESDAY, SEPTEMBER 4, 2007

Time	Bulding 14A Ground Floor Hall	Bulding 14A First Floor Hall	Bulding 14A Second Floor Hall	Room 402	Room 403
09:00--10:30	CONGRESS HALL Opening Ceremony Plenary lecture: 'Multi-way Blind Source Separation Using Nonnegative Matrix Factorization and Sparse Component Analysis', A. Cichocki				
10:30--10:50	Coffee Break (served in front of the Congress Hall)				
10:50--12:30	Multirate Filtering and Filter Banks	Machine Vision	Coding and Processing of Multi-View Video	Biometrics Recognition	Video Enhancement
12:30--14:00	Lunch Break				
14:00--15:00	CONGRESS HALL Plenary lecture: 'Channel-Aware Distributed Estimation and Detection Using Wireless Sensor Network', G. Giannakis				
15:10--16:50	Adaptive Filters I	Image Analysis	Quality Evaluation in Image and Video Processing	Multimodal Biometrics and Smart Cards	Motion Analysis and Applications
16:50--17:10	Coffee Break (served in front of the Congress Hall and in Building 14A)				
17:10--18:50	Adaptive Filters II	Medical Imaging I	Multidimensional Signal Processing and Systems	Sparse Modelling Approaches to Audio and Music Signal Processing	Multicarrier Systems

TUESDAY, SEPTEMBER 4, 2007

<table>
<tr><th>Room 502</th><th>Room 503</th><th>Poster Area 1</th><th>Poster Area 2</th><th>Poster Area 3</th><th>Time</th></tr>
<tr><td colspan="5">CONGRESS HALL
Opening Ceremony
Plenary lecture: 'Multi-way Blind Source Separation Using Nonnegative Matrix Factorization and Sparse Component Analysis', A. Cichocki</td><td>09:00--10:30</td></tr>
<tr><td colspan="2">Coffee Break</td><td rowspan="2">Channel Identification and Equalization</td><td rowspan="2">Signal Processing for Communications</td><td rowspan="2"></td><td>10:30--10:50</td></tr>
<tr><td>Speech Enhancement and Noise Reduction I</td><td>Array Signal Processing</td><td>10:50--12:30</td></tr>
<tr><td colspan="5">Lunch Break</td><td>12:30--14:00</td></tr>
<tr><td colspan="5">CONGRESS HALL
Plenary lecture: 'Channel-Aware Distributed Estimation and Detection Using Wireless Sensor Network', G. Giannakis</td><td>14:00--15:00</td></tr>
<tr><td>Speech Enhancement and Noise Reduction II</td><td>Beamforming, DOA Estimation, and Space-Time Adaptive Processing</td><td rowspan="2">New Concepts in Signal Analysis, Modelling, and Reconstruction</td><td rowspan="2">Image Data Compression</td><td rowspan="2">Video Data Compression</td><td>15:10--16:50</td></tr>
<tr><td colspan="2">Coffee Break</td><td>16:50--17:10</td></tr>
<tr><td>Loudspeaker and Microphone Array Signal Processing I</td><td>Source Localization and Separation</td><td></td><td></td><td></td><td>17:10--18:50</td></tr>
</table>

WEDNESDAY, SEPTEMBER 5, 2007

Time	Bulding 14A Ground Floor Hall	Bulding 14A First Floor Hall	Bulding 14A Second Floor Hall	Room 402	Room 403
09:00--10:00	CONGRESS HALL EURASIP Fellow Inaugural Lecture: 'Review of real world MIMO system performance', P. Grant				
10:00--10:20	Coffee Break (served in front of the Congress Hall)				
10:20--12:00	Biometrics	Image Coding I	Advanced Digital Signal Processing for Future Wireless System I	The Semantic Gap in Visual Information Retrieval	Architectures and VLSI Hardware
12:00--13:30	Lunch Break				
13:30--14:30	CONGRESS HALL Plenary lecture: 'Reinventing Compression: The New Paradigm of Distributed Video Coding', B. Girod				
14:40--16:20	MIMO and Space-Time Processing	Image Coding II	Advanced Digital Signal Processing for Future Wireless System II	Bayesian Localization and Data Fusion Methods for Distributed Systems	Design Methodology and Rapid Prototyping
16:20--16:40	Coffee Break (served in front of the Congress Hall and in Building 14A)				
	Sightseeing (for details see Guide booklet)				

