EUSIPCO 2009

17th European Signal Processing Conference

24-28 August 2009, Glasgow, Scotland

Programme

EURASIP

University of
Strathclyde
Glasgow

Organised by

Contents

Important Information

Welcome Note by Bob Stewart and Stephan Weiss
(EUSIPCO 2009 Organising Committee)

We would like to welcome all delegates to the 17th European Signal Processing Conference (EUSIPCO 2009). After EUSIPCO 1994 in Edinburgh, this is the second time for this conference to come to Scotland. The main conference is taking place in the Glasgow Royal Concert Hall which we anticipate will be both an excellent and very spacious environment right in the centre of the city.

The programme for this year includes 550 technical papers, 7 plenary presentations from international academic and industry experts, and 8 tutorial sessions. Assisted by 51 area chairs, a strong Technical Committee and over 1200 reviewers, we have accepted around 2/3 of the submitted papers for presentations in what we hope will be an exciting and stimulating technical programme. Many thanks to all the contributors, Area Chairs and reviewers who have kindly dedicated their time to make this conference a success.

To complement this technical programme, we are pleased to welcome more than 16 exhibitors and also feature a DSP Pavillion (sponsored by the Digital Communications KTN), and a Meeting Brokerage event (sponsored by the Electronics KTN) where we hope to provide an environment for delegates to meet, make contacts and help progress our industry. We expect more than 700 people to attend and therefore are look forward to a very successful event.

For many this may be your first visit to Glasgow and perhaps Scotland. Some quick information on our country — we are part of the United Kingdom (Scotland, England, Wales and Northern Ireland) with a population of around 5 million (the total UK population is almost 61 million). Scotland has its own devolved Parliament which sits in Edinburgh and presides over a number of core social, educational, health and economic issues. Our rich industrial engineering history includes very successful times in heavy engineering, shipbuilding, semiconductors and high technology, besides finance and banking, and of course tourism and whisky! Many famous scientists and engineers were born and worked in Scotland including for example James Clerk Maxwell (electromagnetic equations), James Watt (unit of power), and Lord Kelvin (temperature scale).

Scotland has a very strong education and University system, and returning to the topic of EUSIPCO we are proud here that many of the top signal processing and communication research groups in the UK can be found in Scotland. We maintain a strong investment and endeavour in science and engineering and as well as our strong University sector, we also have a very strong industry base, with many indigenous and overseas technology and electronic engineering companies doing business out of Scotland.

Therefore we hope you both enjoy the conference and Glasgow, and perhaps pick up a little of the culture. We do speak English here, however sometimes may question this fact due to the local "dialect" — just ask the locals to speak slowly if you have any problems!. We have a number of social events lined up, and do hope you can attend these. If you do have any spare time then we also hope you enjoy our museums, parks, and the friendly people we anticipate you will meet while here.

On behalf of the Organising Committee we wish you an enjoyable EUSIPCO 2009 in Glasgow!

Sincerely:

Bob Stewart
General Chair

Stephan Weiss
Technical Co-Chair

Welcome Note by Markus Rupp
(EURASIP President 2009/10)

As president of the European Association for Signal Processing (EURASIP), it is my pleasure to welcome you to EUSIPCO 2009. Founded in 1978 as a volunteer organisation, EURASIP's focus is to provide a framework for collaborative research within Europe and beyond, and to promote knowledge and academic excellence through ten EURASIP journals covering various aspects of signal processing and a host of EURASIP sponsored conferences, symposia and workshops. Amongst the latter, the now annually recurring EUSIPCO is our flagship event and forms our annual family get-together as an association across a wide range of signal processing topics.

By having registered for EUSIPCO, you have automatically become a EURASIP member for the year 2009/10, and apart from attending this conference, you will enjoy a number of benefits for the year ahead. This includes a copy of the EURASIP newletter, discounted rates for EURASIP conferences, journals, selected Elsevier books, and reduced open access fees when you publish in EURASIP journals. EURASIP also provides you with a freely accessible library of EURASIP conferences and recent PhD theses. Monitoring download numbers, this has proven to be a huge success. The association is also rolling out a new scheme — the EURASIP European Liaison Programme — to support you at organising local EURASIP events. The EURASIP newsletter will serve you as a valuable medium to keep abreast with these exciting developments. I would like to encourage you to make use as well as contribute to this framework provided by EURASIP.

EURASIP also honours outstanding individuals through a number of awards, which this year include Moeness Amin (Technical Achievement Award), Thomas Wiegand (Group Technical Achievement Award), and Sanjit Mitra (Athanasios Papoulis Award for outstanding contributions to Signal Processing Education — awarded only for the second time in the long history of EURASIP). We also confer the grade of EURASIP Fellow upon Patrick Flandrin, Josef Kittler, Michael Unser, and Joos Vandewalle in recognition of the unusual distinctions and accomplishments of these truly exceptional individuals. These awards will be presented during the conference banquet on Thursday, August 27, in the Kelvingrove Art Gallery and Museum, which will provide a suitable backdrop to celebrate with our award winners and new Fellows. Many congratulations!

I hope that you will enjoy EUSIPCO 2009, strengthen your family ties within the European Association for Signal Processing by meeting friends both old and new, and that you will make good use of the benefits that your EURASIP membership offers you for the year to come!

Markus Rupp
EURASIP President

2   Committees

EURASIP Administrative Committee (ADCOM)

President
Markus Rupp, Technical University of Vienna, Austria

Past President
Marc Moonen, Katholieke Universitait Leuven, Belgium

Secretary/Treasurer
Béatrice Pesquet-Popescu, Ecole Nationale Superieure des Telecommunications, France

Award Chairman
Fulvio Gini, University of Pisa, Italy

Membership Development
Ana Perez-Neira, UPC, Spain

Workshops/Conferences
Abdelhak Zoubir, Universität Darmstadt, Germany

Publications
Bülent Sankur, Bogazici University, Turkey

EUSIPCO 2009 Organising Committee

Honorary Chair
Peter Grant, University of Edinburgh, Scotland, UK

General Chair
Robert W. Stewart, University of Strathclyde, Scotland, UK

Technical Co-Chairs
Stephan Weiss, University of Strathclyde, Scotland, UK
Patrick A. Naylor, Imperial College, London, UK

Special Sessions
Malcolm Macleod, QinetiQ, Malvern, UK

Plenaries
Jerry Gibson, University of California, Santa Barbara, USA

Tutorials
Lina Stankovic, University of Strathclyde, UK
Vladimir Stankovic, University of Strathclyde, UK

Publications
Wei Liu, University of Sheffield, UK
Sangarapillai Lambotharan, University of Loughborough, UK

Industry Liaison and Exhibition
Amreet Bhumbra, DSPScotland.org

IET Interaction / Government Liaison
John Roulston, Institution of Engineering & Technology

Local Arrangements
Louise Crockett, University of Strathclyde, Glasgow, UK
Christopher Morrison, Linn Products Ltd, Glasgow, UK

International Liaison
Michael Hoffman, University of Nebraska, Lincoln, USA
Sunil Bharitkar, Audyssey Laboratories Inc., USA
Gan Woon Seng, Nanyang Technological University, Singapore

EUSIPCO 2009 Scientific Committee / Area Chairs

Audio and Electroacoustics
Simon Doclo, NXP Semiconductors, Belgium
Yves Grenier, Telecom ParisTech, France
Emanuel Habets, Imperial College London, UK
Tomohiro Nakatani, NTT Corporation, Japan
Thomas Sporer, Fraunhofer IDMT, Germany

Array and Multichannel Signal Processing
Alex Gershman, Darmstadt University of Technology, Germany
Miguel Angel Lagunas, Telecommunications Technological Center of Catalonia, Spain
John G. McWhirter, Cardiff University, UK

Design and Implementation
Christos-Savvas Bouganis, Imperial College London, UK
Andreas Burg, ETH Zrich

Image and Multidimensional Signal Processing
Paulo Correia, Institute Superior Tecnico, Portugal
Anton Kummert, Universität Wuppertal, Germany
Stephen Marshall, University of Strathclyde, UK
Mark Nixon, University of Southampton, UK
Jean-Christophe Pesquet, University Paris-Est, France
Moshe Porat, Technion, Israel
William Puech, University of Montpellier, France
Tania Stathaki, Imperial College London, UK

Non-Linear and Non-Stationary Signal Processing
Mike Davies, University of Edinburgh, UK
Danilo Mandic, Imperial College London, UK
Antonio Napolitano, Universita di Napoli Parthenope, Italy

Signal Processsing Applications
Christophe Beaugeant, Infineon, France
David Crawford, Epson Scotland Design Centre, UK
Christopher James, University of Southampton, UK
Saeid Sanei, Cardiff University, UK
Piergiorgio Svaizer, Fondazione Bruno Kessler - IRST, Italy
Rodolphe Weber, University of Orleans, France

Signal Processsing for Communications
Jonathon Chambers, Loughborough University, UK
Mounir Ghogho, University of Leeds, UK
Mario Huemer, Klagenfurth University, Austria
Lutz Lampe, University of British Columbia, Canada
Christoph Mecklenbrucker, Technische Universität Wien, Austria
Andrea Tonello, University of Udine, Italy
Lie-Liang Yang, University of Southampton, UK

Signal Processing Theory
Pei-Jung Chung, University of Edinburgh, UK
Michel Kieffer, L2S - CNRS - SUPELEC - University Paris Sud, France
Rahim Leyman, Institute for Infocomm Research, Singapore
Shoji Makino, Universty of Tsukuba, Japan
Stephan Weiss, University of Strathclyde, UK
Vicente Zarzoso, Universite de Nice Sophia Antipolis, France

Speech Processing
Nicolay Gaubitch, Imperial College London, UK
Jon Gudnason, Imperial College London, UK
Thomas Hain, University of Sheffield, UK

Philip Jackson, University of Surrey, UK
W. Bastiaan Klejin, Royal Institute of Technology, Sweden
Rainer Martin, Ruhr-Universität Bochum
Peter Vary, RWTH Aachen, Germany

Video and Multimedia Signal Processing
Jean-Luc Dugelay, Institut Eurecom, France
Andre Kaup, Universitt Erlangen-Nürnberg, Germany
Fernando Pereia, IST-IT, Portugal
Maria Petrou, Imperial College London, UK

3   Tutorials

EUSIPCO 2009 will be accompanied by a set of half day tutorials on important and emerging topics in signal processing, which will be offered free of charge to participants of the conference. The tutorials will be held at the Royal College of the University of Strathclyde, next to Glasgow's centrally located George Square and 10 minutes walk from the conference venue, on Monday, 24th of August. In addition there will also be Industry Laboratory Presentations taking the form of demonstrations and hands-on experience of the latest software, tools and techniques from premier companies involved in DSP systems design.

3.1   Registration and Confirmation of Tutorials / Laboratories

Tutorials are free of charge, but require an initial registration via the EUSIPCO registration pages at www.eusipco2009.org. You can access these pages with the access code that you have received as part of your EUSIPCO 2009 registration.

In order to handle the large number of registrations and double/triple bookings of concurrent turorials, we have asked for an e-mail confirmation to eusipco_tutorial@eee.strath.ac.uk . If you have registered and confirmed your tutorial choice, you have a guaranteed place in your selected tutorial. If you have not registered and confirmed, remaining seats in tutorial and laboratory sessions will be allocated on a first-come first-serve basis.

When attending the tutorials, please go to Room 215 in Royal College Building at 204 George Street, Glasgow G1 1XW (thsi room will be sign posted from the entrances) where you can register for EUSIPCO 2009. Your registration badge will allow you access to the tutorials.

3.2   List of Tutorials

Tutorials and Labs — Monday AM

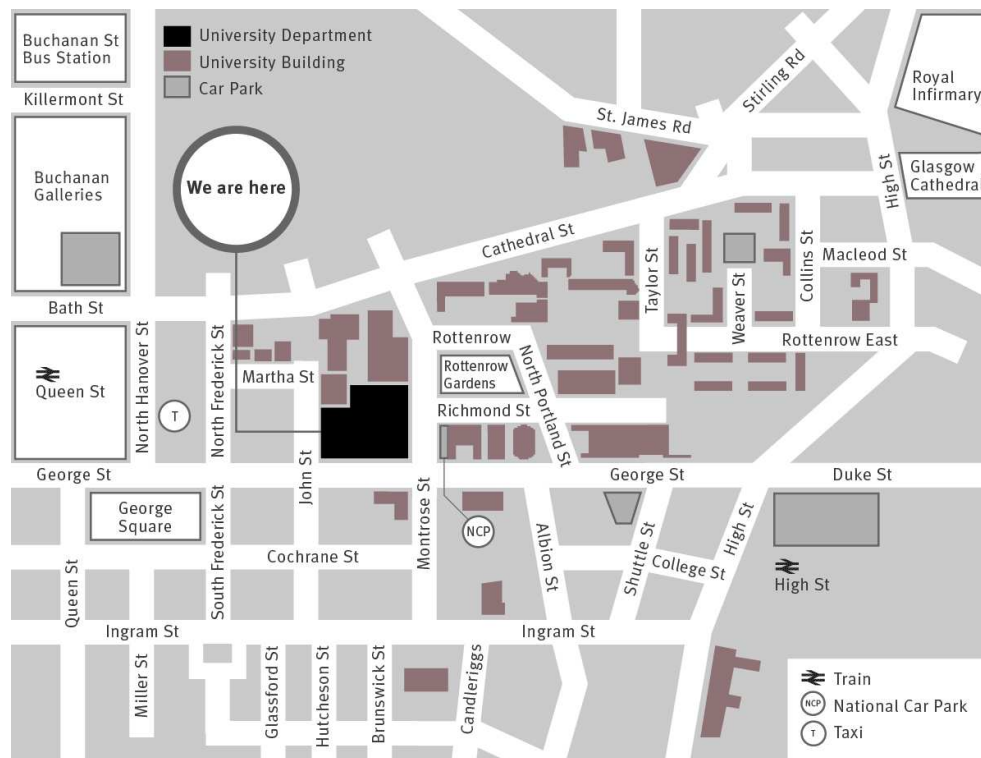|				
T1	Image and Video Coding — From Principles to Systems (B. Girod)	Mon	9:30–12:30	Royal College
T2	Statistical Methods for Single- & Multi-Pitch Estimation (M.G. Christensen, A. Jakobsson)	Mon	9:30–12:30	Royal College
T3	Generalized DFT: Non-Linear Phase DFT for Improved Multicarrier Comms (A. Akansu)	Mon	9:30–12:30	Royal College
L1	High Speed FPGA DSP Design and Implementation (XILINX)	Mon	9:30–12:30	Royal College, Room 4.46/4.48

Tutorials and Labs — Monday PM

T4	Sparse Sampling of Structured Information (T. Blu, P.L. Dragotti, P. Marziliano, M. Vetterli)	Mon	14:00–17:00	Royal College
T5	Biometric Authentication: Theory, Algorithms and Emerging Applications (A. Drygajlo)	Mon	14:00–17:00	Royal College
T6	Robust Statistics for Signal Porcessing (A. Zoubir)	Mon	14:00–17:00	Royal College
L2	Advanced DSP design with SystemVue 2009 (Agilent EEsof)	Mon	14:00–17:00	Royal College, Room 4.46/4.48

3.3   Royal College Building

The tutorials will be held in the Royal College Building of the University of Strathclyde, 204 George Street, Glasgow G1 1XW, on Monday, August 24. The Royal College is 2 minutes walk from George Square and 10 minutes walk from the Glasgow Royal Concert Hall — the main venue of EUSIPCO 2009.

Map of the city centre with the Royal College Building (shown in black):

Buchanan St Bus Station

University Department
University Building
Car Park

Killermont St

Buchanan Galleries

We are here

Bath St

North Hanover St

North Frederick St

Martha St

Queen St

T

George St

George Square

South Frederick St

Queen St

Cochrane St

Ingram St

Miller St

Glassford St

Hutcheson St

Brunswick St

John St

Montrose St

Candleriggs

NCP

Albion St

Ingram St

Cathedral St

Rottenrow

Rottenrow Gardens

Richmond St

North Portland St

St. James Rd

Stirling Rd

High St

Royal Infirmary

Glasgow Cathedral

Taylor St

Weaver St

Collins St

Macleod St

Rottenrow East

George St

Shuttle St

College St

High St

High St

Duke St

Train
National Car Park
Taxi

3.4   Tutorial Details

T1: Image and Video Coding - From Principles to Systems
Monday, August 24, 9:30–12:30

Venue: Royal College Building
Instructor: Bernd Girod (Stanford University)

Image and video coding has become one of the most ubiquitous signal processing technologies, enabling everything from digital photography to graphically rich web pages, from video streaming to digital cinema, from digital TV broadcasting to HD optical disks. Based on a graduate-level course taught in the Stanford Electrical Engineering Department, this tutorial reviews the most important algorithms used in image and video coding, emphasizing the underlying rate-distortion principles. Topics discussed range from entropy coding, transforms, and wavelet decompositions to motion estimation and compensation. We will put into context various coding standards, such as JPEG-2000 and the family of MPEG standards. The tutorial should be of interest to industry practioners, academic researchers and graduates students working in the area, as well as newcomers seeking a comprehensive overview of the field.

T2: Statistical Methods for Single and Multi-Pitch Estimation
Monday, August 24, 9:30–12:30

Venue: Royal College Building
Instructor: Mads G. Christensen (Aalborg University)
            Andreas Jakobsson (Lund University)

Periodic signals can be decomposed into sets of sinusoids having frequencies that are integer multiples of a fundamental frequency. The problem of finding such fundamental frequencies from noisy observations is important in many speech and audio applications, where it is commonly referred to as pitch estimation. In this tutorial, an introduction to pitch estimation is given and a number of statistical methods for pitch estimation are presented and discussed. The basic signal models and associated estimation theoretical bounds are introduced, and the properties of speech and audio signals are discussed and illustrated. The presented methods include both single- and multi-pitch estimators based on statistical methods, filtering methods, and subspace methods.

T3: Generalized Discrete Fourier Transform: Non-Linear Phase DFT for Improved Multi-carrier Communications
Monday, August 24, 9:30–12:30

Venue: Royal College Building
Instructor: Ali Akansu (New Jersey Institute of Technology)

Recently, the Generalized DFT (GDFT) exploiting the entire phase space has been forwarded in the literature as an extension to DFT. GDFT with non-linear phase functions has reduced correlations compared to DFT. GDFT framework is a powerful mathematical tool to design optimal constant modulus sets adaptively tracking channel variations in order to minimize BER degradations due to ISI, ICI and PAPR charasteristics. We will show that GDFT based OFDM methods significantly outperform the widely used DFT based systems. We will also present design methods offering computationally efficient implementations of GDFT as a low cost modification to the celebrated FFT algorithms.

T4: Sparse Sampling of Structured Information
Monday, August 24, 14:00–17:00

Venue: Royal College Building
Instructor: Thierry Blu (Chinese University of Hong Kong)
          Pier Luigi Dragotti (Imperial College London)
          Pina Marziliano (Nanyang Technological University)
          Martin Vetterli (EPFL)

The problem of reconstructing or estimating partially observed or sampled signals is an old and important one, and finds application in many areas of signal processing and communications. Traditional acquisition and reconstruction approaches are heavily influenced by the classical Shannon sampling theory which gives an exact sampling and interpolation formula for bandlimited signals. Recently, the classical Shannon sampling framework has been extended to classes of non-bandlimited structured signals, which we call signals with Finite Rate of Innovation. In these new sampling schemes, the prior that the signal is sparse in a basis or in a parametric space is put to contribution and perfect reconstruction is possible based on a set of suitable measurements. This leads to new exact reconstruction formulas and fast algorithms that achieve such reconstructions. The main aim of this tutorial is to give an overview of these new exciting findings in sampling theory. The fundamental theoretical results will be reviewed and constructive algorithms will be presented, both for 1-D and 2-D signals. We also discuss the effect of noise on the sampling and reconstruction of structured signals. Finally a diverse set of applications of these new concepts will be presented to emphasize the importance and far reaching implications of these new theories.

T5: Biometric Authentication: Theory, Algorithms and Emerging Applications
Monday, August 24, 14:00–17:00

Venue: Royal College Building
Instructor: Andrzej Drygajlo (EPFL)

This tutorial provides an ample coverage of theoretical and applied state-of-the-art research work as well as new trends and directions in the biometrics field. It offers attendees a thorough understanding of how core signal processing and pattern recognition building blocks of a biometric authentication system are developed, implemented and tested. While this tutorial covers a range of biometric traits including face, fingerprint, iris, hand palm/geometry, vein structures, dynamic signature and voice, its main emphasis is placed on the generic chain of processing and statistical/probabilistic methods used, starting from signal sensing and its quality estimation, passing through features extraction and their statistical modelling for template creation and ending at classifier/decision stage of single-classifier, multi-classifier and multimodal systems.

T6: Robust Statistics for Signal Processing
Monday, August 24, 14:00–17:00

Venue: Royal College Building
Instructor: Abdelhak Zoubir (Universität Darmstadt)

The tutorial concerns robust statistics and their use in signal processing. Robust statistics continue to gain importance due to an increase of impulsive measurement environments and outliers in practical engineering systems. Classical estimation or detection theory does not apply in such situations and robust methods (in the statistical sense) are sought. The tutorial aims at equipping the attendee with the most fundamental concepts of robust statistics and at showing their power to solving signal processing problems. First, we highlight the motivation for using robust statistics in real-life situations and how robust statistics can be expected to remedy problems in such practical systems. After a brief overview of concepts from classical estimation theory, including Maximum Likelihood (ML) estimation, we focus on robust estimation. We first introduce the qualitative and the quantitative definitions of robustness and treat in detail Huber's robust M-estimator (ML-type estimator). We show how robust M-estimators for location and scale are constructed. Joint estimation for location and scale and the estimation of covariance and correlation matrices are also discussed. We then discuss semi-parametric adaptive estimation and give examples of its use. The theoretical treatment is followed by three application examples. First, we discuss a robust method for filtering in image processing. Then, we introduce various robust multi-user detectors for wireless communications, and finally, we give an example on robust direction of arrival estimation.

3.5   Industry Laboratory Demonstrations

L1: High Speed FPGA DSP Design and Implementation
Monday, August 24, 9:30–12:30

Venue: Royal College Building, Room 4.46 / 4.48
Instructor: Xilinx University Programme (www.xilinx.com/univ)

In this session XUP (Xilinx University Programme) will present the abridged version of the DSP Primer. Attendees will be given a suitable set of notes and lab materials and a session will be run to allow attendees to experience the easy-to-use System Generator design flow, starting with the SysGen design, the using the ISE tools, and finally downloading to a Virtex FPGA board. The design example will be a QAM based digital transceiver featuring downvconverters, NCOs and timing circuits. All university professors and academic staff attending and completing this session will be eligible at the end to apply for support under the Xilinx University Programme, where as appropriate XUP can make available sofware licences, extensive DSP teaching materials (including slides, labbooks and realtime examples), and in some cases provide support for acquiring FPGA hardware for teaching and research.

L2: Advanced DSP Design with SystemVue 2009
Monday, August 24, 14:00–17:00

Venue: Royal College Building, Room 4.46 / 4.48
Instructor: Frank Ditore (Agilent (EEsof), Atlanta, USA)

In this session, attendees will get hands-on experience using SystemVue for advanced DSP communication design. A PC lab will be fully licenced with the software, and an experienced instructor lead follow-me session will be run, allowing attendees to experience the complete design environment. SystemVue is a focused EDA environment for electronic system-level (ESL) design that enables system architects and algorithm developers to innovate the physical layer (PHY) of next-generation wireless and aerospace/defense communications systems. SystemVue also provides unique value to RF, DSP, and FPGA/ASIC implementers who rely on signal processing to deliver the full value of their hardware platforms. SystemVue replaces general-purpose digital, analog, and math environments by offering a dedicated platform for ESL design and signal processing realization. SystemVue "speaks RF", cuts PHY development and verification time in half, and connects to your mainstream EDA flow.

4 Technical Programme

The technical program comprises of 7 plenary presentations, 16 special sessions, as well as 44 lecture and 21 poster sessions across 10 technical tracks.

4.1 List of Plenary Presentations

Plenaries			
P1	**Influencing change and promoting solutions — old verities and new paradigms — history, trends and challenges in Signal Processing** Professor Tariq S. Durrani University of Strathclyde, Scotland, UK	Tue	10:20–11:00
P2	**Immersive Audio — High Definition for the Mobile Age** Dr Anthony Magrath Wolfson Microelectronics, Scotland, UK	Tue	14:20–15:00
P3	**Acoustic scene analysis & distant-talking interfaces for smart indoor environments** Professor Maurizio Omologo Fondazione Bruno Kessler, Italy	Wed	12:20–13:00
P4	**Next Generation FPGA enabled Communication Systems** Dr Chris Dick Chief DSP Scientist, Xilinx, USA	Wed	14:20–15:00
P5	**3G and 4G Wireless Technology Outlook** Dr Ken Stewart Vice President, Motorola, Schaumberg, USA	Thu	12:20–13:00
P6	**Quality Dependent Signal Classification** Professor Josef Kittler Centre for Vision, Speech, and Signal Processing, Univ of Surrey, UK	Thu	14:20–15:00
P7	**Design Methodologies for Programmable System-on-Chip DSP Based Systems** Professor Roger Woods Queen's University Belfast, N. Ireland, UK	Fri	12:20–13:00

4.2   List of Technical Sessions

Special Sessions				
SS1	Cooperative Communications for Wireless Networks	Tue	11:20 – 13:00	Concert Hall
SS2	Tensor Tools in Signal Processing	Tue	15:50 – 17:50	Strathclyde Bar
SS3	Embedded DSP Implementation with Applications	Tue,	15:50 – 17:30	Buchanan Suite
SS4	Signal Processing for Spatial Audio 1	Wed	8:30 – 10:10	Exhibition Hall
SS5	Signal Processing for Spatial Audio 2	Wed	10:30 – 12:10	Exhibition Hall
SS6	Colour and Multispectral Image Acquisition and Processing of Artworks	Wed	15:50 – 17:50	Concert Hall
SS7	Emerging Applications of Time-Frequency Signal Processing	Wed	15:50 – 17:10	Buchanan Suite
SS8	Digital Filter Banks: Theory, Algorithms, and Novel Applications 1	Thu	8:30 – 10:10	Concert Hall
SS9	Optimisation and Inverse Problems	Thu	8:30 – 10:10	Exhibition Hall
SS10	Heavy Computation for Cellular Wireless System Design	Thu	10:30 – 12:10	Concert Hall
SS11	Signal Processing Techniques in Radio Localization and Positioning	Thu	15:50 – 17:30	Concert Hall
SS12	Nonnegative Matrix and Tensor Factorisations: Statistical Methods and Applications	Thu	15:50 – 17:50	Buchanan Suite
SS13	Spectrum Management and Signal Coordination in DSL Networks	Fri	8:30 – 10:10	Concert Hall
SS14	Signal Processing Techniques in Navigation Technology	Fri	10:30 – 12:10	Strathclyde Suite
SS15	Digital Filter Banks: Theory, Algorithms, and Novel Applications 2	Fri	14:50 – 16:30	Exhibition Hall
SS16	Efficient Implementation of Complex Algorithms	Fri,	14:50 – 16:30	Strathclyde Suite

Track 1: Audio and Electroacoustics				
AE1	Audio and Music Signal Processing 1	Tue	11:20 – 13:00	Exhibition Hall
AE2	Speech Enhancement 1	Tue	15:00 – 15:30	Foyer 1
AE3	Audio and Music Signal Processing 2	Wed	15:00 – 15:30	Foyer 2
AE4	Audio Coding	Thu	8:30 – 10:10	Strathclyde Bar
AE5	Speech Enhancement 2	Thu	10:30 – 12:10	Exhibition Hall
AE6	Speech Enhancement 3	Thu	15:50 – 17:30	Exhibition Hall
AE7	Speech Enhancement 4	Fri	8:30 – 10:10	Exhibition Hall
AE8	Acoustic Signal Processing	Fri	14:50 – 16:30	Strathclyde Bar

Track 2: Array and Multichannel Signal Processing				
AM1	Beamforming and Space-Time Processing	Wed	8:30 – 10:10	Strathclyde Bar
AM2	Array and Multichannel Signal Processing 1	Wed	15:00 – 15:30	Foyer 1
AM3	Array Processing and Calibration	Wed	15:50 – 17:30	Strathclyde Bar
AM4	Array and Multichannel Signal Processing 2	Thu	10:30 – 12:10	Buchanan Suite
AM5	DOA Estimation	Fri	8:30 – 10:10	Green Room

Track 3: Signal Processing Applications				
AP1	Biometrics	Tue	11:20 – 13:00	Green Room
AP2	Biomedical Signal Processing 1	Wed	8:30 – 10:10	Buchanan Suite
AP3	Radar and Sonar	Wed	10:30 – 12:10	Buchanan Suite
AP4	Signal Processing Applications 1	Thu	15:00 – 15:30	Foyer 2
AP5	Signal Processing Applications 2	Fri	8:30 – 10:10	Strathclyde Suite
AP6	Biomedical Signal Processing 2	Fri	14:20 – 14:50	Foyer 1

Track 4: Signal Processing for Communications

CO1	Equalisation, Detection, and Synchronisation	Tue	15:00 – 15:30	Foyer 1
CO2	MIMO Systems & Signal Proc. for Communications	Tue	15:50 – 17:30	Concert Hall
CO3	Equalisation	Wed	8:30 – 10:10	Concert Hall
CO4	Networks and Relay Communications	Wed	10:30 – 12:10	Concert Hall
CO5	Coding and Modulation	Wed	15:50 – 17:30	Strathclyde Suite
CO6	Signal Processing for Communications	Thu	15:00 – 15:30	Foyer 1
CO7	Cognitive Radio and Spectrum Sharing	Thu	15:50 – 17:30	Strathclyde Suite
CO8	Channel Modelling and Estimation	Fri	10:30 – 12:10	Concert Hall
CO9	Networks and MIMO Systems	Fri	14:20 – 14:50	Foyer 2

Track 6: Design and Implementation of Signal Processing Systems

DI1	Design and Implementation of SP Systems 1	Wed	15:00 – 15:30	Foyer 2
DI2	Design and Implementation of SP Systems 2	Thu	08:30 – 10:10	Green Room

Track 6: Image and Multidimensional Signal Processing

IM1	Theoretical Aspects of Image Processing	Tue	11:20 – 13:00	Strathclyde Suite
IM2	Image Processing Theory and Applications	Tue	15:00 – 15:30	Foyer 2
IM3	Object and Feature Detection	Wed	8:30 – 10:10	Strathclyde Suite
IM4	Multiview and 3D Image Processing	Wed	10:30 – 12:10	Strathclyde Suite
IM5	Image Registration	Thu	8:30 – 10:10	Strathclyde Suite
IM6	Image Segmentation and Understanding	Thu	15:00 – 15:30	Foyer 2
IM7	Biomedical Image Processing	Thu	15:50 – 17:30	Strathclyde Bar
IM8	Image Sampling and Interpolation	Fri	8:30 – 10:10	Buchanan Suite
IM9	Image Coding	Fri	10:30 – 12:10	Strathclyde Bar
IM10	Image Coding and Rendering	Fri	14:20 – 14:50	Foyer 2
IM11	Image Denoising and Restoration	Fri	14:50 – 16:30	Concert Hall

Track 7: Non-Linear / Non-Stationary Signal Processing

NN1	Signal Separation	Thu	10:30 – 12:10	Strathclyde Bar
NN2	Non-linear / Non-stationary Signals Processing	Fri	14:20 – 14:50	Foyer 1
NN3	Sampling	Fri	14:50 – 16:10	Buchanan Suite

Track 8: Speech Processing

SP1	Speech Recognition 1	Tue	15:50 – 17:30	Exhibition Hall
SP2	Speech Recognition 2	Wed	15:50 – 17:30	Exhibition Hall
SP3	Speech Recognition 3	Thu	15:00 – 15:30	Foyer 1
SP4	Speech Analysis and Processing 1	Fri	10:30 – 12:10	Exhibition Hall
SP5	Speech Analysis and Processing 2	Fri	14:20 – 14:50	Foyer 1

Track 9: Signal Processing Theory, Detection and Estimation

TH1	Compressive Sampling	Tue	11:20 – 13:00	Strathclyde Bar
TH2	Localisation and Tracking	Tue	11:20 – 13:00	Buchanan Suite
TH3	Algorithms, Transforms, and Filter Design	Tue	15:00 – 15:30	Foyer 2
TH4	Matrix Polynomials and Multivariate Methods	Wed	8:30 – 10:10	Green Room
TH5	Detection and Estimation 1	Wed	15:00 – 15:30	Foyer 1
TH6	Frequency Estimation	Thu	8:30 – 10:10	Buchanan Suite
TH7	Adaptive Filtering and Optimisation 1	Thu	15:00 – 15:30	Foyer 1
TH8	Detection and Estimation 2	Fri	8:30 – 10:10	Strathclyde Bar
TH9	Estimation	Fri	14:20 – 14:50	Foyer 2
TH10	Adaptive Filtering and Optimisation 2	Fri	14:50 – 16:30	Green Room

Track 10: Video and Multimedia Signal Processing

VM1	Image and Video Processing	Tue	15:50 – 17:30	Strathclyde Suite
VM2	Multimedia Applications	Wed	10:30 – 12:10	Strathclyde Bar
VM3	Video and Multimedia Signal Processing	Wed	15:00 – 15:30	Foyer 1
VM4	Content-Based Multimedia Processing	Thu	10:30 – 12:10	Strathclyde Suite
VM5	Video Coding and Encryption	Thu	15:00 – 15:30	Foyer 2
VM6	H.264/AVC	Fri	10:30 – 12:10	Buchanan Suite

4.3 Glasgow Royal Concert Hall

The Glasgow Royal Concert Hall (GRCH) was built as part of the City of Glasgow's award as the European City Of Culture in 1990 and opened in the same year. It is located at the junction of the City's two main pedestrian streets, Buchanan Street and Sauchiehall Street, and is home to the Scottish National Orchestra.

The GRCH is located one block from Queen Street Station for rail connections to Edinburgh and the Highlands, and directly to the South of Buchanan Bus Station, from where frequent bus connections service Glasgow airport and many other destinations.

Location in the City Centre

Glasgow Royal Concert Hall (Conference Venue)
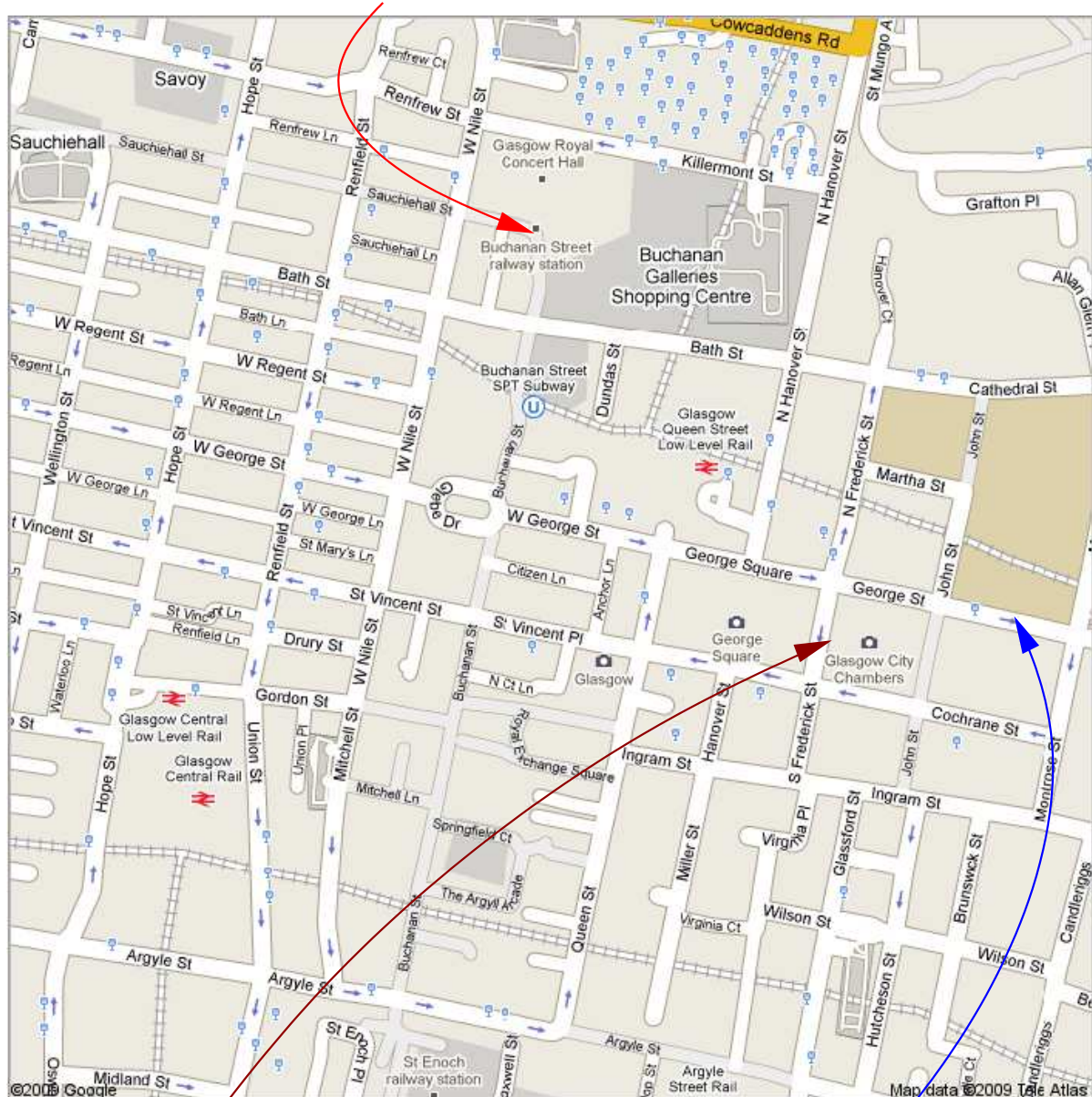
Glasgow City Chambers (Civic Reception)

Royal College Building (Tutorials)

Ground Floor

North   Entrance

Island Bar

Registration

Area

WC

Main

Auditorium

Stairs

Exhibition

Hall

VIP
Room

Cafe

South Entrance

First Floor

Foyer 2

Strathclyde

Bar

WC

Exhibition

Main

Auditorium

Stairs

Strathclyde

Suite

Exhibition

Foyer 1

Green
Room

upstairs to
Buchanan Suite
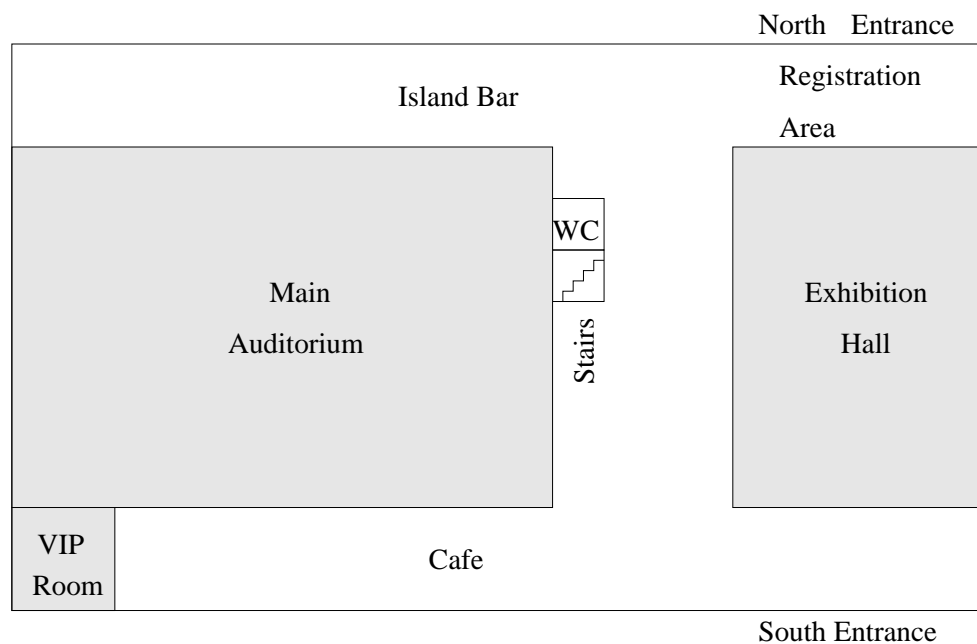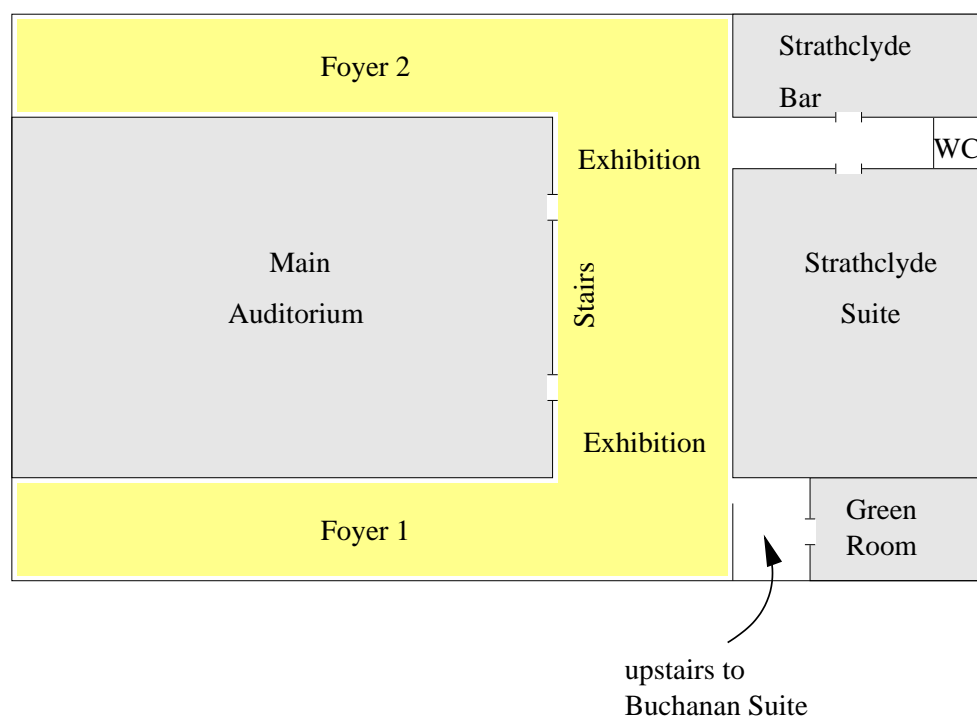
4.4 Presentation Instructions

Oral Session Format.   Each lecture presentations is allocated a 20 minutes time slot[1], with nominally 15 minutes for presentation and 5 minutes for questions. Session Chairs will enforce this timing to keep the conference on schedule and the sessions synchronised.

File Format and Submission.   You should meet your session chair in the presentation room 15 minutes before the beginning of your session, when your presentation can be uploaded onto the presentation PC. You are strongly encouraged to submit your presentation earlier according to the instructions below, in order to ensure compatibility. (Note that all presentation PCs will have up-to-date versions of PowerPoint and Adobe Acrobat Reader installed.)
For special presentation requirements (such as Windows Media Player, or audio equipment) please inform the conference organisers in advance at eusipco2009@eee.strath.ac.uk. If you require to use your own laptop for presentation, then this must be communicated to the conference organisers and tested before your session commences. Please inform the conference organisers as soon as possible.

Pre-Emailing Presentations.   Authors can send their presentations in advance with filenames adhering to the form: session_identifier_firstauthorname_dayofpresentation.xxx to eusipco2009@eee.strath.ac.uk. Therefore if your name is Jim Hawkins, you session is AE1 on Tuesday, and you are submitting a PDF file, then your filename is: AE1_jimhawkins_tuesday.pdf. An email receipt will be sent for all paper presentations received within 24 hours of arrival. Presentation files should ideally be sent by 12pm on Monday 24th August 2009, however we can accept presentations by email up to 8am on the day of your presentation.

   If you do not email your presentation, then you are required to bring it to the conference on a USB stick and upload your file before 8am on the day of your presentation (and ideally the day before) by visiting the Speakers Presentation Check zone which will be equipped with PCs. Help staff will be at hand. We strongly advise that to deal with unforeseen circumstances you bring a copy of all presentation materials on a USB, and ensure you have a copy available from a suitable area on the internet that is generally accessible.

   Poster presentations take place in the Foyers on the first floor of the Glasgow Royal Concert Hall, co-located with the exhibition and coffee stations.

Poster Format.   Poster boards (1m wide, 2m tall) will be available, suitable for attaching presentation material via velcro. Therefore we would recommend that posters are of width 90 centimetres, and height in the range 0.8 metre to 1.2 metres.

Duration.   Posters will be mounted for the entire day of presentation. Therefore authors should arrive to ensure their poster is in place by 10:00am on the day of presentation. Authors are requested to be present during the poster-only slot from 15:00pm to 15:30 hours, but are also encouraged to attend during coffee breaks. Topics are generally different from the oral sessions that run during that day, and therefore presenters are welcome to man their poster throughout the day as appropriate to interest and desire to present their work.

4.5 Technical Programme Overview

On the following pages, the technical programme from Tuesday, August 25 to Friday, August 28, is outlined in tables. Across the top of the table, you can find the location, while the left hand column

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[1]Some overview lectures in Special Sessions are 35 minutes presentation plus 5 minutes questions

indicates the time of sessions. Each session is labelled with its identification code, an abbreviated title, and a page number pointing to where details on specific sessions can be found within this booklet.

Tuesday, August 25

	Main Auditorium	Exhibition Hall	Strathclyde Suite	Strathclyde Bar	Buchanan Suite	Green Room	Foyer 1	Foyer 2
9:30 - 10:20	Welcome Ceremony							
10:20 - 11:00	Plenary 1 T.S. Durrani							
11:00 - 11:20	Coffee Break — Poster and Exhibition Area						AE2 (p. 26) Speech Enhancement 1	IM2 (p. 28) Image Proc. Theory and Applications
11:20 - 13:00	SS1 (p. 23) Cooperative Comms	AE1 (p. 23) Audio & Music SP	IM1 (p. 24) Theor. Aspects Image Proc.	TH1 (p. 24) Compressive Sampling	TH2 (p. 25) Localisation & Tracking	AP1 (p. 25) Biometrics		
13:00 - 14:20	Lunch Break — Glasgow Royal Concert Hall							
14:20 - 15:00	Plenary 2 A. Magrath							
15:00 - 15:30	Dedicated Time for Poster Presentations						CO1 (p. 27) Equalisation, Detection Synchronisation	TH3 (p. 30) Algorithms, Transforms Filter Design
15:30 - 15:50	Coffee Break — Poster and Exhibition Area							
15:50 - 17:30	CO2 (p. 31) MIMO Systems	SP1 (p. 31) Speech Recognition 1	VM1 (p. 32) Video and Image Proc.	SS2 (p. 32) Tensor Tools	SS3 (p. 33) Embedded DSP Impl.			
19:00 - 21:00	Welcome Reception — Glasgow City Chambers, George Square							

Wednesday, August 26

	Main Auditorium	Exhibition Hall	Strathclyde Suite	Strathclyde Bar	Buchanan Suite	Green Room	Foyer 1	Foyer 2
8:30 - 10:10	CO3 (p. 34) Equalisation	SS4 (p. 34) Spatial Audio 1	IM3 (p. 35) Object & Feature Det.	AM1 (p. 35) Beamforming & Space-Time	AP2 (p. 36) Biomedical & Sig. Proc. 1	TH4 (p. 36) Matrix Polynomials	AM2 (p. 39) Array and Multichannel Sig. Proc. 1	AE3 (p. 42) Audio and Music 2
10:10 - 10:30	Coffee Break — Poster and Exhibition Area							
10:30 - 12:10	CO4 (p. 37) Network & Relay Comms.	SS5 (p. 37) Spatial Audio 2	IM4 (p. 38) Multiview & 3D Image Proc	VM2 (p. 38) Multimedia Applications	AP3 (p. 39) Radar & Sonar			
12:10 - 13:00	Plenary 3 M. Omologo						TH5 (p. 40) Detection Estimation 1	
13:00 - 14:20	Lunch Break — Glasgow Royal Concert Hall							
14:20 - 15:00	Plenary 4 C. Dick							
15:00 - 15:30	Dedicated Time for Poster Presentations						VM3 (p. 41) Video & Multimedia	DI1 (p. 43) Design & Implementation Signal Proc. Systems 1
15:30 - 15:50	Coffee Break — Poster and Exhibition Area							
15:50 - 17:30	SS6 (p. 44) DSP for Artwork	SP2 (p. 45) Speech Recognition 2	CO5 (p. 45) Coding & Modulation	AM3 (p. 46) Array Proc. Calibration	SS7 (p. 46) Emerging TF Appl.			