WEDNESDAY, SEPTEMBER 5, 2007

Room 502	Room 503	Poster Area 1	Poster Area 2	Poster Area 3	Time
CONGRESS HALL EURASIP Fellow Inaugural Lecture: 'Review of real world MIMO system performance', P. Grant					09:00--10:00
Coffee Break		Filter, Filter Bank, and Algorithm Structures	Image Enhancement III	Medical Imaging III	10:00--10:20
Loudspeaker and Microphone Array Signal Processing II	Process Model Estimation				10:20--12:00
Lunch Break					12:00--13:30
CONGRESS HALL Plenary lecture: 'Reinventing Compression: The New Paradigm of Distributed Video Coding', B. Girod					13:30--14:30
Signal Processing for Music	Parameter Estimation				14:40--16:20
Coffee Break					16:20--16:40
Sightseeing (for details see Guide booklet)					

THURSDAY, SEPTEMBER 6, 2007

Time	Bulding 14A Ground Floor Hall	Bulding 14A First Floor Hall	Bulding 14A Second Floor Hall	Room 402	Room 403
09:00--10:00	CONGRESS HALL EURASIP Fellow Inaugural Lecture: 'Sampling Sparse Signals at Occam's Rate', M. Vetterli				
10:00--10:20	Coffee Breake (served in front of the Congress Hall)				
10:20--12:00	Channel Modeling, Estimation and Equalization I	Video Coding I	Implementations of MIMO Wireless Communication Systems	New Methods for the Analysis of Deformation Signals of Natural and Artificial Structures	Speech Recognition
12:00--13:30	Lunch Break				
13:30--14:30	CONGRESS HALL Plenary lecture: Equalization of MIMO Channels, J. Proakis				
14:40--16:20	Channel Modeling, Estimation and Equalization II	Video Coding II	Optimization of Wireless Multiuser MIMO Communication Systems	Hypercomplex Digital Signal Processing: Fundamentals and Applications	Texture Analysis
16:20--16:40	Coffee Break (served in front of the Congress Hall and in Building 14A)				
16:40--18:20	Channel Modeling, Estimation and Equalization III	Pattern Recognition I	Content and Network Aware Video Streaming	Image Enhancement I	Room Equalization and Echo Cancellation
20:00	Conference Dinner (for details see Guide booklet)				

THURSDAY, SEPTEMBER 6, 2007

Room 502	Room 503	Poster Area 1	Poster Area 2	Poster Area 3	Time
CONGRESS HALL EURASIP Fellow Inaugural Lecture: 'Sampling Sparse Signals at Occam's Rate', M. Vetterli					09:00- -10:00
Coffee Break		Hardware and Software for Signal Processing	Hardware and Software for Image Processing		10:00- -10:20
Audio Signal Analysis	Biomedical Processing I				10:20- -12:00
Lunch Break					12:00- -13:30
CONGRESS HALL Plenary lecture: Equalization of MIMO Channels, J. Proakis					13:30- -14:30
Audio and Speech Coding	Biomedical Processing II	Nonlinear Signal Processing, Neural Networks, and Related Topics	Image and Video Analysis	Motion Estimation and Segmentation	14:40- -16:20
Coffee Break					16:20- -16:40
Audio Indexing and Retrieval	Biomedical Processing III				16:40- -18:20
Conference Dinner (for details see Guide booklet)					20:00

FRIDAY, SEPTEMBER 7, 2007

Time	Bulding 14A Ground Floor Hall	Bulding 14A First Floor Hall	Bulding 14A Second Floor Hall	Room 402	Room 403
09:00- -10:00	CONGRESS HALL Pleanry lecture: 'Recent Advances in Video Coding and Transmission', T. Wiegand				
10:00- -10:20	Coffee Break (served in front of the Congress Hall)				
10:20- -12:00	Machine Learning and Pattern Recognition	Pattern Recognition II	Signal Processing in Wireless Testbeds and Prototyping	Nonstationary Process Analysis, Estimation, and Applications I	Sampling, Interpolation, and Extrapolation
12:00- -13:30	Lunch Break				
13:30- -14:30	CONGRESS HALL Plenary lecture: '3-D Displays and Signal Processing: An Answer to 3-D Ills?', J. Konrad				
14:40- -16:20	Ultrawideband and Spread Spektrum Systems	3D and Multiview Image and Video	Multiple Description Coding (MDC)	Nonstationary Process Analysis, Estimation, and Applications II	Transforms and Fast Algorithms
16:20- -16:40	Coffee Break (served in front of the Congress Hall and in Building 14A)				
16:40- -18:20	Multiuser Communication	Medical Imaging II	LTE Signal Processing	Image Enhancement II	Multimedia Watermarking and Data Hiding II