Thursday, August 27

	Main Auditorium	Exhibition Hall	Strathclyde Suite	Strathclyde Bar	Buchanan Suite	Green Room	Foyer 1	Foyer 2
8:30 - 10:10	SS8 (p. 47) Filter Banks 1	SS9 (p. 47) Optimisation Inv. Problems	IM5 (p. 48) Image Registration	AE4 (p. 48) Audio & Coding	TH6 (p. 49) Frequency & Estimation	DI2 (p. 49) Implementation DSP Systems	CO6 (p. 52) DSP for Comms	IM6 (p. 55) Image Segmentation & Understand.
10:10 - 10:30	Coffee Break — Poster and Exhibition Area							
10:30 - 12:10	SS10 (p. 50) Heavy Comp. Sys. Design	AE5 (p. 50) Speech Enhancem. 2	VM4 (p. 51) Content-Based Multimedia	NN1 (p. 51) Signal Separation	AM4 (p. 52) Array and Multichannel			
12:10 - 13:00	Plenary 5 K. Stewart						TH7 (p. 53) Adaptive Filtering 1	AP4 (p. 56) Signal Proc. Applications 1
13:00 - 14:20	Lunch Break — Glasgow Royal Concert Hall							
14:20 - 15:00	Plenary 6 J. Kittler							
15:00 - 15:30	Dedicated Time for Poster Presentations						SP3 (p. 54) Speech Recognition 3	VM5 (p. 57) Video Cod. & Encryption Signal Proc. Systems 1
15:30 - 15:50	Coffee Break — Poster and Exhibition Area							
15:50 - 17:30	SS11 (p. 58) Radio Local. Positioning	AE6 (p. 58) Speech Enhancem. 3	CO7 (p. 59) Cognitive Radio	IM7 (p. 59) Biomedical Image Proc.	SS12 (p. 60) Matrix/Tensor Factorisations			
19:30 - 23:30	Conference Banquet — Kelvingrove Art Gallery and Museum							

Friday, August 28

	Main Auditorium	Exhibition Hall	Strathclyde Suite	Strathclyde Bar	Buchanan Suite	Green Room	Foyer 1	Foyer 2
8:30 - 10:10	SS13 (p. 61) Spectr. Manag. DSL Networks	AE7 (p. 61) Speech Enhancem. 4	AP5 (p. 62) Signal Proc. Applications 2	TH8 (p. 62) Detection & Estimation 2	IM8 (p. 63) Image Sampl. Interpolation	AM5 (p. 63) DOA Estimation	NN2 (p. 66) Non-Linear Non-Stat. Signal Proc.	IM10 (p. 69) Image Cod. Rendering
10:10 - 10:30	Coffee Break — Poster and Exhibition Area							
10:30 - 12:10	CO8 (p. 64) Ch. Model.& Estimation	SP4 (p. 64) Speech Anal. & Proc. 1	SS14 (p. 65) Navigation Technology	IM9 (p. 65) Image Coding	VM6 (p. 66) H.264/AVC			
12:10 - 13:00	Plenary 7 R. Woods						AP6 (p. 67) Biomedical Signal Proc. 2	CO9 (p. 70) Networks & MIMO Systems
13:00 - 14:20	Lunch Break — WHERE?							
14:20 - 14:50	Dedicated Time for Poster Presentations							
14:50 - 16:30	IM11 (p. 72) Image Denois. Restoration	SS15 (p. 72) Filter Banks 2	SS16 (p. 73) Efficient Implementation	AE8 (p. 73) Acoustic Signal Proc.	NN3 (p. 74) Sampling	TH10 (p. 74) Adaptive Filtering 2	SP5 (p. 68) Speech Analysis 2	TH9 (p. 71) Estimation
16:30 - 16:50	Coffee Break — Poster Area							
16:50 - 17:00	Closing of Conference							

4.6 Technical Programme Details

SS1: Cooperative Communications for Wireless Networks
Tuesday, August 25, 11:20 −13:00

Room: Main Auditorium
Chair: Xavier Mestre (CTTC, Spain)

11:20 **A single-carrier quasi-orthogonal transmission scheme for asynchronous cooperative relay networks**
Matthew Hayes (Loughborough University, United Kingdom); Jonathon Chambers (Loughborough University, United Kingdom); Malcolm MacLeod (QinetiQ, United Kingdom)

11:40 **The Energy Efficiency Of The Ergodic Fading Relay Channel**
Jesús Gómez Vilardebó (Centre Tecnològic de Telecomunicacions de Catalunya (CTTC), Spain); Ana Perez-Neira (UPC, Spain)

12:00 **A New Cooperative Techique for Wireless Communications with Improved Diversity-Multiplexing Tradeoff**
Christos Tsinos; Kostas Berberidis (all University of Patras, Greece)

12:20 **Diversity Order for the Amplify-and-Forward Multiple-Relay Channel with Randomized Distributed Space-Time Coding**
David Gregoratti (Centre Tecnològic de Telecomunicacions de Catalunya (CTTC), Spain); Xavier Mestre (CTTC, Spain)

12:40 **Rate-optimized power allocation for OFDM transmission with multiple DF/regenerative relays and individual power constraints**
Luc Vandendorpe (University of Louvain, Belgium); Jerome Louveaux (Universite Catholique de Louvain, Belgium); Abdellatif Zaidi (Ecole Polytechnique de Louvain, UCL, Belgium); Onur Oguz (Universite Catholique de Louvain, Belgium)

AE1: Audio and Music Signal Processing 1
Tuesday, August 25, 11:20 −13:00

Room: Exhibition Hall
Chair: Mads Christensen (Aalborg University, Denmark)

11:20 **Music genre classification via sparse representations of auditory temporal modulations**
Ioannis Panagakis (Aristotle University of Thessaloniki, Greece); Constantine Kotropoulos (Aristotle University of Thessaloniki, Greece); Gonzalo Arce (University of Delaware, USA)

11:40 **Efficient, High-Quality Time-Scaling of Audio Signals**
Markus Schlosser (Thomson, Germany)

12:00 **Polyphonic transcription based on temporal evolution of spectral similarity of Gaussian mixture models**
Francisco Canadas-Quesada; Pedro Vera Candeas; Nicolas Ruiz Reyes; Julio Carabias-Orti (all University of Jaen, Spain)

12:20 **Main Instrument Separation from Stereophonic Audio Signals using a Source/Filter Model**
Jean-Louis Durrieu (Institut Télécom; Télécom ParisTech; CNRS LTCI, France); Alexey Ozerov (TELECOM-Paristech / CNRS - LTCI, France); Cédric Févotte (CNRS LTCI; TELECOM ParisTech, France); Gaël Richard (TELECOM ParisTech, France); Bertrand David (ENST Paris, France)

12:40 **Comparison of different strategies for a SVM-based audio segmentation**
Mathieu Ramona (RTL, France); Gaël Richard (TELECOM ParisTech, France)

IM1: Theoretical Aspects of Image Processing
Tuesday, August 25, 11:20 −13:00

11:20 **Grouplet-Based Color Image Super-Resolution**
Aldo Maalouf (University of Poitiers, France); Chaker Larabi (SIC, Université de Poitiers, France)

11:40 **Inter-k-space motion based strategy for super-resolution in MRI**
Krzysztof Malczewski (Poznan University of Technology, Poland)

12:00 **Rank transformation and Manifold Learning for Multivariate Mathematical Morphology**
Olivier Lezoray (Université de Caen Basse-Normandie, France); Christophe Charrier (Universite de Caen Basse-Normandie, France); Abderrahim Elmoataz (University of Caen, France)

12:20 **Optimal SURE Parameters for Sigmoidal Wavelet Shrinkage**
Abdourrahmane Atto (TELECOM Bretagne, France); Dominique Pastor (Ecole Nationale Superieure des Telecommunications de Bretagne, France); Grégoire Mercier (TELECOM Bretagne, France)

12:40 **The dynamics of image processing viewed as damped elastic deformation**
Vadim Ratner (Technion - Israel Institute of Technology, Israel); Yehoshua Zeevi (Technion - Israel Institute of Technology, Electrical Engineering Department, Israel)

TH1: Compressive Sampling
Tuesday, August 25, 11:20 −13:00

11:20 **Sparse signal recovery with side information**
Vladimir Stankovic (University of Strathclyde, United Kingdom); Lina Stankovic (University of Strathclyde, United Kingdom); Samuel Cheng (University of Oklahoma, USA)

11:40 **Semi-Parametric Compression of Piecewise Smooth Functions**
Varit Chaisinthop (Imperial College London, United Kingdom); Pier-Luigi Dragotti (Imperial College, United Kingdom)

12:00 **Non-convex priors in Bayesian Compressed Sensing**
Sevket Derin Babacan (Northwestern University, USA); Luis Mancera (University of Granada, Spain); Rafael Molina (Universidad de Granada, Spain); Aggelos K. Katsaggelos (Northwestern University, USA)

12:20 **Derivative compressive sampling with application to phase unwrapping**
Oleg Michailovich (University of Waterloo, Canada); Mahdi Hosseini (University of Waterloo, Canada)

12:40 **Compressive Matched Subspace Detection**
Jose Paredes (University of Los Andes, USA); Zhongmin Wang (University of Delaware, USA); Gonzalo Arce (University of Delaware, USA); Brian Sadler (Army Research Laboratory, USA)

TH2: Localisation and Tracking
Tuesday, August 25, 11:20 –13:00

Room: Buchanan Suite
Chair: Pei-Jung Chung (University of Edinburgh)

11:20 **Sensor Localization using Generalized Belief Propagation in Network with Loops**
Vladimir Savic (Universidad Politécnica de Madrid, Spain); Santiago Zazo (Universidad Politecnica Madrid, Spain)

11:40 **ML-Based Sensor Network Localization And Tracking: Batch and Time-Recursive Approaches**
Pinar Oguz Ekim (ISR-Instituto Superior Técnico, Portugal); Joao Gomes (ISR - Instituto Superior Tecnico, Portugal); João Xavier (I.S.T. - Technical U. Lisbon / I.S.R. Lisbon, Portugal); Paulo Oliveira (IST, Portugal)

12:00 **Tight GNSS/INS Integration as a Constrained Least-Squares problem**
David Bernal (Technical University of Catalonia, Spain); Pau Closas (Universitat Politècnica de Catalunya (UPC), Spain); Eduard Calvo (UPC, Spain); Juan Fernandez-Rubio (Universitat Politècnica de Catalunya, Spain)

12:20 **Posterior Cramer-Rao Lower Bound for Mobile Tracking in Mixed LOS/NLOS Conditions**
Chen Liang (Southeast University, P.R. China); WU Lenan (Southeast University, P.R. China); Robert Piche (Tampere University of Technology, Finland)

12:40 **Exploiting Geometric Translations in TLS Based Robot Localization From Landmark Bearings**
Kutluyil Dogancay (University of South Australia, Australia)

Biometrics
Tuesday, August 25, 11:20 –13:00

Room: Green Room
Chair: to be confirmed

11:20 **Extracting biometric binary strings with minimal area under the FRR curve for the Hamming distance classifier**
Chun Chen (University of Twente, The Netherlands); Raymond Veldhuis (University of Twente, The Netherlands)

11:40 **Multi Library Wavelet Neural Networks for 3D face recognition using 3D facial shape representation**
Wael Ben Soltana (REsearch Group on Intelligent Machines (REGIM), Tunisia); Bellil Wajdi (University of Sfax Tunisia, Tunisia); Chokri Ben amar (University of Sfax, National Engineering School of Sfax Tunisia, Tunisia); Adel Alimi (University of Sfax, National Engineering School of Sfax Tunisia, Tunisia)

12:00 **Local feature extraction methods for facial expression recognition**
Seyed Mehdi Lajevardi (RMIT University, Australia); Zahir Hussain (RMIT University, Australia)

12:20 **Q-stack Aging Model for Face Verification**
Andrzej Drygajlo (EPFL, Switzerland); Weifeng Li (EPFL, Lausanne, Switzerland, Switzerland)

12:40 **Making better biometric decisions with quality and cohort information : A case study in fingerprint verification**
Norman Poh (University of Surrey, United Kingdom)

AE2: Speech Enhancement 1 (Poster Session)
Tuesday, August 25, 15:00 −15:30

Room: Foyer 1
Chair: Woon Seng Gan (Nanyang Technological University, Singapore)

AE2.1 **Subband Beamformer Combined with Time-frequency ICA for Extraction of Target Source under Reverberant Environments**
Masahito Togami (Central Research Laboratory, Hitachi, Ltd., Japan); Yohei Kawaguchi (Central Research Laboratory, Hitachi, Ltd., Japan); Hiroaki Kokubo (Central Research Laboratory, Hitachi, Ltd., Japan); Yasunari Obuchi (Central Research Laboratory, Hitachi, Ltd., Japan)

AE2.2 **Mitigating Uncorrelated Periodic Disturbance in Narrowband Active Noise Control Systems**
Muhammad Akhtar (The University of Electro-Communications, Japan); Wataru Mitsuhashi (The University of Electro-Communications, Japan)

AE2.3 **A high performance low complexity noise suppression algorithm**
Robert Hegner (University of Applied Sciences of Eastern Switzerland in Rapperswil, Switzerland); Hans-Dieter Lang (University of Applied Sciences of Eastern Switzerland in Rapperswil, Switzerland); Guido Schuster (University of Applied Sciences of Eastern Switzerland in Rapperswil, Switzerland)

AE2.4 **Comparative study of new blind source separation structures for two-channel acoustic noise cancellation**
Mohamed Djendi (ENSSAT,, France); Pascal Scalart (ENSSAT, University of Rennes 1, France); André Gilloire (Orange-Labs, France)

AE2.5 **A single channel speech enhancement technique using psychoacoustic principles**
Francois Xavier Nsabimana (Helmut Schmidt University, Germany); Vignesh Subbaraman (Fraunhofer IIS, Germany); Udo Zölzer (Helmut-Schmidt-University, Germany)

AE2.6 **Blind estimation of a feature-domain reverberation model in non-diffuse environments with variance adjustment**
Jimi Wen (Imperial College London, United Kingdom); Armin Sehr (University of Erlangen-Nuremberg, Germany); Patrick Naylor (Imperial College London, United Kingdom); Walter Kellermann (University Erlangen-Nuremberg, Germany)

AE2.7 **EMD-based Noise Estimation and Tracking (ENET) with application to speech enhancement**
Navin Chatlani (University of Strathclyde, United Kingdom); John Soraghan (University of Strathclyde, United Kingdom)

AE2.8 **A Sound Quality Customization System Using Paired Comparison**
Shinpei Shimizu (Kansai University, Japan); Yoshinobu Kajikawa (Kansai University, Japan)

AE2.9 **A Weighted Approach for Integrated Active Noise Control and Noise Reduction in Hearing Aids**
Romain Serizel (Katholieke Universiteit Leuven, Belgium); Marc Moonen (Katholieke Universiteit Leuven, Belgium); Jan Wouters (Katholieke Universiteit Leuven, Belgium); Søren Holdt Jensen (Aalborg University, Denmark)

AE2.10 **An Experimental Study of the Robustness of Multichannel Inverse Filtering Systems to Near-Common Zeros**
Wancheng Zhang (Imperial College London, United Kingdom); Patrick Naylor (Imperial College London, United Kingdom)

AE2.11 **Optimal Spectral Smoothing in Short-Time Spectral Attenuation (STSA) Algorithms: Results of Objective Measures and Listening Tests**
Matthias Brandt (University of Applied Sciences Oldenburg, Germany); Joerg Bitzer (University of Applied Science Oldenburg, Germany)

AE2.12 **An efficient low-complexity algorithm for crosstalk-resistant adaptive noise canceller**
Ludovick Lepauloux (Orange Labs, France); Pascal Scalart (ENSSAT, University of Rennes 1, France); Claude Marro (France Télécom R&D, France)

AE2.13 **Blind Channel Identification in Speech Using the Long-Term Average Speech Spectrum**
Nikolay Gaubitch (Imperial College London, United Kingdom); Mike Brookes (Imperial College London, United Kingdom); Patrick Naylor (Imperial College London, United Kingdom)

AE2.14 **Single-channel speech separation using a sparse periodic decomposition**
Makoto Nakashizuka (Osaka University, Graduate School of Engineering Science, Japan)

AE2.15 **Speech enhancement using auditory spectral attenuation**
Novlene Zoghlami (Ecole Nationale d' Ingéieurs de Tunis, Tunisia); Zied Lachiri (INSAT, Tunisia); Noureddine Ellouze (ENIT, Tunisia)

AE2.16 **MTF-based power envelope restoration in noisy reverberant environments**
Unoki Masashi (Japan Advanced Institute of Science and Technology, Japan)

CO1: Equalisation, Detection, and Synchronisation (Poster Session)
Tuesday, August 25, 15:00 −15:30

Room: Foyer 1
Chair: Hichem Besbes (Ecole Superieure de Communications de Tunis, Sup'Com TUNISIA, Tunisia)

CO1.1 **Frequency Domain Equalization for OFDM Systems With Insufficient Guard Interval Using Null Subcarriers**
Yin-Ray Huang (National Chiao Tung University, Taiwan); Carrson Fung (National Chiao Tung University, Taiwan); Kainam Thomas Wong (Hong Kong Polytechnic University, Hong Kong)

CO1.2 **Adaptive Analytical Simplified Constant Modulus Algorithm: A BSS algorithm for MIMO systems with time-varying environments**
Steredenn Daumont (IPSIS Company, France); Daniel Le Guennec (IETR/Supélec-Campus de Rennes, France)

CO1.3 **PAPR Reduction in Blind MIMO OFDM Systems Based on Independent Component Analysis**
Jingbo Gao (University of Liverpool, United Kingdom); Xu Zhu (University of Liverpool, United Kingdom); Asoke Nandi (The University of Liverpool, United Kingdom)

CO1.4 **A Concurrent Blind Receiver for STBC over Doubly Dispersive Channels**
Samir Bendoukha (University of Strathclyde, United Kingdom); Waleed Al-Hanafy (Strathclyde University, United Kingdom); Stephan Weiss (University of Strathclyde, United Kingdom)

CO1.5 **Multi-Criteria Quadratic Programming Based Low complexity Nonlinear Channel Equalisation**
Mohamed Musbah (University of Liverpool, United Kingdom); Xu Zhu (University of Liverpool, United Kingdom)

CO1.6 **Approximate Full Diversity Linear Equalizers for Doubly Selective Channels**
Shakti Shenoy (EURECOM, France); Irfan Ghauri (Infineon Technologies France, France); Dirk Slock (Eurecom, France)

CO1.7 **A New Strategy for the Blind MMSE Equalization**
Khaled Abusakem (University of Reading, United Kingdom); Yu Gong (University of Reading, United Kingdom); Chunbo Luo (University of Reading, United Kingdom)

CO1.8 **Efficient Tomlinson-Harashima Precoding Ordering using QR Decomposition**
Waleed Al-Hanafy (Strathclyde University, United Kingdom); Stephan Weiss (University of Strathclyde, United Kingdom)

CO1.9 **Superimposed Or Time-Multiplexed Training: A Performance Comparison**
Abla Kammoun (Telecom-ParisTech (ENST), France); Karim Abed-Meraim (Dept TSI, Télécom Paris, France); Sofiene Affes (INRS-EMT, Canada)

CO1.10 **Interference Mitigation Using Widely Linear Arrays**
Adilson Chinatto (Universidade de Campinas, Brazil); Cynthia Junqueira (Institute of Aeronautics And Space, Brazil); João Romano (DSPCom-Unicamp: Digital Signal Processing for Comm. Lab., State University of Campinas, Campinas, Br, Brazil)

CO1.11 **Blind Estimation of Timing and Carrier Frequency Offsets in OFDM Systems**
Leïla Atallah (Ecole Normale Supérieure de Cachan, France); Benoit Geller (UEI Lab, ENSTA ParisTech, France); Pascal Larzabal (ENS-Cachan, PARIS, France)

CO1.12 **SNR Optimized Residual Frequency Offset Compensation for WiMAX with Throughput Evaluation**
Qi Wang (Vienna University of Technology, Austria); Christian Mehlführer (Vienna University of Technology, Austria); Markus Rupp (Vienna University of Technology, Austria)

CO1.13 **A Novel Fine Frequency Synchronization Technique for OFDM Wireless Systems**
Jamil Ahmad (Catena Radio Design, The Netherlands)

CO1.14 **Blind Time-Period Synchronization for LDPC Convolutionally Coded Transmission**
Cedomir Stefanovic (University of Novi Sad, Serbia); Dejan Vukobratovic (University of Strathclyde, United Kingdom); Dragana Bajic (University of Novi Sad, Yugoslavia (defunct)); Lina Stankovic (University of Strathclyde, United Kingdom); Vladimir Stankovic (University of Strathclyde, United Kingdom)

CO1.15 **A blind iterative carrier frequency offset estimator based on a Kalman approach for an interleaved OFDMA uplink system**
Hector Poveda (University of Bordeaux, France); Guillaume Ferré (University of Bordeaux, France); Eric Grivel (University of Bordeaux, France); Pedro Ramos (University of Zaragoza, Spain)

IM2: Image Processing Theory and Applications (Poster Session)
Tuesday, August 25, 15:00 −15:30

Room: Foyer 2
Chair: to be confirmed

IM2.1 **BV-G Color-Image Decomposition with Its Application to Image Processing of a Digital Color Camera**
Takahiro Saito (Kanagawa University, Japan); Daisuke Yamada (Kanagawa University, Japan); Takashi Komatsu (Kanagawa University, Japan)

IM2.2 **Adaptive Riesz Basis Decomposition for Image Search**
Licia Capodiferro (Fondazione Ugo Bordoni, Italy); Marco Carli (University of Roma TRE, Italy); Luca Costantini (University of ROMA TRE, Italy); Alessandro Neri (University of ROMA TRE, Italy); Veronica Palma (University of ROMA TRE, Italy)

IM2.3 **Reduction of l2-Sensitivity for Three-Dimensional Separable-Denominator Digital Filters**
Takao Hinamoto (Department of Artificial Complex Systems Engineering, Hiroshima University, Japan); Osamu Tanaka (Hiroshima University, Japan); Masayoshi Nakamoto (Hiroshima University, Japan); Wu-Sheng Lu (University of Victoria, Canada)

IM2.4 **Multi-Directional Detection of Scratches in Digitized Images**
Edoardo Ardizzone (University of Palermo, Italy); Haris Dindo (Università degli Studi di Palermo, Italy); Giuseppe Mazzola (Università degli Studi di Palermo, Italy); Mario Scriminaci (Universitá degli Studi di Palermo, Italy); Monica Vitali (Università degli Studi di Palermo, Italy)

IM2.5 **The Percentage Occupancy Hit or Miss Transform**
Paul Murray (University of Strathclyde, United Kingdom); Stephen Marshall (University of Strathclyde, United Kingdom); Eric Bullinger (University of Liege, Belgium)

IM2.6 **Hyperspectral Channel Reduction for Local Anomaly Detection**
Oleg Kuybeda (Technion - Israel Institute of Technology, Israel); David Malah (Technion - Israel Institute of Technology, Israel); Meir Barzohar (Technion - Israel Institute of Technology, Israel)

IM2.7 **Reliable colorization algorithm for image and videos**
Dae-Young Hyun (Seoul National University, Korea); Jun-Hee Heu (Seoul National University, Korea); Chang-Su Kim (University of Korea, Korea); Sang Uk Lee (Seoul National University, Korea)

IM2.8 **Non-linear Dark Current Fixed Pattern Noise Compensation for Variable Frame Rate Moving Picture Cameras**
Michael Schöberl (University of Erlangen-Nuremberg, Germany); Cihan Senel (Fraunhofer IIS, Germany); Siegfried Foessel (Fraunhofer IIS, Germany); Hans Bloss (Fraunhofer IIS, Germany); André Kaup (University of Erlangen-Nürnberg, Germany)

IM2.9 **Auto Gain Control Based on LUT from Scene Luminance Curve in Mobile Phone Camera**
Tae-Hyoung Lee (Kyungpook National University, Korea); Wang-Jun Kyung (Kyungpook National University, Korea); Cheol-Hee Lee (Andong National University, Korea); Hee-Chan Park (Samsung Electronics, Korea); Yeong-Ho Ha (Kyungpook National University, Korea)

IM2.10 **Blind Image Watermarking Based on Sample Rotation with Optimal Detector**
Sayed Mohammad Ebrahim Sahraeian (Texas A&M University, USA); Mohammad Ali Akhaee (EE Dept of Sharif University of Technology, Tehran, Iran, Iran); Farokh Marvasti (Sharif university of technology, Iran)

IM2.11 **A Modified Edge Directed Interpolation for Images**
Wing-Shan Tam (City University of Hong Kong, Hong Kong); Chi-Wah Kok (Hong Kong Polytechnic University, Hong Kong); Wan-Chi Siu (The Hong Kong Polytechnic University, Hong Kong)

IM2.12 **A new simulation method for time-derivative CNNs**
Nergis Tural Polat (Yildiz Technical University, Turkey); Vedat Tavsanoglu (Yildiz Technical University, Turkey)

IM2.13 **SVM-Based Obstacle Classification in Visible and Infrared Images**
Anca Apatean (Technical University of Cluj-Napoca, Romania); Alexandrina Rogozan (National Institute of Applied Sciences, France); Abdelaziz Bensrhair (National Institute of Applied Sciences, France)

IM2.14 **A minutiae level fusion for afis systems**
Rima Belguechi (LCSI Laboratory, Algeria); Christophe Rosenberger (GREYC laboratory, France)

IM2.15 **A segmentation free approach for indexing digitized Syriac manuscripts**
Petra Bilane (INSA de Lyon, France); Stephane Bres (INSA de Lyon, France); Khalil Challita (Holy Spirit University of Kaslik, Lebanon); Hubert Emptoz (INSA de Lyon, France)

TH3: Algorithms, Transforms, and Filter Design (Poster Session)
Tuesday, August 25, 15:00 −15:30

TH3.1 **Design of perfect-reconstruction nonuniform filter banks with linear-phase property**
Li Li (Xidian University, P.R. China); Xie Xuemei (Xidian University, P.R. China)

TH3.2 **Design of digital IIR integrator using radial basis function interpolation method**
Chien-Cheng Tseng (Kaoshiung First Univeristy of Science and Technology, Taiwan); Su-Ling Lee (Chung-Jung Christian University, Taiwan)

TH3.3 **Block Discrete-time Schwarz Form of Multivariable Rational Interpolation and Positivity by Linear Matrix Inequality**
Yohei Kuroiwa (Royal Institute of Techonology, Sweden)

TH3.4 **A Comparative Study Of Some Greedy Pursuit Algorithms for Sparse Approximation**
Gagan Rath (IRISA-INRIA, France)

TH3.5 **Multiscale kernel smoothing using a lifting scheme**
Maarten Jansen (K.U.Leuven, Belgium); Christophe Damerval (K.U.Leuven, Belgium)

TH3.6 **Generalizing the Jacket Transform by Sub Orthogonality Extension**
Soo-Chang Pei; Jian-Jiun Ding (all National Taiwan University, Taiwan)

TH3.7 **Positive Partial Realization of Multivariate Time Series**
Yohei Kuroiwa (Royal Institute of Techonology, Sweden)

TH3.8 **Generalized Fixed Polarity Helix Transforms over GF(4)**
Cheng Fu; Bogdan Falkowski (all Nanyang Technological University, Singapore)

TH3.9 **Two Classes of Fixed Polarity Linearly Independent Arithmetic Transforms for Quaternary Functions**
Cicilia Lozano (Nanyang Technological University, Singapore); Bogdan Falkowski (Nanyang Technological University, Singapore); Tadeusz Luba (Warsaw University of Technology, Poland)

TH3.10 **Closed-form design of variable fractional delay filter using discrete Fourier transform**
Chien-Cheng Tseng (Kaoshiung First Univeristy of Science and Technology, Taiwan); Su-Ling Lee (Chung-Jung Christian University, Taiwan)

TH3.11 **Convex combination of affine projection algorithms**
Miguel Ferrer; María De Diego; Alberto Gonzalez; Gema Piñero (all Universidad Politecnica de Valencia, Spain)

TH3.12 **Combining advanced sinusoidal and waveform matching models for parametric audio/speech coding**
Alexey Petrovsky (Belarusian State University of Informatics and Radioelectronics, Belarus); Elias Azarov (Belarusian State University of Informatics and Radioelectronics, Belarus); Alexander Petrovsky (Bialystok Technical University, Poland)

TH3.13 **Properties, Digital Implementation, Applications, and Self Image Phenomena of the Gyrator Transform**
Soo-Chang Pei; Jian-Jiun Ding (all National Taiwan University, Taiwan)

TH3.14 **Implementation of Matrix Factorization based on Minimizing Quasi-absolute Distance for Electromagnetic Global Signal Elimination**
Motoaki Mouri (Nagoya Institute of Technology, Japan); Arao Funase (Nagoya Institute of Technology, Japan); Andrzej Cichocki (RIKEN BSI, Laboratory for Advanced Brain Signal Processing, Japan); Ichi Takumi (Nagoya Institute of Technology, Japan); Hiroshi Yasukawa (Aichi Prefectural University, Japan); Masayasu Hata (Chubu University, Japan)

CO2: MIMO Systems
Tuesday, August 25, 15:50 −17:30

15:50 **Diversity Techniques for Analog Combining Schemes: Design and Performance Evaluation**
Victor Elvira (University of Cantabria, Spain); Javier Vía (University of Cantabria, Spain)

16:10 **A Low-Complexity Iterative MIMO Sphere Decoding Algorithm**
Mansour Rachid (University of California Los Angeles, USA); Babak Daneshrad (University of California, Los Angeles, USA)

16:30 **Iterative Suppression of Co-Channel Interference**
Muhammad Danish Nisar (Technical University Munich, TUM, Germany); Hans Nottensteiner (Nokia Siemens Networks, Germany); Wolfgang Utschick (Technische Universität München, Germany)

16:50 **Tap and Transmit Antenna Correlation Based Precoding For MIMO-OFDM Systems**
Yann Lebrun (IMEC / KULeuven, Belgium); Christian Hofbauer (Klagenfurt University, Austria); Valery Ramon (Inter-university Micro-Electronics Center, Belgium); Andre Bourdoux (IMEC, Belgium); Mario Huemer (Klagenfurt University, Austria); François Horlin (Université Libre de Bruxelles, Belgium); Rudy Lauwereins (IMEC, Leuven, Belgium)

17:10 **A Probabilistic Constraint Approach for Robust Transmit Beamforming with Imperfect Channel Information**
Pei-Jung Chung (University of Edinburgh, United Kingdom); Huiqin Du (University of Edinburgh, United Kingdom); Jacek Gondzio (University of Edinburgh, United Kingdom)

SP1: Speech Recognition 1
Tuesday, August 25, 15:50 −17:30

15:50 **Robust Phoneme Classification: Exploiting The Adaptability of Acoustic Waveform Models**
Matthew Ager (King's College London, United Kingdom); Zoran Cvetkovic (King's College London, United Kingdom); Peter Sollich (King's College London, United Kingdom)

16:10 **Robust automatic speech recognition using acoustic model adaptation prior to missing feature reconstruction**
Ulpu Remes (Helsinki University of Technology, Finland); Kalle Palomäki (Helsinki University of Technology, Finland); Mikko Kurimo (HUT, Finland)

16:30 **Adapting HMMs of Distant-Talking ASR Systems Using Feature-Domain Reverberation Models**
Armin Sehr (University of Erlangen-Nuremberg, Germany); Markus Gardill (University Erlangen-Nuremberg, Germany); Walter Kellermann (University Erlangen-Nuremberg, Germany)

16:50 **Filler Models for Automatic Speech Recognition Created from Hidden Markov Models using the K-Means Algorithm**
Matthew Dunnachie (Institute for System Level Integration, United Kingdom); Paul Shields (Epson Scotland Design Centre, United Kingdom); David Crawford (Epson Scotland Design Centre, United Kingdom); Mike Davies (University of Edinburgh, United Kingdom)

17:10 **Evaluation of Modulation Frequency Features for Speaker Verification and Identification**
Maria Markaki (University of Crete, Greece); Yannis Stylianou (University of Crete, Greece)

VM1: Image and Video Processing
Tuesday, August 25, 15:50 –17:30

Room: Strathclyde Suite
Chair: Jean-Luc Dugelay (Institut EURECOM, France)

15:50 **Hybrid-1D macroblock prediction for video compression**
Jean-Marc Thiesse (Orange Labs, France); Joël Jung (France Telecom R&D, France); Marc Antonini (I3S-CNRS-University of Nice Sophia Antipolis, France)

16:10 **Fusion schemes for multiview distributed video coding**
Thomas Maugey (TELECOM ParisTech, France); Wided Miled (TELECOM ParisTech, France); Marco Cagnazzo (TELECOM ParisTech, France); Beatrice Pesquet-Popescu (Ecole Nationale Superieure des Telecommunications, France)

16:30 **The polar edge coherence: a quasi blind metric for video quality assessment**
Vittorio Baroncini (Fondazione Ugo Bordoni, Italy); Licia Capodiferro (Fondazione Ugo Bordoni, Italy); Elio Di Claudio (University of Rome "La Sapienza", Italy); Giovanni Jacovitti (INFOCOM Dpt. University of Rome, Italy)

16:50 **Inter-Sequence Error Concealment for Diversity Reception of Digital TV Sequences**
Tobias Tröger (University of Erlangen-Nuremberg, Germany); Henning Heiber (Audi AG, Germany); Andreas Schmitt (Audi AG, Germany); André Kaup (University of Erlangen-Nürnberg, Germany)

17:10 **Concept learning for image and video retrieval: The inverse random under sampling approach**
Muhammad Tahir (University of Surrey, United Kingdom); Josef Kittler (University of Surrey, United Kingdom); Fei Yan (University of Surrey, United Kingdom); Krystian Mikolajczyk (University of Surrey, United Kingdom)

SS2: Tensor Tools in Signal Processing
Tuesday, August 25, 15:50 –17:50

Room: Strathclyde Bar
Chair: Pierre Comon (CNRS, University of Nice, France)

15:50 **Approximate Tensor Diagonalization by Invertible Transforms**
Mikael Sorensen (University of Nice, France); Pierre Comon (CNRS, University of Nice, France); Sylvie Icart (I3S-CNRS, France); Luc Deneire (University of Nice, France)

16:10 **Subtracting a best rank-1 approximation does not necessarily decrease tensor rank**
Alwin Stegeman (University of Groningen, The Netherlands); Pierre Comon (CNRS, University of Nice, France)

16:30 **An Efficient Jacobi-Type Algorithm for Blind Equalization of Paraunitary Channels**
Mikael Sorensen (University of Nice, France); Lieven De Lathauwer (K.U.Leuven, Belgium); Luc Deneire (University of Nice, France)

16:50 **Canonical decomposition of even order Hermitian positive semi-definite arrays**
Ahmad Karfoul (INSERM, U642, Rennes, F-35000, France); Laurent Albera (INSERM, U642, Rennes, F-35000, France); Pierre Comon (CNRS, University of Nice, France)

17:10 **Low multilinear rank tensor approximation via semidefinite programming**
Carmeliza Navasca (Clarkson University, USA); Lieven De Lathauwer (K.U.Leuven, Belgium)

17:30 **Symmetric Tensor Decomposition**
Jerome Brachat (INRIA Sophia-Antipolis, France); Pierre Comon (CNRS, University of Nice, France); Bernard Mourrain (INRIA Sophia-Antipolis, France); Elias Tsigaridas (INRIA Sophia-Antipolis, France)

SS3: Embedded DSP Implementation with Applications
Tuesday, August 25, 15:50 –17:30

Room: Buchanan Suite
Chair: John Soraghan (University of Strathclyde, United Kingdom)

15:50 **Overview of Embedded DSP Design**
Iain Hunter (Texas Instruments, United Kingdom)

16:10 **A Novel Lane Feature Extraction Algorithm Based on Digital Interpolation**
Yifei Wang (University of Bristol, United Kingdom); Naim Dahnoun (University of Bristol, United Kingdom); Alin Achim (University of Bristol, United Kingdom)

16:30 **Precise Motion Descriptors Extraction from Stereoscopic Footage using DaVinci DM6446**
Muhammad Asif (University of Strathclyde, United Kingdom); John Soraghan (University of Strathclyde, United Kingdom)

16:50 **Optimized Visualization of Stereo Images on an OMAP Platform with Integrated Parallax Barrier Auto-Stereoscopic Display**
Atanas Boev (Tampere University of Technology, Finland); Mihail Georgiev (Tampere University of Technology, Finland); Atanas Gotchev (Tampere University of Technology, Finland); Karen Egiazarian (Tampere University of Technology, Finland)

17:10 **OMAP 3 Based Signal Processing for Biomedical Engineering Teaching**
Kunal Mankodiya (University of Luebeck, Germany); Simon Vogt (University of Luebeck, Germany); Ulrich Hofmann (University of Luebeck, Germany)

CO3: Equalisation
Wednesday, August 26, 8:30 − 10:10

Room: Main Auditorium
Chair: Paulo Diniz (Universidade Federal do Rio de Janeiro, Brazil)

8:30 Blind channel shortening in ZP-OFDM systems with controlled TIR
Taoufik Ben Jabeur (Université Paris Descartes, France); Karim Abed-Meraim (Dept TSI, Télécom Paris, France); Hatem Boujemaa (Ecole Supérieure des Communications, Tunisia)

8:50 Maximization of Useful-to-Null Subcarrier Energy Ratio for Blind Multicarrier SIMO Channel Shortening
Hichem Besbes (Ecole Superieure de Communications de Tunis, Sup'Com TUNISIA, Tunisia); Roberto López Valcarce (Universidad de Vigo, Spain); Sofiane Cherif (Sup'Com, Tunisia); Emna Bensalem (Sup'com, Tunisia)

9:10 Minimum Redundancy Multicarrier and Single-Carrier systems based on Hartley Transforms
Wallace Martins (Federal University of Rio de Janeiro - UFRJ, Brazil); Paulo Diniz (Universidade Federal do Rio de Janeiro, Brazil)

9:30 Reduced-Rank Transform-Domain LMS Algorithm for Stabilizing Fractionally-Spaced Channel Equalizers
Kutluyil Dogancay (University of South Australia, Australia); Mark Ho (University of South Australia, Australia)

9:50 Packet Combining for Multi-Layer Hybrid-ARQ over Frequency-Selective Fading Channels
Abdel-Nasser Assimi (ETIS, CNRS, ENSEA, Univ Cergy-Pontoise, France); Charly Poulliat (ETIS, CNRS, ENSEA, Univ Cergy-Pontoise, France); Inbar Fijalkow (ETIS, CNRS, ENSEA, Univ Cergy-Pontoise, France)

SS4: Signal Processing for Spatial Audio 1
Wednesday, August 26, 8:30 − 10:10

Room: Exhibition Hall
Chair: Sascha Spors (Deutsche Telekom Laboratories, Germany)
       Rudolf Rabenstein (University of Erlangen-Nuremberg, Germany)

8:30 Direction Estimation Based on Sound Intensity Vectors
Sakari Tervo (Helsinki University of Technology, Finland)

8:50 Dynamic Time Warping for Acoustic Response Interpolation: Possibilities and Limitations
Gavin Kearney (Trinity College Dublin, Ireland); Claire Masterson (Trinity College Dublin, Ireland); Stephen Adams (Trintiy College Dublin, Ireland); Frank Boland (Trinity College Dublin, Ireland)

9:10 Acoustic reconstruction of the geometry of an environment through acquisition of a controlled emission
Fabio Antonacci (Politecnico di Milano, Italy); Dario Aprea (Politecnico di Milano, Italy); Augusto Sarti (Politecnico di Milano, Italy); Stefano Tubaro (Politecnico di Milano, Italy)

9:30 Rendering walk-through auralisations using wave-based acoustical models
Alex Southern (University or York, United Kingdom); Jeremy Wells (University of York, United Kingdom); Damian Murphy (University of York, United Kingdom)

9:50 A Short Review of Signals and Systems for Spatial Audio 1
Paolo Annibale (University Erlangen-Nuremberg, Germany); Rudolf Rabenstein (University of Erlangen-Nuremberg, Germany); Sascha Spors (Deutsche Telekom Laboratories, Germany); Peter Steffen (University of Erlangen, Germany)

IM3: Object and Feature Detection
Wednesday, August 26, 8:30 − 10:10

Room: Strathclyde Suite
Chair: Paulo Correia (Instituto Superior Técnico, PT)

8:30 **Tracking Multiple Objects Using Intensity-GVF Snakes**
Jonas De Vylder (Ghent University, Belgium)

8:50 **Inflection Point Model Under Phase Field Higher-Order Active Contours For Network Extraction From VHR Satellite Images**
Aymen El Ghoul (INRIA Sophia Antipolis-Mediterranee, France); Ian Jermyn (INRIA, France); Josiane Zerubia (INRIA, Sophia Antipolis, France)

9:10 **Automatic Road Pavement Crack Detection using Boosting Classifiers**
Pedro Rosa (Instituto de Telecomunicacoes, Portugal); Paulo Correia (Instituto Superior Técnico, Portugal)

9:30 **Automatic defect detection on road pavement using anisotropy measure**
Sy Nguyen (University of Orleans, France)

9:50 **Automatic Road Crack Segmentation Using Entropy and Image Dynamic Thresholding**
Henrique Oliveira (Instituto de Telecomunicações, Portugal); Paulo Correia (Instituto Superior Técnico, Portugal)

AM1: Beamforming and Space-Time Processing
Wednesday, August 26, 8:30 − 10:10

Room: Strathclyde Bar
Chair: John McWhirter (Cardiff University, United Kingdom)

8:30 **Design of a Rectangular Frequency Invariant Beamformer with a Full Azimuth Angle Coverage**
Wei Liu (University of Sheffield, United Kingdom)

8:50 **Robust Beamforming with Combined Worst-Case Performance Optimization and Soft Constraints in a Multipath Environment**
Lei Yu (University of Sheffield, United Kingdom); Wei Liu (University of Sheffield, United Kingdom); Richard Langley (University of Sheffield, United Kingdom)

9:10 **Performance analysis of the optimal widely linear MVDR beamformer**
Pascal Chevalier (Thales Communication, France); Jean-Pierre Delmas (Telecom SudParis, France); Abdelkader Oukaci (Telecom SudParis, France)

9:30 **Range recursive space-time adaptive processing (STAP) for MIMO airborne radar**
Sylvie Marcos (Laboratoire des Signaux et Systems, Supélec, CNRS UMR8506, France)

9:50 **H∞ Filtering For Autoregressive Modelling Based Space-Time Adaptive Processing**
Julien Petitjean (University of Bordeaux, France); Eric Grivel (University of Bordeaux, France); Patrick Roussilhe (Thales Systèmes Aéroportés, France)

AP2: Biomedical Signal Processing 1
Wednesday, August 26, 8:30 − 10:10

8:30 **Source Localization of Brain Rhythms by Empirical Mode Decomposition and Spatial Notch Filtering**
Delaram Jarchi (Cardiff University, United Kingdom); Vahid Abolghasemi (Cardiff University, United Kingdom); Saeid Sanei (Cardiff University, United Kingdom)

8:50 **Modelling and Filtering Almost Periodic Signals by Time-Varying Fourier Series with Application to Near Infrared Spectroscopy**
Ivo Trajkovic (Swiss Federal Institute of Technology (ETH) Zurich, Switzerland); Christoph Reller (ETH Zurich, Switzerland); Hans-Andrea Loeliger (ETH Zurich, Switzerland); Martin Wolf (University Hospital Zurich, Switzerland)

9:10 **A Robust Respiratory Phase Identification Scheme Based on A New Mixing Index**
Feng Jin (Nanyang Technological University, Singapore); Farook Sattar (Nanyang Technological University, Singapore); Daniel Goh (National University Hospital, Singapore); Irene Louis (National University Hospital, Singapore)

9:30 **An Enhanced Respiratory Rate Monitoring Method For Real Tracheal Sounds Recordings**
Feng Jin (Nanyang Technological University, Singapore); Farook Sattar (Nanyang Technological University, Singapore); Daniel Goh (National University Hospital, Singapore); Irene Louis (National University Hospital, Singapore)

9:50 **Detection of high frequency steady state visual evoked potentials for Brain-Computer Interfaces**
Gary Garcia Molina (Philips, The Netherlands); David Ibanex (Philips Research Europe, The Netherlands); Vojkan Mihajlovic (Philips Research Europe, The Netherlands); Dimitri Chestakov (Philips Research Europe, The Netherlands)

TH4: Matrix Polynomials and Multivariate Methods
Wednesday, August 26, 8:30 − 10:10

8:30 **Bounded Real Lemma for Multivariate Trigonometric Matrix Polynomials and FIR Filter Design Applications**
Bogdan Dumitrescu (Tampere University of Technology, Finland)

8:50 **Filteration of Multicomponent Seismic Wavefield Data using Frequency SVD**
Wai Lok Woo (University of Newcastle upon Tyne, United Kingdom)

9:10 **A Novel Algorithm for Calculating the Singular Value Decomposition of a Polynomial Matrix**
Joanne Foster (Loughborough University, United Kingdom); John McWhirter (Cardiff University, United Kingdom); Jonathon Chambers (Loughborough University, United Kingdom)

9:30 **Non-iterative solution for PARAFAC with Toeplitz matrix factors**
Alain Kibangou (GIPSA-Lab, CNRS, France); Favier Gérard (Université de Nice, France)

9:50 **On the Design of GCF compensation Filter based on Minimax Optimization**
Alfonso Fernandez-Vazquez (National Institute of Astrophysics, Optics, and Electronics, Mexico); Gordana Jovanovic Dolecek (INAOE, Mexico)

CO4: Networks and Relay Communications
Wednesday, August 26, 10:30 − 12:10

Room: Main Auditorium
Chair: Jonathon Chambers (Loughborough University, United Kingdom)

10:30 **Joint Sensor Selection and Routing for Distributed Estimation in Wireless Sensor Networks**
Eduardo Portu-Repolls (Universidad de Valencia, Spain); Baltasar Beferull-Lozano (Universidad de Valencia, Spain)

10:50 **Maximum SINR-Based Beamforming for the MISO Interference Channel**
Yann Lebrun (IMEC / KULeuven, Belgium); Jimmy Nsenga (CETIC, Belgium); Valery Ramon (Inter-university Micro-Electronics Center, Belgium); Andre Bourdoux (IMEC, Belgium); Franois Horlin (Universit Libre de Bruxelles, Belgium); Rudy Lauwereins (IMEC, Leuven, Belgium)

11:10 **Ergodic Capacity of Block-Fading Gaussian Broadcast and Multi-access Channels for Single-User-Selection and Constant-Power**
Mohammad Shaqfeh (Texas A&M University at Qatar, Qatar); Norbert Görtz (Vienna University of Technology, Austria); John Thompson (University of Edinburgh, United Kingdom)

11:30 **Adaptive-Rate Transmission Schemes for Two-hop Multiple Access Relay Networks**
Sudharsan Ganesan (Queens University Belfast, United Kingdom); Mathini Sellathurai (Queen's University of Belfast, United Kingdom)

11:50 **Distributed adaptive node-specific MMSE signal estimation in sensor networks with a tree topology**
Alexander Bertrand (Katholieke Universiteit Leuven, Belgium); Marc Moonen (Katholieke Universiteit Leuven, Belgium)

SS5: Signal Processing for Spatial Audio 2
Wednesday, August 26, 10:30 − 12:10

Room: Exhibition Hall
Chair: Rudolf Rabenstein (University of Erlangen-Nuremberg, Germany)
Sascha Spors (Deutsche Telekom Laboratories, Germany)

10:30 **A Short Review of Signals and Systems for Spatial Audio 2**
Paolo Annibale (University Erlangen-Nuremberg, Germany); Rudolf Rabenstein (University of Erlangen-Nuremberg, Germany); Sascha Spors (Deutsche Telekom Laboratories, Germany); Peter Steffen (University of Erlangen, Germany)

10:50 **A Note on the Filtering Equalization in Large Multiactuator Panels**
Basilio Pueo (University of Alicante, Spain); Jose Escolano-Carrasco (University of Jaen, Spain); Jose Javier Lopez (Universidad Politecnica de Valencia, Spain); German Ramos (Universidad Politecnica de Valencia, Spain)

11:10 **Rear and Side Reproduction of Elevated Sources in Wave-Field Synthesis**
Jose Javier Lopez (Universidad Politecnica de Valencia, Spain); Maximo Cobos (Universidad Politecnica de Valencia, Spain); Basilio Pueo (University of Alicante, Spain)

11:30 **3D soundfield reproduction using non-spherical loudspeaker arrays**
Aastha Gupta (Australian National University, Australia); Thushara Abhayapala (Australian National University, Australia)

11:50 **An Analytical Approach to 2.5D Sound Field Reproduction Employing Circular Distributions Of Non-Omnidirectional Loudspeakers**
Jens Ahrens (Deutsche Telekom Laboratories, Germany); Sascha Spors (Deutsche Telekom Laboratories, Germany)

IM4: Multiview and 3D Image Processing
Wednesday, August 26, 10:30 − 12:10

Room: Strathclyde Suite
Chair: Jean-Philippe Thiran (Swiss Federal Institute of Technology (EPFL), Switzerland)

10:30 **Stereo Matching Using Adaptive Belief Propagation along Ambiguity Gradient**
Sumit Srivastava (Seoul National University, Korea); Sang-Hwa Lee (Seoul National University, Korea); Nam-Ik Cho (Seoul National University, Korea); Sang Uk Lee (Seoul National University, Korea)

10:50 **Randomness-Based Integration of Multi-Viewpoint Imagery for as-is Roadway Model Generation**
Kohji Kamejima (Osaka Institute of Technology, Japan)

11:10 **Multimodal Speaker Localization from Omnidirectional Videos**
Pascal Reuse (Swiss Federal Institute of Technology (EPFL), Switzerland); Mihai Gurban (Swiss Federal Institute of Technology (EPFL), Switzerland); Ivar Austvoll (University of Stavanger, Norway); Jean-Philippe Thiran (Swiss Federal Institute of Technology (EPFL), Switzerland)

11:30 **Impostor Detection using Facial Stereoscopic Images**
Abdelaali Benaiss (Institute Eurecom, France); Usman Saeed (Institute Eurecom, France); Jean-Luc Dugelay (Institut EURECOM, France); Mohamed Jedra (Laboratoire Conception et Systmes, Morocco)

11:50 **Synthetic aperture signal processing for high resolution 3D image reconstruction in the THz-domain**
Marijke Vandewal (Royal Military Academy, Belgium)

VM2: Multimedia Applications
Wednesday, August 26, 10:30 − 12:10

Room: Strathclyde Bar
Chair: Bulent Sankur (Bogazici University, Turkey)

10:30 **Image and video retargeting using adaptive scaling function**
Jin-Hwan Kim (Korea University, Korea); Jun-Seong Kim (Korea University, Korea); Chang-Su Kim (University of Korea, Korea)

10:50 **Passive Forensic Method for Detecting Duplicated Regions Affected by Reflection, Rotation and Scaling**
Sergio Bravo-Solorio (University of Liverpool, United Kingdom); Asoke Nandi (The University of Liverpool, United Kingdom)

11:10 **Coding efficiency improvement for SVC broadcast in the context of the emerging DVB standardization**
Heiko Schwarz (HHI, Germany); Patrick Ndjiki-Nya (HHI, Germany); Thomas Wiegand (HHI/FhG, Germany)

11:30 **Video And Audio Based Detection of Filled Hesitation Pauses in Classroom Lectures**
Vassilis Tsiaras (University of Crete, Greece); Costas Panagiotakis (University of Crete, Greece); Yannis Stylianou (University of Crete, Greece)

11:50 **Automatic TV Logo Detection and Classification In Broadcast Videos**
Nedret Ozay (Bogazici University, Turkey); Bulent Sankur (Bogazici University, Turkey)

AP3: Radar and Sonar
Wednesday, August 26, 10:30 − 12:10

Room: Buchanan Suite
Chair: Fulvio Gini (University of Pisa, Italy)

10:30 **Effects of frequency-dependent attenuation on the performance of time delay estimation techniques using Ground Penetrating Radar**
Khaled Chahine (Laboratoire Central des Ponts et Chausses, France); Baltazart Vincent (Laboratoire central des ponts et chausses, France); Yide Wang (University of Nantes, Polytech'Nantes, France); Derobert Xavier (Laboratoire central des ponts et chausses, France); Cdric Lebastard (Laboratoire Rgional des Ponts et Chaussées, France)

10:50 **Multistatic Matched-Illumination Waveform Design for Detection and Identification of Indoor Targets behind Walls**
Fauzia Ahmad (Villanova University, USA); Moeness Amin (Villanova University, USA)

11:10 **Application of The MIMO Radar Technique for Lesion Classification in UWB Breast Cancer Detection**
Yifan Chen (University of Greenwich, United Kingdom); Ian Craddock (University of Bristol, United Kingdom); Panagiotis Kosmas (King's College London, United Kingdom); Mohammad Ghavami (Kings College London, United Kingdom); Predrag Rapajic (University of Greenwich, United Kingdom)

11:30 **Supervised Classification of Scatterers on SAR Imaging based on Incoherent polarimetric time-frequency signatures**
Mickal Duquenoy (University of Rennes 1, France); Jean-Philippe Ovarlez (ONERA, France); Laurent Ferro-Famil (University of Rennes 1, France); Eric Pottier (University of Rennes, France)

11:50 **Acoustic Detection and Classification of Sound Sources using Temporal Multiple Energy Detector Features**
Alexej Swerdlow (University of Karlsruhe, Germany); Jorge Moragues (Universidad Politcnica de Valencia, Spain); Timo Machmer (University of Karlsruhe, Germany); Arturo Serrano-Cartagena (Universidad Politcnica de Valencia, Spain); Luis Vergara (Universidad Politcnica de Valencia, Spain); Kristian Kroschel (Fraunhofer Institut fuer Informations- und Datenverarbeitung, Germany)

AM2: Array and Multichannel Signal Processing 1
Wednesday, August 26, 15:00 − 15:30

Room: Foyer 1
Chair: Wei Liu (University of Sheffield, United Kingdom)

AM2.1 **A Least Squares Approach to the Design of Frequency Invariant Beamformers**
Yong Zhao (University of Sheffield, United Kingdom); Wei Liu (University of Sheffield, United Kingdom); Richard Langley (University of Sheffield, United Kingdom)

AM2.2 **Designing Acoustic Vector Sensors for localisation of sound sources in air**
Muawiyath Shujau (University of Wollongong, Australia); Christian Ritz (University of Wollongong, Australia); Ian Burnett (RMIT University, Australia)

AM2.3 **Spectral Combining for Microphone Diversity Systems**
Juergen Freudenberger (University of Applied Sciences Constance, Germany); Sebastian Stenzel (University of Applied Sciences Constance, Germany); Benjamin Venditti (University of Applied Sciences Constance, Germany)

AM2.4 **High Fidelity Blind Source Separation of Speech Signals**
Ajay Kattepur (Nanyang Technological University, Singapore); Joni Lie (Temasek Laboratories@Nanyang Technological University, Singapore); Farook Sattar (Nanyang Technological University, Singapore); C. m. See (DSO Laboratories, Singapore)

AM2.5 **A robust time difference of arrival estimator in reverberant environments**
Jae-Mo Yang (Yonsei University, Korea); Chang-Heon Lee (Yonsei University, Korea); Hong-Goo Kang (Yonsei University, Korea)

AM2.6 **An Optimal Prior Knowledge-Based DOA Estimation Method**
Guillaume Bouleux (Saint Etienne University, France); Petre Stoica (Uppsala University, Sweden); Rmy Boyer (CNRS, Universit Paris-Sud (UPS), Supelec, France)