FRIDAY, SEPTEMBER 7, 2007

<table>
<tr><th>Room 502</th><th>Room 503</th><th>Poster Area 1</th><th>Poster Area 2</th><th>Poster Area 3</th><th>Time</th></tr>
<tr><td colspan="5">CONGRESS HALL
Pleanry lecture:
'Recent Advances in Video Coding and Transmission', T. Wiegand</td><td>09:00--10:00</td></tr>
<tr><td colspan="2">Coffee Break</td><td rowspan="2">Audio and Speech Processing Techniques</td><td rowspan="2">Speech, Speaker and Language Recognition</td><td rowspan="2"></td><td>10:00--10:20</td></tr>
<tr><td>Color Image Processing</td><td>Sensing</td><td>10:20--12:00</td></tr>
<tr><td colspan="5">Lunch Break</td><td>12:00--13:30</td></tr>
<tr><td colspan="5">CONGRESS HALL
Plenary lecture:
'3-D Displays and Signal Processing: An Answer to 3-D Ills?', J. Konrad</td><td>13:30--14:30</td></tr>
<tr><td>Speech Analysis I</td><td>Radar</td><td rowspan="2">Applications of Statistical Signal and Array Processing</td><td rowspan="2">Biomedical Signal Processing and Biometrics</td><td rowspan="2">Multimedia Watermarking and Data Hiding I</td><td>14:40--16:20</td></tr>
<tr><td colspan="2">Coffee Break</td><td>16:20--16:40</td></tr>
<tr><td>Speech Analysis II</td><td>Time-Frequency Signal Analysis</td><td></td><td></td><td></td><td>16:40--18:20</td></tr>
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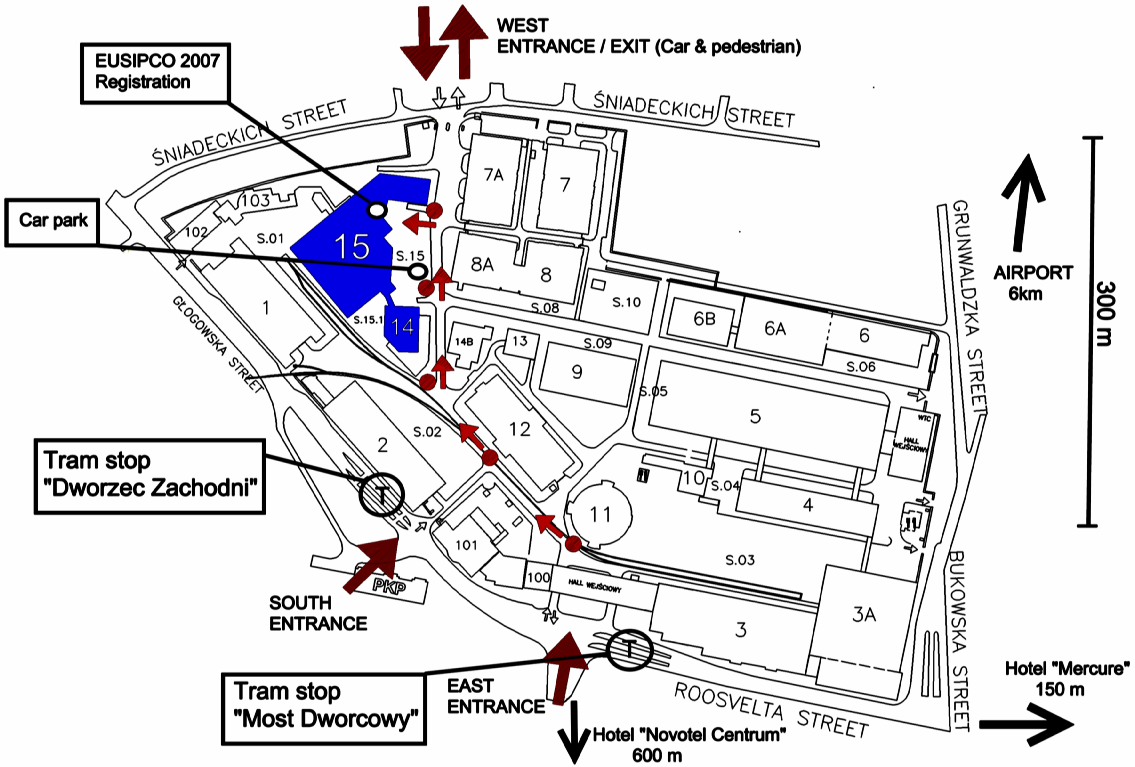
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