AM2.7 **Closed-Form Automatically Paired 2-D Direction-of-Arrival Estimation with Arbitrary Arrays**
Tansu Filik (Middle East Technical University, Turkey); T. Engin Tuncer (Middle East Technical University, Turkey)

AM2.8 **Direction-of-arrival estimation under noisy condition using four-line omni-directional microphones mounted on a robot head**
Tetsuji Ogawa (Waseda University, Japan); Kosuke Hosoya (Waseda University, Japan); Kenzo Akagiri (Waseda University, Japan); Tetsunori Kobayashi (Waseda University, Japan)

AM2.9 **Constraint Adaptive Natural Gradient Algorithm (CANA) For Adaptive Array Processing**
Ijteba-Ul-Hasnain Shah (University of Strathclyde, United Kingdom); Tariq Durrani (Strathclyde University, United Kingdom)

AM2.10 **Broadband GSC Beamformer with Spatial and Temporal Decorrelation**
Choo-Leng Koh (EADS, Singapore); Soydan Redif (Near East University, Turkey); Stephan Weiss (University of Strathclyde, United Kingdom)

TH5: Detection and Estimation 1
Wednesday, August 26, 15:00 − 15:30

Room: Foyer 1
Chair: to be confirmed

TH5.1 **Robust Minimum Distance Neyman-Pearson Detection of a Weak Signalin Non-Gaussian Noise**
Georgy Shevlyakov (Gwangju Institute of Science and Technology, Korea); Vladimir Shin (Gwangju Institute of Science and Technology, Korea); Kyungmin Lee (GIST, Korea)

TH5.2 **First-order analysis of the mode and amplitude estimates of a damped sinusoid using Matrix Pencil**
El-Hadi Djermoune (CRAN, Nancy-Universite, CNRS, France); Magalie Thomassin (IMS, Universite de Bordeaux, CNRS, France); Marc Tomczak (CRAN, Nancy-Universite, CNRS, France)

TH5.3 **An IQML type algorithm for AR parameter estimation from noisy covariance sequences.**
Prabhu Babu (Uppsala University, Sweden); Petre Stoica (Uppsala University, Sweden); Tom Marzetta (bell labs, USA)

TH5.4 **Parameter Estimation for Polynomial Phase Signals With a Fast and Robust Algorithm**
Olivier Fourt (Universit Paris XI Orsay, France); Messaoud Benidir (University of Paris 11, France)

TH5.5 **A subband algorithm for estimating the parameters of two-dimensional exponential signals**
El-Hadi Djermoune (CRAN, Nancy-Universite, CNRS, France); David Brie (Universit Henri Poincar, France); Marc Tomczak (CRAN, Nancy-Universite, CNRS, France)

TH5.6 **Cramer-Rao Bound For Time-Delay Estimation in the Frequency Domain**
Jordi Serra (CTTC, Spain); Luis Blanco (CTTC, Spain); Montse Najar (UPC, Spain)

TH5.7 **Generalized method of moments for blind near efficient carrier phase acquisition**
Stefania Colonnese (Universit "La Sapienza" di Roma, Italy); Stefano Rinauro (Dip. INFO-COM, Universit "La Sapienza" di Roma, Italy); Gaetano Scarano (Universit "La Sapienza" di Roma, Italy)

TH5.8 **An Efficient Monte Carlo Approach for Optimizing Communication Constrained Decentralized Estimation Networks**
Murat Uney (Sabanci University, Turkey); Mujdat Cetin (Sabanci University, Turkey)

TH5.9 **A Novel Data-Fusion-Based Improvement to Debiased CMKF Tracking**
John Spitzmiller (SPARTA, Inc., USA); Reza Adhami (The University of Alabama in Huntsville, USA)

TH5.10 **New Accept/Reject Methods for Independent Sampling from Posterior Probability Distributions**
Luca Martino (Universidad Carlos III de Madrid, Spain); Joaquin Miguez (Universidad Carlos III de Madrid, Spain)

TH5.11 **RJMCMC sampler for single sensor source separation: an application to electric load monitoring**
Mabrouka El Guedri (Electricit de France, France); Julien Bect (SUPELEC, France); Christian Lajaunie (Ecole Nationale des Mines de Paris, France); Gilles Fleury (Ecole Suprieure d'Electricit, France); Alexandre Girard (Electricit de France, France); Redouane Seraui (Electricit de Frane (Research an Development), France); Thomas Garcia (Ecole Suprieure d'Electricit, France)

TH5.12 **A local stationary long-memory model for internet traffic**
Li Song (CNRS UMR 8506, Université Paris-Sud, France); Pascal Bondon (LSS CNRS, France)

TH5.13 **Automatic Intensity Quantification of Fluorescence Targets from Microscope Images with Maximum Likelihood Estimation**
Harri Plnen (Tampere University of Technology, Finland); Jussi Tohka (Tampere Univ. Tech, Finland); Ulla Ruotsalainen (Tampere University of Technology, Finland)

VM3: Video and Multimedia Signal Processing
Wednesday, August 26, 15:00 − 15:30

Room: Foyer 1
Chair: Olivier Steiger (ABB Switzerland Inc., Switzerland)

VM3.1 **A Novel Scheme for Content Based Image Retrieval**
SongHao Zhu (Shanghai Jiaotong University, P.R. China); Yuncai Liu (Shanghai Jiaotong University, P.R. China)

VM3.2 **Scale-Robust Feature Extraction for Face Recognition**
Zhifei Wang (Institute of Information Science, Beijing Jiaotong University, P.R. China); Zhenjiang Miao (Beijing Jiaotong University, P.R. China)

VM3.3 **Perceptual-based Playout Mechanisms for Multi-stream Voice Over IP Network**
Chun-Feng Wu (National Chiao-Tung University, Taiwan); Yung-Le Chang (National Chiao-Tung University, Taiwan); Wen-Whei Chang (National Chiao Tung University, Taiwan)

VM3.4 **Comparison Experimental Research on Three Pre-processing Models of Online Hand Drawn Diagram**
Yingmin Zhang (Guangdong University of Technology, P.R. China); Wu Liming (Guangdong University of Technology, P.R. China)

VM3.5 **Improved Motion-Based Localized Super Resolution Technique Using Discrete Wavelet Transform for Low Resolution Video Enhancement**
Hasan Demirel (Eastern Mediterranean University, Turkey); Gholamreza Anbarjafari (Eastern Mediterranean University, Turkey); Sara Izadpanahi (Eastern Mediterranean University, Turkey)

VM3.6 **Subjective Evaluation of Single Frame Superresolution Algorithms**
Bulent Sankur (Bogazici University, Turkey); Huseyin Ozdemir (Universtiy of Bogazici, Turkey)

VM3.7 **Occlusion-Handling for Improved Particle Filtering-based Tracking**
Raphael Canals (University of Orleans, France); Ali Ganoun (LIVIC: A Research Laboratory for Advanced Driving Assistance Systems, France); Rmy Leconge (PRISME Institut, France)

VM3.8 **Graphic Based Temporal Attention Fusion**
reede ren (Unversity of Glasgow, United Kingdom); Joemon Jose (University of Glasgow, United Kingdom)

VM3.9 **Texture Classification Using Wavelet-Domain BDIP and BVLC Features**
Nam Kim (Kyungpook National University, Korea); Hyun Joo So (Kyungpook National University, Korea); Mi Kim (Kyungpook National University, Korea)

VM3.10 **A Portable System for Robust Acoustic Detection of Atypical Situations**
Stavros Ntalampiras (University of Patras, Greece); Ilyas Potamitis (Techological Education Institute of Crete, Greece); Nikos Fakotakis (University of Patras, Greece)

AE3: Audio and Music Signal Processing 2
Wednesday, August 26, 15:00 − 15:30

Room: Foyer 2
Chair: Hiroshi Saruwatari (Nara Institute of Science and Technology, Japan)

AE3.1 **Drum transcription from multichannel recordings with non-negative matrix factorization**
David Alves (Tampere University of Technology, Finland); Jouni Paulus (Tampere University of Technology, Finland); Jose Fonseca (New University of Lisbon, Portugal)

AE3.2 **Time-Variant Harmonic Signal Modeling by Using Polynomial Approximation and Fully Automated Spectral Analysis**
Miroslav Zivanovic (Universidad Publica de Navarra, Spain); Johan Schoukens (Vrije Universiteit Brussel, Belgium)

AE3.3 **Additive and multiplicative Reestimation schemes for the sinusoid modeling of audio**
Xue Wen (Queen Mary, University of London, United Kingdom); Mark Sandler (Queen Mary University of London, United Kingdom)

AE3.4 **Spatial Audio Coding by Squeezing: Analysis and Application to Compressing Multiple Soundfields**
Bin Cheng (University of Wollongong, Australia); Christian Ritz (University of Wollongong, Australia); Ian Burnett (RMIT University, Australia)

AE3.5 **Creation of reference signals for subjective evaluation of coding techniques**
Thierry Etame (France Télécom, France); Régine Le Bouquin-Jeanns (University of Rennes 1, France); Catherine Quinquis (France Telecom R&D, France); Gérard Faucon (University of Rennes 1, France); Laetitia Gros (France Telecom R&D, France)

AE3.6 **Adaptive Structural Analysis Of Music Recordings**
Aggelos Pikrakis (University of Piraeus, Greece); Sergios Theodoridis (University of Athens, Greece)

AE3.7 **Audio encoding based on the Empirical Mode Decomposition**
Kais Khaldi (National School of Engineers of Tunis, Tunisia); Abdel-Ouahab Boudraa (IRENav Ecole Navale, France); Turki Monia (National School of Engineers, Tunisia); Thierry Chonavel (Institut Tlcom; Tlcom Bretagne, France); Imen Samaali (University of Paris Descartes, Tunisia)

AE3.8 **Temporal envelope correction for attack restoration in low bit-rate audio coding**
Imen Samaali (University of Paris Descartes, Tunisia); Turki Monia (National School of Engineers, Tunisia); Gael Mah (University, France)

AE3.9 **Extending Nonnegative Matrix Factorization—a Discussion in the Context of Multiple Frequency Estimation of musical signals**
Stanislaw Raczynski (The University of Tokyo, Japan); Nobutaka Ono (The University of Tokyo, Japan); Shigeki Sagayama (University of Tokyo, Japan)

AE3.10 **An onset detection algorithm for query by Humming (QBH) applications using psychoacoustic knowledge**
Balaji Thoshkahna (Indian institute of Science,Bangalore,India); Kalpathi Ramakrishnan (Indian Institue of Science, India)

AE3.11 **Overlapped event-note separation based on partial amplitude and phase estimation for polyphonic music transcription**
Julio Carabias-Orti (University of Jaen, Spain); Pedro Vera Candeas (University of Jaen, Spain); Nicolas Ruiz Reyes (University of Jaen, Spain); Francisco Canadas-Quesada (University of Jaen, Spain); Raul Mata-Campos (University of Jaen, Spain)

DI1: Design and Implementation of Signal Processing Systems 1
Wednesday, August 26, 15:00 − 15:30

Room: Foyer 2
Chair: to be confirmed

DI1.1 **Merged Inverse Quantization and IDCT for Optimized Decoder Implementation**
Jin Li (Tampere University of Technology, Finland)

DI1.2 **Hardware Implementation of Distributed Speech Recognition System Front End**
Ahmad Al Sallab (Cairo University, Egypt)

DI1.3 **Polynomial Residue Number Ssystem GF(2m) Multiplier using Trinomials**
Junfeng Chu (The University of Sheffield, United Kingdom); Mohammed Benaissa (University of Sheffield, United Kingdom)

DI1.4 **Design Of A Pipelined R4SDF Processor**
Nima Aghaee (Shahid Beheshti University, Iran); Mohammad Eshghi (Shahid Beheshti University, Iran)

DI1.5 **Self-tuning sub-sample delay estimator**
Ewa Hermanowicz (Gdansk University of Technology, Poland)

DI1.6 **Decision Diagram based Computation of Linearly Independent Ternary Arithmetic Transform Spectra**
Cicilia Lozano (Nanyang Technological University, Singapore); Bogdan Falkowski (Nanyang Technological University, Singapore); Tadeusz Luba (Warsaw University of Technology, Poland)

DI1.7 **GALS Noc Architectures on FPGA Dedicated to Multispectral Image Applications**
Linlin Zhang (University of Jean Monnet, France); Virginie Fresse (Universit Jean Monnet, Saint Etienne, France); Anne-Claire Legrand (University of Jean Monnet, France); Mohammed Khalid (University of Windsor, Canada)

DI1.8 **Architectural Exploration in Biomedical Hardware Design Using a Novel Behavioral Synthesis Methodology**
George Economakos (National Technical University of Athens, Greece)

DI1.9 **New L2-dynamic-range-scaling Constraints for Low Parametric Sensitivity Realizations**
Thibault Hilaire (Vienna University of Technology, Austria)

DI1.10 **Design of optimized fixed-point WCDMA receiver**
Hai-Nam Nguyen (IRISA, France); Daniel Menard (IRISA, University of Rennes, France); Olivier Sentieys (IRISA, University of Rennes 1, France)

DI1.11 **OFDM Transceiver for IEEE 802.20 Standards**
Yousif Awad (Universty of Strathclyde, United Kingdom); Robert Stewart (University of Strathclyde, United Kingdom)

DI1.12 **Non-Uniform Wordlength Delay Lines for FIR Filters**
Gregour Bolton (University of Stathclyde, United Kingdom); Robert Stewart (University of Strathclyde, United Kingdom)

DI1.13 **Genetic Algorithm-aided Fixed-Point Design of E-UTRA PRACH Detector on Multi-Core DSP**
Rongrong Qian (BUPT, P.R. China)

SS6: Colour and Multispectral Image Acquisition and Processing of Artworks
Wednesday, August 26, 15:50 − 17:50

Room: Main Auditorium
Chair: Anna Pelagotti (National Council of Research of Italy & Art-Test snc, Italy)

15:50 **Multi-thread real-time data processing for an image-based partially coherent light interferometry**
Claudio Pernechele (National Institute for Astrophysics, Italy)

16:10 **Multispectral Imaging for Analyzing Ancient Manuscripts**
Martin Lettner (Vienna University of Technology, Austria); Robert Sablatnig (Vienna University of Technology, Austria)

16:30 **Multi-Spectral High-Resolution 3D-Acquisition for Rapid Archaeological Documentation and Analysis**
Hubert Mara (IWR - University of Heidelberg, Germany); Bernd Breuckmann (Breuckmann GmbH, Germany); Claudia Lang-Auinger (Austrian Academy of Sciences, Austria)

16:5 **Fresco restoration: digital image processing approach**
Jan Blazek (Charles University, Czech Republic); Barbara Zitova (Institute of Information Theory and Automation, Czech Republic); Miroslav Benes (Institute of Information Theory and Automation, Czech Republic); Janka Hradilova (Academic Laboratory of Materials Research of Paintings, Czech Republic)

17:10 **Automated Multispectral Texture Mapping of 3D Models**
Anna Pelagotti (National Council of Research of Italy, Italy); Andrea Del Mastio (University of Florence - Media Integration and Communication Center, Italy); Francesca Uccheddu (University of Florence, Italy); Fabio Remondino (B. Kessler Foundation (FBK), Italy)

17:30 **Stylistic Analysis of Paintings using Complex Wavelets and Random Forest Learning Algorithm**
Sina Jafarpour (Computer Science, Princeton University, USA); Gungor Polatkan (Princeton University, USA); Eugene Brevdo (Princeton University, USA); Shannon Hughes (University of Colorado, USA); Andrei Brasoveanu (Princeton University, USA); Ingrid Daubechies (Princeton University, USA)

SP2: Speech Recognition 2
Wednesday, August 26, 15:50 − 17:30

Room: Exhibition Hall
Chair: Jon Gudnason (Imperial College London, United Kingdom)

15:50 **Combining classifiers with diverse feature sets for robust speaker independent emotion recognition**
Marko Lugger (Universitt Stuttgart, Germany)

16:10 **Keyword Spotting with Duration Constrained HMMs**
Marcel Vasilache (Nokia, Finland)

16:30 **Extending Features for Automatic Speech Recognition by Means of Auditory Modelling**
Gero Szepannek (Dortmund University of Technology, Germany); Tamas Harczos (Fraunhofer Institute of Digital Media Technology, Germany); Frank Klefenz (Fraunhofer IDMT, Germany); Claus Weihs (Dortmund University of Technology, Germany)

16:50 **A Methodology for Speaker-dependent acoustic features based on a simplified cortical response for speaker Verification**
Guillermo Garcia (Communication Systems Group, Sweden)

17:10 **Dynamic Selection of Magnitude and Phase based Acoustic Feature Streams for Speaker Verification**
Padmanabhan Rajan (Indian Institute of Technology Madras, India); Rajesh Hegde (IIT Kanpur, India); Hema Murthy (Indian Institute of Technology, Madras, India)

CO5: Coding and Modulation
Wednesday, August 26, 15:50 − 17:30

Room: Strathclyde Suite
Chair: to be confirmed

15:50 **Polyphase Magnitude Modulation for Peak Power Control**
Marco Gomes (University of Coimbra, Portugal); Francisco Cercas (ISCTE - Instituto Superior das Cincias do Trabalho e da Empresa, Portugal); Vitor Silva (Institute of Telecommunications, Portugal); Martin Tomlinson (University of Plymouth, United Kingdom)

16:10 **Fully programmable layered LDPC decoder architecture**
Christiane Beuschel (University of Ulm, Germany); Hans-Jrg Pfleiderer (University of Ulm, Germany)

16:30 **Optimizing the search of finite-state joint source-channel codes based on arithmetic coding**
Amadou Diallo (L2S - CNRS - SUPELEC Univ Paris-Sud., France); Claudio Weidmann (Vienna University of Technology, Austria); Michel Kieffer (L2S - CNRS - SUPELEC - Univ Paris-Sud, France)

16:50 **On the Performance and Numerical Stability of Soft-Decision Reed-Solomon Decoding**
Marcel Bimberg (Dresden University of Technology, Germany); Emil Matus (Dresden University of Technology, Germany); Gerhard Fettweis (Technische Universitt Dresden, Germany)

17:10 **Optimum GF(2^N) Encoders using Left-Circulate Function for PSK-TCM Schemes**
Calin Vladeanu (University Politehnica of Bucharest, Romania); Safwan El Assad (cole Polytechnique de lUniversit de Nantes, France); Jean-Claude Carlach (France Telecom, France); Raymond Quere (XLIM, France); Ion Marghescu (University Politehnica of Bucharest, Romania)

AM3: Array Processing and Calibration
Wednesday, August 26, 15:50 − 17:30

Room: Strathclyde Bar
Chair: Jean-Jacques Fuchs (IRISA/Université de Rennes, France)

15:50 **Modified Modulus Transformation for High Resolution Direction Finding**
Chin Heng Lim (Temasek Laboratories, NTU, Singapore); Joni Lie (Temasek Laboratories, Nanyang Technological University, Singapore); C. m. See (DSO Laboratories, Singapore); Abdelhak Zoubir (Darmstadt University of Technology, Germany)

16:10 **Interpolation-based Calibration for Near-Field source localization**
Hongyang He (University of Nantes, France); Yide Wang (University of Nantes, Polytech'Nantes, France); Joseph Saillard (Laboratory IREENA, France)

16:30 **On Optimal Sensor Placement for Time-Difference-of-Arrival Localization Utilizing Uncertainty Minimization**
Kutluyil Dogancay (University of South Australia, Australia); Hatem Hmam (Defence Science & Technology Organisation, Australia)

16:50 **Antenna Array Cramer-Rao Bound Design By Element Relocation**
George Gera (The University of Edinburgh, United Kingdom); Bernard Mulgrew (Institute for Digital Communications, The University of Edinburgh, United Kingdom)

17:10 **Self-Calibration of Radio Astronomical Arrays with Non-Diagonal Noise Covariance Matrix**
Stefan Wijnholds (ASTRON, The Netherlands); Alle Jan van der Veen (Delft University, The Netherlands)

SS7: Emerging Applications of Time-Frequency Signal Processing
Wednesday, August 26, 15:50 − 17:10

Room: Buchanan Suite
Chair: Luis Chaparro (University of Pittsburgh, USA)
        Aydin Akan (Istanbul University, Turkey)

15:50 **Quantitative Evaluation of Concentrated Time-Frequency Distributions**
Imran Shafi (Centre for Advance Studies in Engineering (C@SE), Islamabad, Pakistan); Jamil Ahmad (Iqra University, H-9, Islamabad Campus, Islamabad, Pakistan); Ismail Shah (Iqra University Islamabad, Pakistan); Faisal Kashif (MIT USA, USA)

16:10 **Time-Frequency Multiplexing for Time-encoded Signals from Brain-computer Interfaces**
Seda Senay (University of Pittsburgh, USA); Luis Chaparro (University of Pittsburgh, USA); Mingui Sun (University of Pittsburgh, USA); Robert Sclabassi (University of Pittsburgh, USA)

16:30 **A Time-Frequency Division Multiplexing Communications System with Hexagonal Lattice Structure**
Seda Senay (University of Pittsburgh, USA); Luis Chaparro (University of Pittsburgh, USA); Lutfiye Durak (Yildiz Technical University, Turkey)

16:50 **Channel Estimation for Fast-Varying MIMO-OFDM Systems**
Erol Onen (Istanbul University, Turkey); Aydin Akan (Istanbul University, Turkey); Luis Chaparro (University of Pittsburgh, USA)

SS8: Digital Filter Banks: Theory, Algorithms, and Novel Applications 1
Thursday, August 27, 8:30 — 10:10

Room: Main Auditorium
Chair: Heinz Goeckler (University of Bochum & Digital Signal Processing Group, Germany)

8:30 **Similarities and Differences among Filtered Multitone Modulation Realizations and Orthogonal Filter Bank Design**
Nicola Moret (Universit di Udine, Italy); Andrea Tonello (University of Udine, Italy)

8:50 **Filter Bank Based Multi-Mode Multiple Access Scheme for Wireless Uplink**
Tero Ihalainen (Tampere University of Technology, Finland); Ari Viholainen (Tampere University of Technology, Finland); Tobias Hidalgo Stitz (Tampere University of Technology, Finland); Markku Renfors (Tampere University of Technology, Finland); Maurice Bellanger (CNAM, France)

9:10 **Prototype filter design for filter bank based multicarrier transmission**
Ari Viholainen (Tampere University of Technology, Finland); Tero Ihalainen (Tampere University of Technology, Finland); Tobias Hidalgo Stitz (Tampere University of Technology, Finland); Markku Renfors (Tampere University of Technology, Finland); Maurice Bellanger (CNAM, France)

9:30 **A centered DFT-based discrete fractional Fourier transform and its application to chirp signal parameter estimation**
Ahmet Serbes (Yildiz Technical University, Turkey); Lutfiye Durak (Yildiz Technical University, Turkey)

9:50 **Improved Correlation of Generalized Discrete Fourier Transform with Nonlinear Phase for OFDM and CDMA Communications**
Ali Akansu (NJIT, USA); Handan Agirman-Tosun (New Jersey Institute of Technology, USA)

SS9: Optimisation and Inverse Problems
Thursday, August 27, 8:30 — 10:10

Room: Exhibition Hall
Chair: Jérôme Idier (IRCCyN, France)
        Caroline Chaux (Univ Paris-Est, France)

8:30 **A proximal method for inverse problems in image processing.**
Pierre Weiss (Hong Kong Baptist University, Hong Kong); Laure Blanc-Feraud (INRIA, Sophia Antipolis, France)

8:50 **A Majorize-Minimize line search algorithm for barrier function optimization**
Emilie Chouzenoux (IRCCyN, France); Sad Moussaoui (IRCCyN, France); Jrme Idier (IRCCyN, France)

9:10 **Gradient Projection Approaches for Optimization Problems in Image Deblurring and Denoising**
Silvia Bonettini (University of Ferrara, Italy); Federico Benvenuto (Universit di Genova, Italy); Riccardo Zanella (University of Modena and Reggio Emilia, Italy); Luca Zanni (University of Modena and Reggio Emilia, Italy); Mario Bertero (Universit di Genova, Italy)

9:30 **Multifrequency absolute phase estimation via graph cuts**
Jos Bioucas Dias (I.S.T. - Technical U. Lisbon / I.T. Lisbon, Portugal); Gonalo Valado (Instituto de Telecomunicaes, Portugal)

9:50 **Hybrid regularization for data restoration in the presence of Poisson noise**
Nelly Pustelnik (Univ Paris-Est, France); Caroline Chaux (Univ Paris-Est, France); Jean-Christophe Pesquet (University Paris-Est, France)

IM5: Image Registration
Thursday, August 27, 8:30 — 10:10

Room: Strathclyde Suite
Chair: Pascal Frossard, EPFL, Switzerland

8:30 **A general framework for diffusion tensor warping**
Emma Muñoz Moreno (University of Valladolid, Spain); Ruben Cardenes (University of Valladolid, Spain); Marcos Martin-Fernandez (University of Valladolid, Spain)

8:50 **Optimal image alignment with random measurements**
Effrosyni Kokiopoulou (Swiss Federal Institute of Technology, ETH, Switzerland); Daniel Kressner (Seminar for Applied Mathematics, ETH, Switzerland); Pascal Frossard (Swiss Federal Institute of Technology - EPFL, Switzerland)

9:10 **Copula based Divergence Measures and their use in Image Registration**
Tariq Durrani (University of Strathclyde, United Kingdom); Xuexing Zeng (University of Strathclyde, United Kingdom)

9:30 **Image Matching between Visually Protected Images with One-time Key Based Phase Scrambling**
Izumi Ito (Tokyo Metropolitan University, Japan); Hitoshi Kiya (Tokyo Metropolitan University, Japan)

9:50 **Comparison of different metods for atlas construction**
Hrvoje Kalinić (University of Zagreb, Croatia); Sven Lončarić (University of Zagreb, Croatia); Maja Čikeš (University of Zagreb, Croatia); Davor Miličič (University of Zagreb, Croatia); Bart Bijnens (Catalan Institution for Research and Advanced Studies, Spain)

AE4: Audio Coding
Thursday, August 27, 8:30 — 10:10

Room: Strathclyde Bar
Chair: Jean-Marc Valin (Octasic Semiconductor & Xiph.Org Foundation, Canada)

8:30 **Pattern Extraction In Sparse Representations With Application to Audio Coding**
Ramin Pichevar (Communications Research Centre, Canada); Hossein Najaf-Zadeh (Communications Research Centre, Canada)

8:50 **A Full-Bandwidth Audio Codec with Low Complexity and Very Low Delay**
Jean-Marc Valin (Octasic Semiconductor, Canada); Timothy Terriberry (Xiph.Org Foundation, USA); Gregory Maxwell (Xiph.Org Foundation, USA)

9:10 **Joint Pre-Echo Control and Frame Erasure Concealment for VoIP Audio Codecs**
Bernd Geiser (RWTH Aachen University, Germany); Peter Vary (RWTH Aachen University, Germany)

9:30 **MDCT-based Coder for Highly Adaptive Speech and Audio Coding**
Guillaume Fuchs (Fraunhofer Institute of Integrated Circuits, Germany); Markus Multrus (Fraunhofer Institute of Integrated Circuits, Germany); Max Neuendorf (Fraunhofer Institute of Integrated Circuits, Germany); Ralf Geiger (Fraunhofer Institute for Integrated Circuits, Germany)

9:50 **Reducing the search complexity for low bit rate vector quantization based on shells of Golay codes**
Adriana Vasilache (Nokia Research Center, Finland); Septimia Sarbu (Tampere University of Technology, Finland); Ioan Tabus (Tampere University of Technology, Finland)

TH6: Frequency Estimation
Thursday, August 27, 8:30 — 10:10

Room: Buchanan Suite
Chair: Malcolm MacLeod (QinetiQ, United Kingdom)

8:30 **Computationally Efficient Online Phase-based Frequency Estimation of a Single Tone**
Naveed Butt (Lund University, Sweden); Andreas Jakobsson (Lund University, Sweden); Magnus Mossberg (Karlstads Universitet, Sweden)

8:50 **Accurate Normalized Frequency Estimation by the Three-Point Interpolated DFT Method with Rectangular Window**
Daniel Belega (University of Timisoara, Romania); Dominique Dallet (IMS Laboratory - University Bordeaux, France)

9:10 **Joint Fundamental Frequency and Order Estimation using Optimal Filtering**
Mads Christensen (Aalborg University, Denmark); Jesper Jensen (Aalborg University, Denmark); Andreas Jakobsson (Lund University, Sweden); Sren Jensen (Aalborg University, Denmark)

9:30 **Prefiltered Pisarenko Frequency Estimator for Multiple Real-Valued Sinusoids**
Asmi Rim (SUPCOM- Tunis, Tunisia); Roberto López Valcarce (Universidad de Vigo, Spain); Hichem Besbes (Ecole Superieure de Communications de Tunis, Sup'Com TUNISIA, Tunisia); Sofiane Cherif (Sup'Com, Tunisia)

9:50 **Singing voice detection in monophonic and polyphonic contexts**
Helene Lachambre (Universite de Toulouse, France); Régine Andre-Obrecht (Université Paul Sabatier, France); Julien Pinquier (Universite Paul Sabatier - IRIT, France)

DI2: Implementation of Signal Processing Systems 2
Thursday, August 27, 8:30 — 10:10

Room: Green Room
Chair: to be confirmed

8:30 **Constraints on the SIMD Vectorization of Radix-2 and Mixed-Radix FFTs**
Peter Westermann (Technische Universität Dortmund, Germany); Hartmut Schröder (Technische Universität Dortmund, Germany)

8:50 **Coarse Angle Rotation Mode CORDIC Based Single Processing Element QR-RLS Processor**
Qiang Gao (University of Strathclyde, United Kingdom); Louise Crockett (University of Strathclyde, United Kingdom); Robert Stewart (University of Strathclyde, United Kingdom)

9:10 **Experiments on designing low power decimation filter for multistandard receiver on heterogeneous targets**
Nadia Khouja (CIRTA'COM Laboratory Sup'Com Tunis, Tunisia); Bertrand Le Gal (University of Bordeaux, France); Khaled Grati (Ecole Superieur de Comm. Sup'Com Tunis, Tunisia); Adel Ghazel (SUPCOM, Tunisia)

9:30 **Automated Multimode System Design For High Performance DSP Applications**
Bertrand Le Gal (University of Bordeaux, France); Emmanuel Casseau (IRISA Laboratory, France)

9:50 **A Programmable Accelerator for Next Generation Wireless Communications**
Karim Mohammed (UCLA, USA); Babak Daneshrad (University of California, Los Angeles, USA)

SS10: Heavy Computation for Cellular Wireless System Design
Thursday, August 27, 10:30 — 12:10

Room: Main Auditorium
Chair: Markus Rupp (Vienna University of Technology, Austria)

10:30 **Simulating the Long Term Evolution Physical Layer**
Christian Mehlführer (Vienna University of Technology, Austria); Martin Wrulich (TU Wien, Austria); Josep Colom Ikuno (Vienna University of Technology, Austria); Dagmar Bosanska (Vienna University of Technology, Austria); Markus Rupp (Vienna University of Technology, Austria)

10:50 **Efficient Fixed-Point Implementation of Linear Equalization for Cooperative MIMO Systems**
Matthias Mehlhose (Technical University Berlin, Germany); Stefan Schiffermüller (Fraunhofer Institut für Nachrichtentechnik (Heinrich-Hertz-Institut), Germany)

11:10 **A Distributed Simulation Engine For Cooperative Multi-User MIMO Enhanced Wireless Communications**
Qipeng Cai (University of Hannover, Germany); Zhao Zhao (University of Hannover, Germany); Hanwen Cao (Leibniz University of Hannover, Germany); Andreas Wilzeck (Leibniz University Hannover, Germany); Thomas Kaiser (Leibniz University of Hannover, Germany)

11:30 **A Unified Feedback Scheme for Distributed Interference Management in Cellular Systems: Benefits and Challenges for Real-Time Implementation**
Lars Thiele; Thomas Wirth; Thomas Haustein; Volker Jungnickel (all Fraunhofer Institut für Nachrichtentechnik (Heinrich-Hertz-Institut) Berlin, Germany); Egon Schulz (Nokia Siemens Networks, Germany); Wolfgang Zirwas (Nokia siemens Networks GmbH&CoKG, Germany)

11:50 **Determining Backhaul Bandwidth Requirements of Network MIMO**
Howard Huang (Alcatel-Lucent, USA); Dragan Samardzija (Bell Labs, Alcatel-Lucent, USA)

AE5: Speech Enhancement 2
Thursday, August 27, 10:30 — 12:10

Room: Exhibition Hall
Chair: Nikolay Gaubitch (Imperial College London, United Kingdom)

10:30 **Speech denoising based on a greedy adaptive dictionary algorithm**
Maria Jafari (Queen Mary University of London, United Kingdom); Mark Plumbley (Queen Mary University of London, United Kingdom)

10:50 **Acoustic system equalization using channel shortening techniques for speech dereverberation**
Wancheng Zhang (Imperial College London, United Kingdom); Andy Khong (Nanyang Technological University, Singapore); Patrick Naylor (Imperial College London, United Kingdom)

11:10 **Fast Algorithm for Conditional Separation and Dereverberation**
Takuya Yoshioka (NTT Communication Science Laboratories, Japan); Tomohiro Nakatani (NTT Corporation, Japan); Masato Miyoshi (NTT Communication Science Laboratories, Japan)

11:30 **Marginalization of static observation parameters in a Rao-Blackwellized particle filter with application to blind speech dereverberation**
Christine Evers (University of Edinburgh, United Kingdom); James Hopgood (University of Edinburgh, United Kingdom)

11:50 **Enhanced Wiener Post-Processing Based on Partial Projection Back of the Blind Signal Separation Noise Estimate**
Jani Even (Nara Institute of Science and Technology, Japan); Hiroshi Saruwatari (Graduate School of Information Science, Nara Institute of Science and Technology, Japan); Kiyohiro Shikano (Graduate School of Information Science, Nara Institute of Science and Technology, Japan)

VM4: Content-Based Multimedia Processing
Thursday, August 27, 10:30 — 12:10

Room: Strathclyde Suite
Chair: André Kaup (University of Erlangen-Nürnberg, Germany)

10:30 **Parsimonious variational-Bayes mixture aggregation with a Poisson prior**
Pierrick Bruneau (Nantes University, France); Marc Gelgon (Nantes University, France); Fabien Picarougne (Nantes University, France)

10:50 **A Construction of Compact MFCC-type Features Using Short-Time Statistics for Applications in Audio Segmentation**
Dirk von Zeddelmann (FGAN, Germany); Frank Kurth (FGAN, Germany)

11:10 **A tempo-insensitive representation of rhythmic patterns**
Jesper Jensen (Aalborg University, Denmark); Mads Christensen (Aalborg University, Denmark); Sren Jensen (Aalborg University, Denmark)

11:30 **Scale and Shape adaptive Mean Shift Object Tracking in Video Sequences**
Katharina Quast (Friedrich-Alexander University Erlangen-Nuremberg, Germany); André Kaup (University of Erlangen-Nürnberg, Germany)

11:50 **Real-time understanding of 3D video on an embedded system**
Olivier Steiger (ABB Switzerland Inc., Switzerland); Stephan Weiss (ETH Zürich, Switzerland); Judith Felder (Deloitte Consulting GmbH, Switzerland)

NN1: Signal Separation
Thursday, August 27, 10:30 — 12:10

Room: Strathclyde Bar
Chair: to be confirmed

10:30 **A Comparison of Independent Component and Independent Subspace Analysis Algorithms**
Zbynek Koldovsky (Technical University of Liberec, Czech Republic); Petr Tichavsky (Academy of Sciences of the Czech Republic, Czech Republic)

10:50 **An approach to under-determined speech separation based on a non-linear mixture of beamformers**
Mohammad Dmour (University of Edinburgh, United Kingdom); Mike Davies (University of Edinburgh, United Kingdom)

11:10 **A new EM algorithm for underdetermined convoltive blind source separation**
Zaher El Chami (Orange Labs, France); Dinh-Tuan Pham (National Polytechnic Institute of Grenoble, France); Christine Servire (GIPSA-lab INPG-CNRS, France); Alexandre Guerin (Orange Labs, France)

11:30 **Closed-form optimized composite-order estimator for blind separation of instantaneous linear mixtures**
Shafayat Abrar (The University of Liverpool, United Kingdom); Asoke Nandi (The University of Liverpool, United Kingdom)

11:50 **Simplified Formulation of a Depermutation Criterion in Convolutive Blind Source Separation**
Radoslaw Mazur (University of Luebeck, Germany); Alfred Mertins (Institute for Signal and Image Processing, University of Luebeck, Germany)

AM4: Array and Multichannel Signal Processing 2
Thursday, August 27, 10:30 — 12:10

10:30 **Investigation of Parameter Effects and Truncated Multistatic Data Matrix in Decomposition of Time Reversal Operator Method**
Dinh Quy Nguyen (Nanyang Technological University, Singapore); Xuexin Yap (Nanyang Technological University, Singapore); Woon Seng Gan (Nanyang Technological University, Singapore); Yong Kim Chong (Nanyang Technological University, Singapore)

10:50 **Sequential Estimation of the Range and the Bearing using the zero-forcing MUSIC approach**
Mohammed El korso (Laboratoire des Signaux et Systémes (L2S), France); Guillaume Bouleux (Saint Etienne University, France); Rémy Boyer (CNRS, Université Paris-Sud (UPS), Supelec, France); Sylvie Marcos (Laboratoire des Signaux et Systems, Supélec, CNRS UMR8506, France)

11:10 **Robust Impulsive Sound Source Localization by means of an Energy Detector for Temporal Alignment and Pre-classification**
Timo Machmer (University of Karlsruhe, Germany); Jorge Moragues (Universidad Politécnica de Valencia, Spain); Alexej Swerdlow (University of Karlsruhe, Germany); Luis Vergara (Universidad Politécnica de Valencia, Spain); Jorge Goslbez-Castillo (Universidad Politécnica de Valencia, Spain); Kristian Kroschel (Fraunhofer Institut fuer Informations- und Datenverarbeitung, Germany)

11:30 **Blind source separation based on acoustic pressure distribution and normalized relative phase using dodecahedral microphone array**
Motoki Ogasawara (Nagoya University, Japan); Takanori Nishino (Nagoya University, Japan); Kazuya Takeda (Nagoya University, Japan)

11:50 **A Real-Time Talker Localization Implementation Using Multi-PHAT and Particle Filter**
Antti Löytynoja (Tampere University of Technology, Finland); Pasi Pertilä (Tampere University of Technology, Finland)

CO6: Signal Processing for Communications
Thursday, August 27, 15:00 — 15:30

CO6.1 **The Maximum Squared Correlation, Total Asymptotic Efficiency, and Sum Capacity of Minimum Total-Squared-Correlation Quaternary Signature Sets**
Ming Li (State University of New York at Buffalo, USA); Stella N. Batalama (State University of New York at Buffalo, USA); Dimitris Pados (State University of New York at Buffalo, USA); John Matyjas (Air Force Research Laboratory, USA)

CO6.2 **A New Criterion for Determining the Efficiency of CDMA Codes**
Amir Minayi Jalil (University of Limoges, France); Vahid Meghdadi (University of Limoges, France)

CO6.3 **M-ary Mutually Orthogonal Complementary Gold Codes**
Joo Pereira (Polytechnic Institute of Leiria, Portugal); Henrique Silva (University of Coimbra, Portugal)

CO6.4 **Soft LDPC decoding in nonlinear channels with Gaussian processes for classification**
Pablo Martnez-Olmos (Universisty of Seville, Spain); Juan José Murillo-Fuentes (Universidad de Sevilla, Spain); Fernando Perez-Cruz (Princeton University, USA)

CO6.5　**On Predictive Coding for Erasure Channels Using a Kalman Framework**
Thomas Arildsen (Aalborg University, Denmark); Manohar Murthi (University of Miami, USA); Sren Andersen (Aalborg University, Denmark); Sren Jensen (Aalborg University, Denmark)

CO6.6　**Distributed Space-Time MSK Trellis Codes For Amplify & Forward Relaying**
Ali Demiroğlu (Istanbul Technical University, Turkey); Ibrahim Altunbas (Istanbul Technical University, Turkey, Turkey); Mehmet Celebi (ITU, Turkey)

CO6.7　**Genetic Algorithm based Cross-Layer Resource Allocation for Wireless OFDM Networks with Heterogeneous Traffic**
Nan Zhou (University of Liverpool, United Kingdom); Xu Zhu (University of Liverpool, United Kingdom); Yi Huang (University of Liverpool, United Kingdom)

CO6.8　**A Comparison of some Bottleneck-Link Detection Methods for Network Tomography**
Nick Johnson (University of Edinburgh, United Kingdom); John Thompson (University of Edinburgh, United Kingdom); Steve McLaughlin (University of Edinburgh, United Kingdom); Francisco Garcia (Agilent, United Kingdom)

CO6.9　**Tomlinson Harashima Precoding for SC-FDMA**
Mohamed Noune (Bristol University, United Kingdom); Andrew Nix (University of Bristol, United Kingdom)

CO6.10　**New Approach to Bit Loading and Power Minimization Using Mercury/Waterfilling**
Milos Jakovljevic (Universidad Politécnica de Madrid, Spain); Santiago Zazo (Universidad Politecnica Madrid, Spain); Jose Pena (Telefonica I+D, Spain)

CO6.11　**Time-Frequency Parameterization of Doubly Dispersive Channels**
Ziyang Ju (University of Kassel, Germany); Thomas Hunziker (University of Kassel, Germany); Dirk Dahlhaus (University of Kassel, Germany)

CO6.12　**Impulsive noise modelling and prediction of its impact on the performance of WLAN receiver**
Shahzad Bhatti (University of Strathclyde, United Kingdom); Qingshan Shan (University of Strathclyde, United Kingdom); Ian Glover (University of Strathclyde, United Kingdom); Robert Atkinson (University of Strathclyde, United Kingdom); I Portugues (Elimpus Ltd, United Kingdom); Phil Moore (University of Strathclyde, United Kingdom); Richard Rutherford (Scottish Power, United Kingdom)

CO6.13　**OFDM Channel Estimation based on Adaptive Thresholding for Sparse Signal Detection**
Mahdi Soltanolkotabi (Sharif University of Technology, Iran); Arash Amini (Sharif University of Technology, Iran); Farokh Marvasti (Sharif university of technology, Iran)

CO6.14　**Spectrum Sensing in Multichannel Communication Systems Using Randomized Sampling Schemes**
Bashar Ahmad (University of Westminster, United Kingdom); Andrzej Tarczynski (University of Westminster, United Kingdom)

TH7: Adaptive Filtering and Optimisation 1
Thursday, August 27, 15:00 — 15:30

Room: Foyer 1
Chair: Tilo Strutz (Hochschule fuer Telekommunikation, Germany)

TH7.1　**Robust identification and prediction using Wilcoxon norm and Particle Swarm Optimization**
Babita Majhi (ECE, National Institute of Technology, Rourkela, India); Ganapati Panda (National Institute of Technology, Rourkela, India); Bernard Mulgrew (Institute for Digital Communications, The University of Edinburgh, United Kingdom)

TH7.2 **Dual H Vs Dual Kalman Filters For M-AR Parameter Estimation From Noisy Observations**
Ali Jamoos (Al-Quds University, Palestine); Eric Grivel (university of Bordeaux UMR 5218 IMS, France); Nidal Shakarneh (Al-Quds University, Palestine); Hanna Abdel Nour (Al-Quds University, Palestine)

TH7.3 **Sequential Maximum Gradient Optimization for Support Vector Detection**
Mireille Tohme (FORENAP, France); Regis Lengelle (University of Technology of Troyes, France)

TH7.4 **Adaptive Cluster-Based Outlier Detection**
Tilo Strutz (Hochschule fuer Telekommunikation, Germany)

TH7.5 **A Stochastic Model for the Deficient Length Pseudo Affine Projection Adaptive Algorithm**
Sergio Almeida (Universidade Católica de Pelotas, Brazil); Marcio Costa (Federal University of Santa Catarina, Brazil); Jose Carlos Moreira Bermudez (Federal University of Santa Catarina, Brazil)

TH7.6 **Steady state analysis of an output signal based combination of two NLMS adaptive filters**
Tnu Trump (Tallinn University of Technology, Estonia)

TH7.7 **Fully Adaptive LMS/NLMS Interpolated Volterra Filters with Removed Boundary Effect**
Eduardo Batista (Federal University of Santa Catarina, Brazil); Orlando Tobias (University of Blumenau, Brazil); Rui Seara (Federal University of Santa Catarina, Brazil)

TH7.8 **Stochastic Analysis of the Transform Domain LMS Algorithm for a Non-Stationary Environment**
Javier Kolodziej (Federal University of Santa Catarina, Brazil); Orlando Tobias (University of Blumenau, Brazil); Rui Seara (Federal University of Santa Catarina, Brazil)

TH7.9 **Block-based Multichannel Transform-Domain Adaptive Filtering**
Sascha Spors (Deutsche Telekom Laboratories, Germany); Herbert Buchner (Deutsche Telekom Laboratories, Germany); Karim Helwani (Deutsche Telekom Laboratories, Germany)

TH7.10 **Modified Filtered-Reference/Filtered-Error LMS Algorithm: Algorithm and Stochastic Model**
Juan López (Federal University of Santa Catarina, Brazil); Orlando Tobias (University of Blumenau, Brazil); Rui Seara (Federal University of Santa Catarina, Brazil)

TH7.11 **Multi-Input Multi-Output Fast QR Decomposition Algorithm for Active Noise Control**
Mobien Shoaib (Helsinki University of Technology, Finland); Stefan Werner (Helsinki University of Technology, Finland); José Apolinrio Jr. (IME, Brazil); Saleh Alshebeili (King Saud University, Saudi Arabia)

SP3: Speech Recognition 3
Thursday, August 27, 15:00 — 15:30

Room: Foyer 1
Chair: Armin Sehr (University of Erlangen-Nuremberg, Germany)

SP3.1 **Exploiting phonetic and phonological similarities as a first step for robust speech recognition**
Julie Mauclair (University College Dublin, Ireland); Daniel Aioanei (University College Dublin, Ireland); Julie Berndsen (University College Dublin, Ireland)

SP3.2 **Using sparse representations for exemplar based continuous digit recognition**
Jort Gemmeke (Radboud University Nijmegen, The Netherlands); Louis ten Bosch (Radboud Universiteit Nijmegen, The Netherlands); Lou Boves (Radboud University Nijmegen, The Netherlands); Bert Cranen (Radboud University Nijmegen, The Netherlands)

SP3.3 **A Hierarchical Broad-Class Classification to Enhance Phoneme Recognition**
Carla Lopes (Instituto de Telecomunicaes, Portugal); Fernando Perdigo (Instituto de Telecomunicaes, Portugal)

SP3.4 **Custom-Designed SVM Kernels For Improved Robustness Of Phoneme Classification**
Jibran Yousafzai (King's College London, United Kingdom); Zoran Cvetkovic (King's College London, United Kingdom); Peter Sollich (King's College London, United Kingdom)

SP3.5 **Improvment of Language Identification Performance by Aggregated Phone Recognizer**
Seyyed Abbas Hosseini Amereii (Amirkabir University of Technology, Iran); M. Mehdi Homayounpour (Amirkabir University of Technology, Iran)

SP3.6 **Combining confusion networks with probabilisitc phone matching for open-vocabulary keyword spotting in spontaneous speech signal**
Shan Jin (Technical University of Berlin, Germany); Thomas Sikora (Technische Universität Berlin, Germany)

SP3.7 **Adaptation of a speech recognizer for singing voice**
Annamaria Mesaros (Tampere University of Technology, Finland)

IM6: Image Segmentation and Understanding
Thursday, August 27, 15:00 — 15:30

Room: Foyer 2
Chair: to be confirmed

IM6.1 **A new Bayesian approach to textured image segmentation: Turbo segmentation**
Frederic Lehmann (Telecom SudParis, France)

IM6.2 **Learning Dirichlet Kernel Histogram Functions for Pattern Recognition**
Koichi Niijima (Kyushu University, Japan)

IM6.3 **Microscopic Texture Components Classification for Image Segmentation**
Eva Hostalkova (Institute of Chemical Technology in Prague, Czech Republic); Ales Prochazka (Institute of Chemical Technology in Prague, Czech Republic); Martina Mudrova (Institute of Chemical Technology, Prague, Czech Republic); Alena Michalcova (Institute of Chemical Technology in Prague, Czech Republic)

IM6.4 **A Multivariate Gaussian Mixture Model of Linear Prediction Error for Colour Texture Segmentation**
Imtnan-Ul-Haque Qazi (University of Poitiers, France); Fatima Ghazi (Université Ibn Tofail, Morocco); Olivier Alata (Université de Poitiers, France); Jean-christophe Burie (University of La Rochelle, France); Christine Fernandez-Maloigne (University of Poitiers, France)

IM6.5 **Edge Detection and Skeletonization Using Quantized Localized Phase**
Nikolay Skarbnik (Technion Israel Institute of Technology, Israel); Chen Sagiv (Technion - Israel Institute of Technology, Israel); Yehoshua Zeevi (Technion - Israel Institute of Technology, Electrical Engineering Department, Israel)

IM6.6 **Unsupervised Multiscale Change Detection in Multitemporal Synthetic Aperture Radar Images**
Turgay Celik (National University of Singapore, Singapore)

IM6.7 **A Bag-of-features Approach based on Hue-SIFT Descriptor for Nude Detection**
Ana Lopes (Federal University of Minas Gerais, Brazil); Sandra Avila (Federal University of Minas Gerais, Brazil); Anderson Peixoto (Federal University of Minas Gerais, Brazil); Rodrigo Oliveira (Federal University of Minas Gerais, Brazil); Arnaldo Araujo (Federal University of Minas Gerais, Brazil)

IM6.8 **Multivariate Statistical Classification Of 3D Bone Microarchitecture using Morphological and Mechanical Features**
Rachid Jennane (University of Orleans, France); Gabriel Aufort (Université d'Orléans, France); Hugo Lheritier (MAPMO, France); Claude-Laurent Benhamou (Equipe INSERM U658 Centre Hospitalier Régional d'Orléans, France)

IM6.9 **Automatic Labelling of Coronary Arteries**
Akin Akinyemi (Institute for System Level Integration, United Kingdom); Colin Roberts (Open University, United Kingdom)

IM6.10 **Tumor Segmentation by Active Conyours in 3D CT Wavelet Enhanced Image Data**
Ioana Plajer (Transilvania University of Brasov, Romania); Detlef Richter (University of Applied Sciences of Wiesbaden, Germany)

AP4: Signal Processing Applications 1
Thursday, August 27, 15:00 — 15:30

Room: Foyer 2
Chair: David Crawford (Epson Scotland Design Centre, United Kingdom)

AP4.1 **Blind Deconvolution of Music Signals Using Higher Order Statistics**
Izzet Ozcelik (University of Kent, United Kingdom)

AP4.2 **A Comparative Study of the Impulsive Noise Reduction Algorithms in Ultrasonic B-scans**
Ramón Miralles-Ricós (Universidad Politecnica De Valencia, Spain); Raquel Molina-Minguez (iTEAM, Spain)

AP4.3 **A fuzzy proposal for reliability estimation in DT-MRI fiber tracking algorithms**
Luis San Jose Revuelta (University of Valladolid, Spain)

AP4.4 **Stochastic Transfer Function in Bayesian Inference For Combustion Indicator Estimation**
Emmanuel Nguyen (IFP, France); Jerome Antoni (University of Technology of Compiegne, France)

AP4.5 **Data Processing and Pattern Recognition in High-throughput Capillary Electrophoresis**
Gerardo Ceballos (University of Los Andes, Venezuela); Jose Paredes (University of Los Andes, USA); Luis Hernandez (University of Los Andes, Venezuela)

AP4.6 **Application of The Signal Processing Technology In The Detection of Red Palm Weevil**
Walid Hussein (University of Hohenheim, Germany); Mohamed Hussein (University of Hohenheim, Germany); Thomas Becker (University of Hohenheim, Germany)

AP4.7 **Rolling Element Bearing Fault Diagnosis in Rotating Machines of Oil Extraction Rigs**
Eduardo Mendel (Federal University of Espirito Santo, Brazil); Thomas Rauber (Universidade Federal do Espirito Santo, Brazil); Flvio Varejo (Universidade Federal do Espirito Santo, Brazil); Rodrigo Batista (Petroleo Brasileiro S.A. PETROBRAS, Brazil)

AP4.8 **Influence of luminance on colour bleeding artefacts in colour image compression**
Amal Punchihewa (Massey University, New Zealand); Ann De Silva (Massey University, New Zealand)

AP4.9 **An automatic speaker recognition system for intelligence applications**
Enrico Marchetto (University of Padova, Italy); Federico Avanzini (University of Padova, Italy); Federico Flego (RT - Radio Trevisan Elettronica Ind.le S.p.A., Italy)

AP4.10 **Emotions Recognition by Speech and Facial Expressions Analysis**
Simina Emerich (Technical University of Cluj-Napoca, Romania); Eugen Lupu (Technical University of Cluj-Napoca, Romania); Anca Apatean (Technical University of Cluj-Napoca, Romania)

AP4.11 **A Noise Cancellation Method in Sound and Electromagnetic Environment of Power State Variables**
Akira Ikuta (Prefectural University of Hiroshima, Japan)

VM5: Video Coding and Encryption
Thursday, August 27, 15:00 — 15:30

Room: Foyer 2
Chair: Béatrice Pesquet (Ecole Nationale Supérieure des Télécommunications, France)

VM5.1 **A Genetic Frame Fusion Algorithm for Side Information Enhancement in Wyner-Ziv Video Coding**
Charles Yaacoub (Holy-Spirit University of Kaslik, Lebanon); Joumana Farah (Holy-Spirit University of Kaslik, Lebanon); Beatrice Pesquet-Popescu (Ecole Nationale Superieure des Telecommunications, France)

VM5.2 **A Solution to the Watermark Detection Problem Based on Bayesian Estimation and EM Algorithm**
Akio Miyazaki (Kyushu Sangyou University, Japan)

VM5.3 **Considering the Reconstruction Loop for Watermarking of Intra and Inter Frames of H.264/AVC**
Zafar Shahid (LIRMM, France); Peter Meuel (LIRMM, France); Marc Chaumont (LIRMM (Laboratoire Informatique, Robotique, Microélectronique, Montpellier), France); William Puech (University of Montpellier, France)

VM5.4 **Combined Fragile Watermark and Digital Signature for H.264/AVC VIDEO Authentification**
Karima Ait saadi (Centre de Développement des Technologies Avancées, Algeria); Ahmed Bouridane (Queen's University, United Kingdom); Abdelrazek Guessoum (3Université Saad Dahlab,, Algeria)

VM5.5 **Fast Inter Mode Decision Algorithm Based On Macroblock and Motion Feature Analysis For H.264/AVC Video Coding**
Yiqing Huang (Waseda University, Japan); Qin Liu (Waseda University, Japan); Takeshi Ikenaga (Waseda University, Japan)

VM5.6 **Rate-Distortion Optimized Multi-Stage Rate Control Algorithm for H.264/AVC Video Coding**
Shuijiong Wu (Waseda University, Japan); Yiqing Huang (Waseda University, Japan); Qin Liu (Waseda University, Japan); Takeshi Ikenaga (Waseda University, Japan)

VM5.7 **A Novel Frame Skipping Method in Transcoder, with Motion Information, Buffer Fullness and Scene Change Consideration**
Sourya Bhattacharyya (ST Microelectronics, India); Emiliano Piccinelli (STMicroelectronics, Italy)

VM5.8 **Scene Change Adaptation for Scalable Video Coding**
Tea Anselmo (STMicroelectronics, Italy); Daniele Alfonso (STMicroelectronics, Italy)

VM5.9 **A Distributed Video Coding Approach for Multiple Description Video Transmission over Lossy Channels**
Simone Milani (University of Padova, Italy); Giancarlo Calvagno (University of Padova, Italy)

VM5.10 **A Generalized continued Fraction-Based Asynchronous stream cipher for image protection**
Atef Masmoudi (IPEIS, Tunisia); William Puech (University of Montpellier, France); Mohamed Salim Bouhlel (U.R:Sciences and Tchnologie of Image and Telecommunication(SETIT), Tunisia)

VM5.11 **A Lossless Re-encoding Scheme for MPEG-1 Video**
Ichiro Matsuda (Science University of Tokyo, Japan); Kei Wakabayashi (Science University of Tokyo, Japan); Yu Ikeda (Science University of Tokyo, Japan); Susumu Itoh (Science University of Tokyo, Japan)

SS11: Signal Processing Techniques in Radio Localization and Positioning
Thursday, August 27, 15:50 — 17:30

Room: Main Auditorium
Chair: Marco Luise (University of Pisa, Italy)
Erik Ström (Chalmers University of Technology, Sweden)

15:50 Indoor Sensor Node Positioning Using UWB Range Measurements
Mohammad Reza Gholami (Chalmers University, Sweden); Erik Ström (Chalmers University of Technology, Sweden); Mats Rydström (Chalmers University of Technology, Sweden)

16:30 Direct state determination of multiple sources with intermittent emission
Marc Oispuu (FGAN-FKIE Dept. SDF, Germany)

16:50 On the Performance of Mobile Terminal Tracking in Urban GSM Networks using Particle Filters
Carsten Fritsche (Technische Universität Darmstadt, Germany); Anja Klein (TU Darmstadt, Germany)

17:10 Direct Position Estimation Approach Outperforms Conventional Two-Step Positioning
Pau Closas (Universitat Politcnica de Catalunya (UPC), Spain); Carles Fernndez Prades (Centre Tecnolgic de Telecomunicacions de Catalunya (CTTC), Spain); Juan Fernandez-Rubio (Universitat Politcnica de Catalunya, Spain)

AE6: Speech Enhancement 3
Thursday, August 27, 15:50 — 17:30

Room: Exhibition Hall
Chair: Andy Khong (Nanyang Technological University, Singapore)

15:50 A Statistical Framework for Artificial Bandwidth Extension Exploiting Speech Waveform and Phonetic Transcription
Patrick Bauer (Technische Universität Braunschweig, Germany); Tim Fingscheidt (Technische Universität Braunschweig, Germany)

16:10 Near End Listening Enhancement Optimized with Respect to Speech Intelligibility Index
Bastian Sauert (RWTH Aachen University, Germany); Peter Vary (RWTH Aachen University, Germany)

16:30 A Simple Correlation-Based Model of Intelligibility for Nonlinear Speech Enhancement and Separation
Jesper Boldt (Oticon A/S, Denmark); Daniel Ellis (Columbia University, USA)

16:50 Analyzing rate-constrained beamforming schemes in wireless binaural hearing aids
Sriram Srinivasan (Philips Research, The Netherlands); Albertus den Brinker (Philips Research, The Netherlands)

17:10 Objective evaluation of feedback reduction techniques in hearing aids
Ann Spriet (Katholieke Universiteit Leuven, Belgium); Marc Moonen (Katholieke Universiteit Leuven, Belgium); Jan Wouters (Katholieke Universiteit Leuven, Belgium)

CO7: Cognitive Radio and Spectrum Sharing
Thursday, August 27, 15:50 — 17:30

Room: Strathclyde Suite
Chair: to be confirmed

15:50 **New Adaptive Bit and Power Loading Polices for Generalized Multicarrier Transmission**
Adrian Kliks (Poznan University of Technology, Poland); Hanna Bogucka (Poznan University of Technology, Poland)

16:10 **DVB-T Candidate Power Detector for Cognitive Radio**
Miguel Angel Rojas (CTTC, Spain); Ana Perez-Neira (UPC, Spain); Miguel Angel Lagunas (Telecommunications Technological Center of Catalonia, Spain)

16:30 **Spectral monitoring and parameter estimation for ZP-OFDM signals**
Vincent Le Nir (K. U. Leuven, Belgium); Toon van Waterschoot (Katholieke Universiteit Leuven, Belgium); Marc Moonen (Katholieke Universiteit Leuven, Belgium); Jonathan Duplicy (Agilent, Belgium)

16:50 **In-Newtork Cooperative Spectrum Sensing**
Mehmet Yildiz (Cornell University, USA); Tuncer Aysal (Cornell University, USA); Kenneth Barner (Univesity of Delaware, USA)

17:10 **Optimal Spectrum Balancing in Multi-User SIMO xDSL Networks**
Jan Vangorp (Katholieke Universiteit Leuven, Belgium); Marc Moonen (Katholieke Universiteit Leuven, Belgium)

IM7: Biomedical Image Processing
Thursday, August 27, 15:50 — 17:30

Room: Strathclyde Bar
Chair: to be confirmed

15:50 **A technique for blood detection in Wireless Capsule Endoscopy images**
Barbara Penna (Politecnico di Torino, Italy); Tammam Tillo (Xi'an Jiaotong-Liverpool University, P.R. China); Marco Grangetto (Universita' di Torino, Italy); Enrico Magli (Politecnico di Torino, Italy); Gabriella Olmo (Politecnico di Torino, Italy)

16:10 **A fully automated scheme for breast density estimation and asymmetry detection of mammograms**
Stylianos Tzikopoulos (National and Kapodistrian University of Athens, Greece); Xaris Georgiou (University of Athens, Greece); Michael Mavroforakis (National and Kapodistrian University of Athens, Greece); Sergios Theodoridis (University of Athens, Greece)

16:30 **Per-pixel Background Estimation in video microscopy using frame grouping and wavelet based image fusion**
Chi Cui (University of Maryland, College Park, USA)

16:50 **Delaunay triangulation based image enhancement for echocardiography images**
Vijayalakshmi Ahanathapillai (University of Strathclyde, United Kingdom); John Soraghan (University of Strathclyde, United Kingdom); Piotr Sonecki (Western Infirmary Glasgow, NHS, United Kingdom)

17:10 **Chan-Vese based method to segment mouse brain MRI images: application to cerebral malformation analysis in trisomy 21**
Ahmad Almhdie (University d'Orléans, France); Patricia Lopes-Pereira (CNRS, Orléans, France); Sandra Même (CNRS, Orléans, France); Caroline Colombier (CNRS, Orléans, France); Véronique Brault (CNRS, Orléans, France); Frédéric Szeremeta (CNRS, Orléans, France); Bich-Thuy Doan (CNRS, Orléans, France); Roger Lédée (University of Orléans, France); Rachid Harba (University of Orleans, France); Yann Hérault (CNRS, Orléans, France); Jean-Claude Belil (CNRS, Orléans, France); Christophe Léger (University of Orleans, France)

SS12: Nonnegative Matrix and Tensor Factorisations: Statistical Methods and Applications
Thursday, August 27, 15:50 — 17:50

15:50   **Nonnegative matrix factorisations as probabilistic inference in composite models**
Cédric Févotte (CNRS LTCI; TELECOM ParisTech, France); Ali Taylan Cemgil (University of Cambridge, United Kingdom)

16:10   **Probabilistic non-negative tensor factorization using Markov chain Monte Carlo**
Mikkel Schmidt (University of Cambridge, United Kingdom); Shakir Mohamed (University of Cambridge, United Kingdom)

16:30   **Tuning Pruning in Sparse Non-negative Matrix Factorization**
Morten Mrup (Tech Univ Denmark, Denmark); Lars Kai Hansen (Technical University of Denmark, Denmark)

16:50   **Continuous non-negative matrix factorization for time-dependent data**
Lars Omlor (University of Tübingen, Germany); Jean-Jacques Slotine (Massachusetts Institute of Technology, USA)

17:10   **Spectral Covariance in Prior Distributions of Non-Negative Matrix Factorization Based Speech Separation**
Tuomas Virtanen (Tampere University of Technology, Finland)

17:30   **Complexity reduction by convex cone detection for unmixing hyperspectral images of bacterial biosensors**
Charles Soussen (Centre de Recherche en Automatique de Nancy, France); Sebastian Miron (Centre de Recherche en Automatique de Nancy, France); Fabrice Caland (Centre de Recherche en Automatique de Nancy, France); David Brie (Université Henri Poincaré, France); Patrick Billard (LIMOS, Université Henri Poincaré, Nancy I, France); Christian Mustin (LIMOS, Université Henri Poincaré, Nancy I, France)

SS13: Spectrum Management and Signal Coordination in DSL Networks
Friday, August 28, 8:30–10:10

Room: Main Auditorium
Chair: Marc Moonen (Katholieke Universiteit Leuven, Belgium)
      Paschalis Tsiaflakis (Katholieke Universiteit Leuven, Belgium)

8:30 **An improved dual decomposition approach to DSL dynamic spectrum management**
Paschalis Tsiaflakis (Katholieke Universiteit Leuven, Belgium); Ion Necoara (Katholieke Universiteit Leuven, Belgium); Johan Suykens (KULeuven, Belgium); Marc Moonen (Katholieke Universiteit Leuven, Belgium)

9:10 **DSM Performance on Practical DSL Systems Based on Estimated Crosstalk Channel Information**
Eduardo Medeiros (Universidade Federal do Pará, Brazil); Neiva Lindqvist (Federal University of Pará, Sweden); Marcio Monteiro (Universidade Federal do Pará, Brazil); Harney Abrahim (UFPa, Brazil); Fredrik Lindqvist (LTH, Sweden); Boris Dortschy (Ericcson AB, Sweden); Aldebaro Klautau (Universidade Federal do Para, Brazil)

9:30 **Energy Efficient Power Back-Off Management for VDSL2 Transmission**
Tomas Nordstrm (Telecommunications Research Center Vienna (FTW), Austria); Driton Statovci (The Telecommunications Research Center Vienna (ftw.), Austria); Martin Wolkerstorfer (Telecommunications Research Center Vienna (FTW), Austria)

9:50 **Performance evaluation of a sign-error-based iterative precoder for crosstalk cancelation in DSL systems**
Jerome Louveaux (Universite Catholique de Louvain, Belgium); Luc Vandendorpe (University of Louvain, Belgium)

AE7: Speech Enhancement 4
Friday, August 28, 8:30–10:10

Room: Exhibition Hall
Chair: Ann Spriet (Katholieke Universiteit Leuven, Belgium)

8:30 **Selective time-reversal block solution to the stereophonic acoustic echo cancellation problem**
Dinh Quy Nguyen (Nanyang Technological University, Singapore); Woon Seng Gan (Nanyang Technological University, Singapore); Andy Khong (Nanyang Technological University, Singapore)

8:50 **A Stereo Echo Canceller with Simultaneous 2-Channel Input Slides for Fast Convergence and Good Sound Localization**
Akihiko Sugiyama (NEC Corporation, Japan); Yuusuke Mizuno (Kanazawa University, Japan); Akihiro Hirano (Kanazawa University, Japan); Kenji Nakayama (Kanazawa Univ., Japan)

9:10 **Assessing the acoustic feedback control performance of adaptive feedback cancellation in sound reinforcement systems**
Toon van Waterschoot (Katholieke Universiteit Leuven, Belgium); Marc Moonen (Katholieke Universiteit Leuven, Belgium)

9:30 **Frequency-Domain Adaptive Multidelay Algorithm with Sparseness Control for Acoustic Echo Cancellation**
Pradeep Loganathan (Imperial College, London., United Kingdom); Xiang Lin (Imperial College London, United Kingdom); Andy Khong (Nanyang Technological University, Singapore); Patrick Naylor (Imperial College London, United Kingdom)

9:50 **Gauss-Seidel Based Variable Step-Size Affine Projection Algorithms for Acoustic Echo Cancellation**
Felix Albu (Politehnica University of Bucharest, Romania); Constantin Paleologu (University Politehnica of Bucharest, Romania); Jacob Benesty (INRS-EMT, University of Quebec, Canada)

AP5: Signal Processing Applications 2
Friday, August 28, 8:30–10:10

Room: Strathclyde Suite
Chair: to be confirmed

8:30   Rayleigh wave ellipticity estimation from ambient seismic noise using single and multiple vector-sensor techniques
Manuel Hobiger (LGIT, CNRS, Université J. Fourier, Grenoble, France); Nicolas Le Bihan (GIPSA-Lab, CNRS, France); Cécile Cornou (LGIT, IRD: R157, CNRS, Université J. Fourier Grenoble, France); Pierre-Yves Bard (LGIT, LCPC, CNRS, Université J. Fourier, Grenoble, France)

8:50   Railway device diagnosis using sparse independent component analysis
Zohra Cherfi (The French National Institute for Transport and Safety Research (INRETS), France); Etienne Cme (INRETS), France); Latifa Oukhellou (The French National Institute for Transport and Safety Research (INRETS), France); Patrice Aknin (INRETS), France)

9:10   A Wavelet-Based Pattern Recognition Algorithm to Classify Postural Transitionsin Humans
Anthony Fleury (EPFL, Switzerland); Norbert Noury (University of Lyon, France); Michel Vacher (CNRS, France)

9:30   RFI mitigation in the context of Pulsar coherent de-dispersion at Nancay radio astronomical Observatory
Dalal Ait allal (University of Orleans, France); Rodolphe Weber (University of Orleans, France); Gilles Theureau (Laboratoire de Physique et Chimie de l'Environnement et de l'Espace, France); Ismaël Cognard (Laboratoire de Physique et Chimie de l'Environnement et de l'Espace, France)

9:50   Cyclic Spatial Filtering in Radio Astronomy : Application to Lofar Data
Rym Feliachi (University of Orleans, France); Rodolphe Weber (University of Orleans, France); Albert Jan Boonstra (ASTRON, The Netherlands)

TH8: Detection and Estimation 2
Friday, August 28, 8:30–10:10

Room: Strathclyde Bar
Chair: Abdelhak Zoubir (Darmstadt University of Technology, Germany)

8:30   Optimal Suprathreshold Stochastic Resonance based nonlinear detector
Hari Vishnu (Nanyang Technological University, Singapore); Anand G. v. (Indian Institute of Science, India); Premkumar A. B (Nanyang Technological University, Singapore)

8:50   Filtering in the Time-Frequency Domain for the Detection of Compact Objects
Diego Herranz (Instituto de Fisica de Cantabria, Santander, Spain, Spain); Jose Luis Sanz (University of Santander, Spain); Ercan Kuruoglu (CNR, Pisa, Italy)

9:10   Efficient Detection of Additive Watermarking in the DWT-Domain
Roland Kwitt (University of Salzburg, Austria); Peter Meerwald (University of Salzburg, Austria); Andreas Uhl (Salzburg University, Austria)

9:30   Accurate Geolocation in the Presence of Outliers using Linear Programming
Joseph Picard (Tel Aviv University, Israel); Anthony Weiss (Tel Aviv University, Israel)

9:50   Maximum likelihood range estimation for 3D-imaging based on pseudo-noise optical modulation
M'Hamed-Ali El Mechat (CSEM Zurich / ETH Zurich, Switzerland); Hans-Andrea Loeliger (ETH Zurich, Switzerland)

IM8: Image Sampling and Interpolation
Friday, August 28, 8:30–10:10

8:30 **Simplifying Gaussian Mixture Models Via Entropic Quantization**
Frank Nielsen (Ecole Polytechnique, France); Vincent Garcia (Ecole Polytechnique, France); Richard Nock (Universite des Antilles, France)

8:50 **Self-sampled Image Resolution Enhancement Using Dual-tree Complex Wavelet Transform**
Turgay Celik (National University of Singapore, Singapore); Huseyin Kusetogullari (University of Warwick, United Kingdom)

9:10 **Variable Density Compressed Image Sampling**
Zhongmin Wang (University of Delaware, USA); Gonzalo Arce (University of Delaware, USA); Jose Paredes (University of Los Andes, USA)

9:30 **Image Interpolation using Optimized Color Transforms**
Evgeny Gershikov (Technion - Israel Institute of Technology, Israel); Moshe Porat (Technion, Israel)

9:50 **A Fast Method for Scaling Color Images**
Jaana Parkkinen (Nokia Corporation, Finland)

AM5: DOA Estimation
Friday, August 28, 8:30–10:10

8:30 **DOA Estimation in the Presence of Modeling Errors, the Global Matched Filter Approach**
Jean-Jacques Fuchs (irisa/université de Rennes, France)

8:50 **Statistical Nonidentifiability of Close Emitters: Maximum-Likelihood Estimation Breakdown**
Yuri Abramovich (Defence Science and Technology Organisation (DSTO), Australia); Ben Johnson (JORN Technical Director, Australia); Nicholas Spencer (Adelaide Research & Innovation Pty Ltd (ARI), Australia)

9:10 **High Resolution Direction Finding : From Performance to Antenna Array Optimization - The mono-source case**
Anne Ferreol (Thales Communications, France); Pascal Chevalier (Thales Communication, France)

9:30 **DOA Estimation of Multiple Sparse Sources Using Three Widely-Spaced Sensors**
Tarig Ballal (University College Dublin, Ireland); Chris Bleakley (University College Dublin, Ireland)

9:50 **Empirical Mode Decomposition Based Denoising for High Resolution Direction of Arrival Estimation**
Ozgur Gultekin (Istanbul Technical University, Turkey); Isin Erer (Istanbul Technical University, Turkey)

CO8: Channel Modelling and Estimation
Friday, August 28, 10:30–12:10

Room: Main Auditorium
Chair: Mounir Ghogho (University of Leeds, United Kingdom)

10:30 **LOS/NLOS detection by the normalized RAYLEIGH-NESS test**
Francesco Benedetto (University of Roma Tre, Italy); Gaetano Giunta (University of "Roma TRE", Italy); Luc Vandendorpe (University of Louvain, Belgium)

10:50 **Characteristics of impulsive noise in electricity substations**
Qingshan Shan (University of Strathclyde, United Kingdom); Shahzad Bhatti (University of Strathclyde, United Kingdom); Ian Glover (University of Strathclyde, United Kingdom); Robert Atkinson (University of Strathclyde, United Kingdom); I Portugues (Elimpus Ltd, United Kingdom); Phil Moore (University of Strathclyde, United Kingdom); Richard Rutherford (Scottish Power, United Kingdom)

11:10 **Performance of multi-user asynchronous chaos-based communication systems through m-distributed fading channel**
Georges Kaddoum (IRIT/ENSEEIHT laboratory, France)

11:30 **Validation of Minimum-Energy Band-Limited Prediction using Vehicular Channel Measurements**
Thomas Zemen (ftw. Forschungszentrum Telekommunikation Wien, Austria); Sebastian Caban (TU Wien, Austria); Nicolai Czink (Telecommunications Research Center Vienna (ftw.), Austria); Markus Rupp (Vienna University of Technology, Austria)

11:50 **A New Channel Order Estimation Algorithm for FIR SIMO Channels**
Serkan Karakutuk (Middle East Technical University, Turkey); T. Engin Tuncer (Middle East Technical University, Turkey)

SP4: Speech Analysis and Processing 1
Friday, August 28, 10:30–12:10

Room: Exhibition Hall
Chair: Patrick Naylor, Imperial College London, United Kingdom

10:30 **Eigenresiduals for Improved Parametric Speech Synthesis**
Thomas Drugman (Faculté Polytechnique de Mons, Belgium); Geoffrey Wilfart (Acapela Group, Belgium); Thierry Dutoit (FPMS, Belgium)

10:50 **The Effect of Microphone Directivity Patterns on Spatial Cues for Multichannel Reverberant Meeting Speech Analysis**
Eva Cheng (University of Wollongong, Australia); Ian Burnett (RMIT University, Australia); Christian Ritz (University of Wollongong, Australia)

11:10 **Non-stationary noise model compensation in voice activity detection**
Mikko Myllymäki (Tampere University of Technology, Finland); Tuomas Virtanen (Tampere University of Technology, Finland)

11:30 **Detection of Glottal Closing and Opening Instants using an Improved DYPSA Framework**
Mark Thomas (Imperial College London, United Kingdom); Jon Gudnason (Imperial College London, United Kingdom); Patrick Naylor (Imperial College London, United Kingdom)

11:50 **Alternative Speech Communication based on Cued Speech**
Panikos Heracleous (Gipsa-lab, France); Noureddine Aboutabit (Ecole des mines de Douai, France); Denis Beautemps (Gipsa-lab, France)

SS14: Signal Processing Techniques in Navigation Technology
Friday, August 28, 10:30–12:10

Room: Strathclyde Suite
Chair: Patrick Oonincx (Netherlands Defence Academy, The Netherlands)

10:30 Outage mitigation for GNSS/MEMS navigation using neural networks
Jean-Rémi De Boer (Université de Toulouse, France); Vincent Calmettes (Université de Toulouse, France); Jean-Yves Tourneret (IRIT/ENSEEIHT/TéSA, France); Bertrand Lesot (Thales Avionics, France)

10:50 Signal processing issues in indoor positioning by ultra wide band radio aided inertial navigation
John-Olof Nilsson (Royal Institute of Technology, Sweden); Alessio De Angelis (University of Perugia, Italy); Isaac Skog (KTH EE, Sweden); Paolo Carbone (University of Perugia, Italy); Peter Handel (Royal Institute of Technology, Sweden)

11:10 Differential Observables for Software GPS Interferometry
Benoit Muth (TU Delft - NLDA, The Netherlands); Patrick Oonincx (Netherlands Defence Academy, The Netherlands); Christian Tiberius (Delft University of Technology, The Netherlands)

11:50 N-Gene GNSS Software Receiver for Acqustion and Tracking Algorithm Validation
Andrea Molino (Politecnico di Torino, Italy); Mario Nicola (Politecnico di Torino, Italy); Marco Pini (Isituto Superiore Mario Boella, Italy); Maurizio Fantino (istituto superiore mario boella, Italy)

IM9: Image Coding
Friday, August 28, 10:30–12:10

Room: Strathclyde Bar
Chair: William Puech (University of Montpellier & LIRMM, France)

10:30 Psychovisual Rotation-Based DPTC Watermarking Scheme
Marc Chaumont (LIRMM (Laboratoire Informatique, Robotique, Microélectronique, Montpellier), France)

10:50 Seamless Joining of Tiles of Varying Resolutions for Online 3D Terrain Visualization by DWT Domain Smoothing
Khizar Hayat (LIRMM, University of Montpellier II, France); William Puech (University of Montpellier, France); Gilles Gesquiere (Aix Marseille University, France)

11:10 Wavelet-based Image Compression by Hierarchical Quantization Indexing
Hasan Ates (Isik University, Istanbul, Turkey); Engin Tamer (Isik University, Turkey)

11:30 Improved colour decorrelation for lossless colour image compression using the LAR codec
Franois Pasteau (IETR / INSA Rennes, France); Clément Strauss (IETR / INSA Rennes, France); Marie Babel (IETR / INSA Rennes, France); Olivier Deforges (IETR / INSA Rennes, France); Laurent Bedat (IETR / INSA Rennes, France)

11:50 Joint lossless coding and reversible data embedding in a multiresolution still image coder
Jean Motsch (IETR / Saint-Cyr, France); Marie Babel (IETR / INSA Rennes, France); Olivier Deforges (IETR / INSA Rennes, France)

VM6: H.264/AVC
Friday, August 28, 10:30–12:10

Room: Buchanan Suite
Chair: Marek Domański (Poznan University of Technology, Poland)

10:30 **Fast Protection of H.264/AVC by Selective Encryption of CABAC for I & P frames**
Zafar Shahid (LIRMM, France); Marc Chaumont (LIRMM (Laboratoire Informatique, Robotique, Microélectronique, Montpellier), France); William Puech (University of Montpellier, France)

10:50 **Performance of Watermarking as an Error Detection Mechanism for Corrupted H.264/AVC Video Sequences**
Eva Rodriguez Rodriguez (Vienna University of Technology, Austria); Luca Superiori (Vienna University of Technology, Austria); Olivia Nemethova (Vienna University of Technology, Austria); Markus Rupp (Vienna University of Technology, Austria)

11:10 **Error-resilient packet switched H.264 mobile video telephony with LT coding and reference picture selection**
Muneeb Dawood (De Montfort University, United Kingdom); Raouf Hamzaoui (De Montfort University, United Kingdom); Shakeel Ahmad (De Montfort University, United Kingdom); Marwan Akaidi (De Montfort University UK, United Kingdom)

11:30 **Improved Context-Adaptive Arithmetic Coding in H.264/AVC**
Damian Karwowski (Poznan University of Technology, Poland); Marek Domański (Poznan University of Technology, Poland)

11:50 **H.264 Video Traffic Modeling Via Hidden Markov Process**
Stefania Colonnese (Universit "La Sapienza" di Roma, Italy); Stefano Rinauro (Dip. INFOCOM, Universit "La Sapienza" di Roma, Italy); Lorenzo Rossi (Sapienza University of Rome, Italy); Gaetano Scarano (Universit "La Sapienza" di Roma, Italy)

NN2: Non-linear / Non-stationary Signals Processing
Friday, August 28, 14:20–14:50

Room: Foyer 1
Chair: to be confirmed

NN2.1 **On the parameters Estimation of The Generalized Gaussian Mixture Model**
Ould Mohamed Mahmoud Mohamed (ENIT, Tunisia); Jaidane Meriem (U2S, Tunisia)

NN2.2 **Time Frequency Characterization for Electric Load Monitoring**
Mabrouka El Guedri (Electricité de France, France); Guy D'Urso (Electricité de France, France); Gilles Fleury (Ecole Supérieure d'Electricité, France); Christian Lajaunie (Ecole Nationale des Mines de Paris, France)

NN2.3 **Optimization of Weighting Factors for Multiple Window Time-Frequency Analysis**
Maria Sandsten (Lund University, Sweden); Johan Sandberg (Lund University, Sweden)

NN2.4 **Parametric reduction complexity of Volterra models using tensor decompositions**
Favier Gérard (Université de Nice, France); Thomas Bouilloc (Cnrs/University of Nice, France)

NN2.5 **Bayesian compressed sensing of a highly impulsive signal in heavy-tailed noise using a multivariate Cauchy prior**
George Tzagkarakis (University of Crete, Greece); Panagiotis Tsakalides (FORTH-ICS and University of Crete, Greece)

NN2.6 **Optimal Wigner Cross-Spectrum estimation**
Johan Sandberg (Lund University, Sweden); Maria Sandsten (Lund University, Sweden)

NN2.7 **Time-Frequency Analysis Based on the Phase Rectified Signal Averaging Method**
Meryem Jabloun (EPFL - Ecole Polytechnique de Lausanne, Switzerland); Jean-Marc Vesin (EPFL, Switzerland); Jerome Van Zaen (EPFL - Ecole Polytechnique de Lausanne, Switzerland)

NN2.8 **Estimation of stochastic rate constants and tracking of species in biochemical networks with second-order reactions**
Petar Djuric (State University of New York at Stony Brook, USA); Monica Bugallo (Stony Brook University, USA)

NN2.9 **A new sampling method in particle filter**
Qi Cheng (Université Paris-Sud 11, France); Pascal Bondon (LSS CNRS, France)

AP6: Biomedical Signal Processing 2
Friday, August 28, 14:20–14:50

Room: Foyer 1
Chair: Ahmad Naghsh Nilchi (University of Isfahan, Iran)

AP6.1 **Automatic removal of ocular artifacts from EEG data using adaptive filtering and Independent Component Analysis**
Carlos Guerrero-Mosquera (University Carlos III of Madrid, Spain); Angel Navia-Vázquez (University Carlos III of Madrid, Spain)

AP6.2 **Estimation of Visual Evoked Potentials for Measurement of Optical Pathway Conduction**
Mohd Zuki Yusoff (Universiti Teknologi Petronas, Malaysia); Nidal Kamel (Technical University of Petronas, Malaysia)

AP6.3 **Posterior Cramer Rao Lower Bounds for the Respiratory Model Parameter Estimation**
Esra Saatci (Istanbul Kultur University, Turkey); Aydin Akan (Istanbul University, Turkey)

AP6.4 **From BOLD-fMRI signals to the prediction of subjective pain perception through a regularization algorithm**
Marco Prato (University of Modena and Reggio Emilia, Italy); Stefania Favilla (University of Modena and Reggio Emilia, Italy); Patrizia Baraldi (University of Modena and Reggio Emilia, Italy); Carlo Porro (University of Modena and Reggio Emilia, Italy); Luca Zanni (University of Modena and Reggio Emilia, Italy)

AP6.5 **A point-event detection algorithm for the analysis of contrast bolus in fluoroscopic images of the coronary arteries**
Alexandru Condurache (University of Luebeck, Germany); Alfred Mertins (Institute for Signal and Image Processing, University of Luebeck, Germany)

AP6.6 **Contribution of auditory tasks to dyslexia screening**
Guylaine Le Jan (LTSI, Université de Rennes1, France); Régine Le Bouquin-Jeanns (University of Rennes 1, France); Nathalie Costet (LTSI, Université Rennes1, France); Gérard Faucon (University of Rennes 1, France)

AP6.7 **A new algorithm for instantaneous F0 speech extraction based on Ensemble Empirical Mode Decomposition**
Gaston Schlotthauer (Universidad Nacional de Entre Rios, Argentina); Maria Torres (Universidad Nacional de Entre Rios, Argentina); Hugo Rufiner (Universidad Nacional del Litoral, Argentina)

AP6.8 **New variant of Differential Evolution algorithm: application for neuroscientists**
Laure Buhry (IMS, UMR CNRS 52 18, Université Bordeaux 1, France); Audrey Giremus (University of Bordeaux, UMR 5218, IMS, France); Eric Grivel (university of Bordeaux UMR 5218 IMS, France); Sylvain Saghi (university of Bordeaux UMR 5218 IMS, France); Sylvie Renaud (IMS LAB, France)

AP6.9 **Classification of User States with Physiological Signals: On-line Generic Features vs. Specialized Feature Sets**
Florian Hönig (Universität Erlangen-Nürnberg, Germany); Johannes Wagner (University of Augsburg, Germany); Anton Batliner (Universität Erlangen Nürnberg, Germany); Elmar Nöth (Universität Erlangen Nürnberg, Germany)

AP6.10 **Content Based Clinical Depression Detection in Adolescents**
Alex Lu-Shih Low (RMIT University, Australia); Margaret Lech (RMIT University, Australia);
Namunu Maddage (Institute for Infocomm Research, Singapore)

AP6.11 **A Comparative Study Of Four Novel Sleep Apnoea Episode Prediction Systems**
Helen Robertson (University of Strathclyde, United Kingdom)

AP6.12 **Diagnosis of acute myocardial infarction using tissue deformation in echocardiographic imaging**
Eyal Braiman (Technion - Israel Institute of Technology, Israel); Moshe Porat (Technion, Israel)

AP6.13 **Classification of Epileptic States Using Roo-MUSIC And MLPNN**
Ahmad Naghsh Nilchi (University of Isfahan, Iran); Mostafa Aghashahi (University of Isfahan, Iran)

AP6.14 **Scaled Gaussian Matched Filtering on Fluorescein Angiograms of the Retina**
Tao Zhu (AT&T (ITO Intl.), United Kingdom)

AP6.15 **Measures of Goodness of Fit to Convolution Model for Analysis of fMRI Data**
Wakako Nakamura (Shimane University, Japan); Yujiro Inouye (Shimane University, Japan)

SP5: Speech Analysis and Processing 2
Friday, August 28, 14:20–14:50

Room: Foyer 1
Chair: Julie Mauclair (University College Dublin, Ireland)

SP5.1 **Flexible and efficient harmonic resynthesis by modulated sinusoids**
Jonathan Teutenberg (University of Auckland, New Zealand); Catherine Watson (University of Auckland, New Zealand)

SP5.2 **Analysis of a Parallel Lexical-tree-based Speech Decoder for Multi-core Processors**
Naveen Parihar (Mississippi State University, USA); Eric Hansen (Mississippi State University, USA)

SP5.3 **Evaluation of Pitch Estimation in Noisy Speech for application in Non-Intrusive Speech Quality Assessment**
Dushyant Sharma (Imperial College London, United Kingdom); Patrick Naylor (Imperial College London, United Kingdom)

SP5.4 **A new feature vector for HMM-based packet loss concealment**
Lionel Koenig (Freescale Semiconductor, France); Régine Andre-Obrecht (Université Paul Sabatier, France); Corinne Mailhes (University of Toulouse, France); Serge Fabre (Freescale Semiconductor, France)

SP5.5 **Speech Coding Based on Sparse Linear Prediction**
Daniele Giacobello (Aalborg University, Denmark); Mads Christensen (Aalborg University, Denmark); Manohar Murthi (University of Miami, USA); Søren Jensen (Aalborg University, Denmark); Marc Moonen (Katholieke Universiteit Leuven, Belgium)

SP5.6 **Noise Robust Speech Coding at Very Low Bit Rates**
Xiaoqiang Xiao (Penn State University, USA); Robert Nickel (Bucknell University, USA)

SP5.7 **Experimental mappings and validation of the dependence on the language of objective speech quality scores in actual GSM network conditions**
Faten Ben Ali (National Engineering School of Tunis, Tunisia, Tunisia); Sonia Djaziri-Larbi (Ecole Nationale d'Ingénieurs de Tunis, Tunisia); Jaidane Meriem (U2S, Tunisia); Khaled Ridane (Orascom Tunisiana, Tunisia)

SP5.8 **Exploring the Prosody of Floor Mechanisms in English Using the Fundamental Frequency Variation Spectrum**
Kornel Laskowski (Carnegie Mellon University, USA); Mattias Heldner (KTH (Royal Institute of Technology), Sweden); Jens Edlund (KTH (Royal Institute of Technology), Sweden)

SP5.9 **A Method Utilizing Window Function Frequency Characteristics for Noise-Robust Spectral Pitch Estimation**
Iman Haji Abolhassani (INRS-Énergie-Matériaux-Télécommunications, Canada); Douglas O'Shaughnessy (INRS-Énergie-Matériaux-Télécommunications, Canada); Sid-Ahmed Selouani (Université de Moncton, campus of Shippagan, Canada)

SP5.10 **A Simple But Efficient Real-Time Voice Activity Detection Algorithm**
Mohammad Moattar (Amirkabir university of technology, Tehran, Iran, Iran); M. Mehdi Homayounpour (Amirkabir University of Technology, Iran)

SP5.11 **Adaptive MMSE Speech Spectral Amplitude Estimator under Signal Presence Uncertainty**
Behdad Dashtbozorg (Yazd University, Iran); Hamid Reza Abutalebi (Yazd University, Iran)

IM10: Image Coding and Rendering
Friday, August 28, 14:20–14:50

Room: Foyer 2
Chair: Chadi Khirallah, University of Strathclyde, United Kingdom

IM10.1 **Efficient 16x16 block size mode detection in H.264**
Youngsub Jo (University of Hanyang, Korea); Wonkyun Kim (Hanyang University, Korea); Joohyeok Kim (Hanyang University, Korea); Jechang Jeong (Hanyang univ., Korea)

IM10.2 **A high speed Bit Plane Coder for JPEG 2000 and it's FPGA implementation**
Kishor Sarawadekar (Indian Institute of Technology Kharagpur, India); Swapna Banerjee (Prof. Dept. of Electronics and Electrical Communication Engg., Indian Institute of Technology (IIT),, India)

IM10.3 **Still Image Coding Using a New Transform**
Aldo Maalouf (University of Poitiers, France); Chaker Larabi (SIC, Université de Poitiers, France)

IM10.4 **Ghost Detection and Removal in High Dynamic Range Images**
Desire Sidibe (Université Jean Monet Saint-Etienne, France); William Puech (University of Montpellier, France); Olivier Strauss (Laboratory LIRMM, UMR CNRS 5506, University of Montpellier II, France)

IM10.5 **Lifting Factorization based on Block Parallel System of M-channel Perfect Reconstruction Filter Banks**
Taizo Suzuki (Keio University, Japan); Masaaki Ikehara (Keio University, Japan)

IM10.6 **On Distributed Arithmetic Codes and Syndrome Based Turbo Codes for Slepian-Wolf Coding of Non Uniform Sources**
Velotiaray Toto-Zarasoa (IRISA, France); Enrico Magli (Politecnico di Torino, Italy); Aline Roumy (INRIA Rennes, France); Gabriella Olmo (Politecnico di Torino, Italy)

IM10.7 **An LMMSE-Based Merging Approach for Subpixel-based Downsampling**
Lu Fang (Hong Kong University of Science and Technology, Hong Kong); Oscar Au (HKUST, Hong Kong); Xing Wen (Hong Kong University of Science and Technology, Hong Kong); Yi Yang (Hong Kong University of Science and Technology, Hong Kong); Weiran Tang (Hong Kong University of Science and Technology, Hong Kong)

IM10.8 **A multiscale error diffusion algorithm for green noise digital halftoning**
Yik Hing Fung (The Hong Kong Polytechnic University, Hong Kong); Yuk Hee Chan (The Hong Kong Polytechnic University, Hong Kong)

IM10.9 **On Efficient Quantization for Image Recompression**
Ora Gendler (Technion, Israel); Moshe Porat (Technion, Israel)

IM10.10 **Multiple Description Scalar Quantization with Successive Refinement**
Muhammad Majid (The University of Sheffield, United Kingdom); Charith Abhayaratne (The University of Sheffield, United Kingdom)

CO9: Networks and MIMO Systems
Friday, August 28, 14:20–14:50

CO9.1 **Interference Mitigation Based Signal Forwarding Strategy for Wireless Relay Networks**
Muhammad Irfan (Loughborough University, United Kingdom); R. Krishna (Loughborough University, United Kingdom); Zhilan Xiong (Loughborough University, United Kingdom); Sangarapillai Lambotharan (Loughborough University, United Kingdom)

CO9.2 **Comparison of the Software Defined Radio Implementations of the K-best Sphere Detection**
Janne Janhunen (University of Oulu, Finland); Olli Silvén (University of Oulu, Finland); Markku Juntti (University of Oulu, Finland)

CO9.3 **Coding Assisted Blind MIMO Equalization and Decoding**
Xu (burney) Zhao (University of Edinburgh, United Kingdom); Mike Davies (University of Edinburgh, United Kingdom)

CO9.4 **Fixed-Complexity Regularized Vector Precoding for the Multiuser MIMO Downlink Channel**
Maitane Barrenechea (Mondragon Unibertsitatea, Spain); John Thompson (University of Edinburgh, United Kingdom); Mikel Mendicute (University of Mondragon, Spain); Javier Del Ser (TECNALIA-Telecom, Spain)

CO9.5 **On Decreasing the Complexity of Lattice-Reduction-Aided K-Best MIMO Detectors**
Sandra Roger (Universidad Politecnica de Valencia, Spain); Alberto Gonzalez (Universidad Politecnica de Valencia, Spain); Vicenc Almenar (Universidad Politecnica De Valencia, Spain); Antonio Vidal (Universidad Politecnica de Valencia, Spain)

CO9.6 **Spatial Reuse of the Radio Channel in CDMA-enabled, Ad-hoc, Wireless Sensor Networks**
Louise Crockett (University of Strathclyde, United Kingdom); Robert Stewart (University of Strathclyde, United Kingdom)

CO9.7 **Practical Compress-and-Forward Cooperation for the Classical Relay Network**
Jing Jiang (University of Edinburgh, United Kingdom); John Thompson (University of Edinburgh, United Kingdom); Peter Grant (The University of Edinburgh, United Kingdom); Norbert Goertz (Vienna University of Technology, Austria)

CO9.8 **Cooperative multiple access transmission using precoding vectors**
Hamid Meghdadi (University of Limoges, France); Vahid Meghdadi (University of Limoges, France); Jean Pierre Cances (University of Limoges, France)

CO9.9 **Evaluation of MIMO Symbol Detectors for 3GPP LTE Terminals**
Di Wu (Linkoping University, Sweden); Johan Eilert (Linkoping University, Sweden); Dake Liu (Linköping University, Sweden)

CO9.10 **SEP of Cooperative Systems using Amplify and Forward or Decode and Forward relaying**
Sami Amara (Higher School of Communications of Tunis, Tunisia, Tunisia); Hatem Boujemaa (Ecole Supérieure des Communications, Tunisia); Noureddine Hamdi (INSAT, Carthage University, Tunisia)

CO9.11 **Robust Adaptive Modulation With Imperfect Channel Information**
Huiqin Du (University of Edinburgh, United Kingdom); Pei-Jung Chung (University of Edinburgh, United Kingdom); Bernard Mulgrew (Institute for Digital Communications, The University of Edinburgh, United Kingdom)

CO9.12 **Interference Alignment Limits for K-user Frequency-Flat MIMO Interference Channels**
Francesco Negro (Eurecom, France); Shakti Shenoy (EURECOM, France); Dirk Slock (Eurecom, France); Irfan Ghauri (Infineon Technologies France, France)

CO9.13 **Design of Block-Based Linear MMSE Precoding and Equalisation for Broadband MIMO Relay Networks**
Andrew Millar (University of Strathclyde, United Kingdom); Stephan Weiss (University of Strathclyde, United Kingdom)

TH9: Estimation
Friday, August 28, 14:20–14:50

Room: Foyer 2
Chair: Søren Jensen (Aalborg University, Denmark)

TH9.1 **An algebraic derivative-based approach for the zero-crossings estimation**
Giuseppe Fedele (University of Calabria, Italy); Francesco Chiaravalloti (CNR-IRPI, Istituto di Ricerca per la Protezione Idrogeologica, Italy); Cédric Join (INRIA-ALIEN & CRAN (CNRS, UMR 7039), Nancy-Université, France)

TH9.2 **On the MAP estimation in the context of elliptical distributions**
Steeve Zozor (GIPSA-Lab, France); Christophe Vignat (Institut Gaspard Monge, France)

TH9.3 **The Wiener filter for locally stationary stochastic processes is rarely locally stationary**
Patrik Wahlberg (University of Newcastle, Australia); Peter Schreier (University of Newcastle, Australia)

TH9.4 **Entropy and Kullback-Leibler divergence estimation based on Szegö's Theorem**
David Ramírez (University of Cantabria, Spain); Javier Vía (University of Cantabria, Spain); Ignacio Santamaria (University of Cantabria, Spain); Pedro Crespo (CEIT and TECNUN (University of Navarra), Spain)

TH9.5 **New insights on stochastic complexity**
Ciprian Doru Giurcaneanu (Tampere University of Technology, Finland); Seyed Alireza Razavi (Tampere University of Technology, Finland)

TH9.6 **A new Method for SNR-Estimation in Impulse Response Measurements**
Aulis Telle (RWTH Aachen University, Germany); Peter Vary (RWTH Aachen University, Germany)

TH9.7 **An Amplitude and Covariance Matrix Estimator for Signals in Colored Gaussian Noise**
Jesper Jensen (Aalborg University, Denmark); Mads Christensen (Aalborg University, Denmark); Søren Jensen (Aalborg University, Denmark)

TH9.8 **A new robust estimation method for short-term load forecasting**
Yacine Chakhchoukh (Paris sud XI, France)

TH9.9 **A Noise Estimation Method Based on Improved VAD Used in Noise Spectral Suppression under Highly Non-Stationary Noise Environments**
Kenji Nakayama (Kanazawa Univ., Japan)

TH9.10 **L2-Density Estimation Under Constraints**
Christian Musso (ONERA, France); Nadja Oudjane (ONERA, France)

IM11: Image Denoising and Restoration
Friday, August 28, 14:50–16:30

Room: Main Auditorium
Chair: Salah Bourennane (Ecole Centrale Marseille, France)

14:50 **Staircasing Reduction Model Applied To Total Variation Based Image Reconstruction**
Wei Su Hua (Institute of Applied Physics and Computational Mathematics, P.R. China)

15:10 **One Colored Image Based 2.5d Human Face Reconstruction**
Wai Lok Woo (University of Newcastle upon Tyne, United Kingdom)

15:30 **Restoration of variable density film soundtracks**
Abdelali Hassane (Centre de Morphologie Mathématique, France); Decencire Etienne (Centre de Morphologie Mathématique, France); Bernard Besserer (University of La Rochelle, France)

15:50 **Estimation of n-mode ranks of hyperspectral images for tensor denoising**
Damien Letexier (Institut Fresnel, France); Salah Bourennane (Ecole Centrale Marseille, France)

16:10 **Speckle Noise Reduction in SAR Imaging Using 2-D Lattice Filters Based Subband Decomposition**
Gökhan Karasakal (Istanbul Technical University, Turkey)

SS15: Digital Filter Banks: Theory, Algorithms, and Novel Applications 2
Friday, August 28, 14:50–16:30

Room: Exhibition Hall
Chair: Heinz Goeckler (University of Bochum & Digital Signal Processing Group, Germany)

14:50 **A Novel Approach to the Design of Oversampling Complex-Modulated Digital Filter Banks**
Christian Stöcker (University of Bochum, Germany); Thomas Kurbiel (University of Bochum, Germany, Germany); Daniel Alfsmann (University of Bochum, Germany); Heinz Goeckler (University of Bochum, Germany)

15:10 **General Least-Squares Design of Allpass Transformed DFT Filter-Banks**
Heinrich Loellmann (RWTH Aachen University, Germany); Guido Dartmann (RWTH Aachen University, Germany); Peter Vary (RWTH Aachen University, Germany)

15:30 **Oversampling Complex-Modulated Digital Filter Bank Pairs Suitable For Extensive Subband-Signal Amplification**
Thomas Kurbiel (University of Bochum, Germany, Germany); Heinz Goeckler (University of Bochum, Germany); Daniel Alfsmann (University of Bochum, Germany)

15:50 **Filter Banks for Hearing Aids applying Subband Amplification: A Comparison of different Specification and Design Approaches**
Daniel Alfsmann (University of Bochum, Germany); Heinz Goeckler (University of Bochum, Germany); Thomas Kurbiel (University of Bochum, Germany, Germany)

SS16: Efficient Implementation of Complex Algorithms
Friday, August 28, 14:50–16:30

Room: Strathclyde Suite
Chair: John Thompson (University of Edinburgh, United Kingdom)

14:50 **An Improved Sphere Decoding Scheme for MIMO Systems Using an Adaptive Statistical Threshold**
Xiang Wu (University of Edinburgh, United Kingdom); John Thompson (University of Edinburgh, United Kingdom); Andrew Wallace (Heriot-Watt University, United Kingdom)

15:10 **Parallel Markov Chain Monte Carlo Computation for Varying-dimension Signal Analysis**
Jing Ye (Heriot-Watt University, United Kingdom); Andrew Wallace (Heriot-Watt University, United Kingdom); John Thompson (University of Edinburgh, United Kingdom)

15:30 **A SDR Platform for Mobile Wi-Fi/3G UMTS System on a Dynamic Reconfigurable Architecture**
Zong Wang (University of Edinburgh, United Kingdom); Ahmet Erdogan (The University of Edinburgh, United Kingdom); Tughrul Arslan (University of Edinburgh, United Kingdom)

15:50 **Towards Hume SIMD Vectorisation**
Abdallah Al Zain (Heriott Watt, United Kingdom)

16:10 **Evolutionary Requirements for Next-Generation Dataflow-Based FPGA System Design**
John McAllister (Queen's University Belfast, United Kingdom)

AE8: Acoustic Signal Processing
Friday, August 28, 14:50–16:30

Room: Strathclyde Bar
Chair: Maurizio Omologo (Fondazione Bruno Kessler - irst, Italy)

14:50 **Design Aspects for an Improved B-Format Microphone**
Johann-Markus Batke (Deutsche Thomson OHG, Germany); Hans-Hermann Hake (Deutsche Thomson OHG, Germany)

15:10 **A Sequential Monte Carlo Approach for Tracking of Overlapping Acoustic Sources**
Alessio Brutti (Fondazione Bruno Kessler, Italy); Maurizio Omologo (Fondazione Bruno Kessler - irst, Italy); Piergiorgio Svaizer (Fondazione Bruno Kessler - irst, Italy)

15:30 **Sound Field Creation Based on Simultaneous Equations Method**
Kensaku Fujii (University of Hyogo, Japan); Tadashi Ujino (Fujitsu Ten, Japan); Mitsuji Muneyasu (Kansai University, Japan)

15:50 **A Method for Head Related Impulse Response Simplification.**
Claire Masterson (Trinity College Dublin, Ireland); Stephen Adams (Trintiy College Dublin, Ireland); Gavin Kearney (Trinity College Dublin, Ireland); Frank Boland (Trinity College Dublin, Ireland)

16:10 **Regularized Adaptive Notch Filters for Acoustic Howling Suppression**
Pepe Gil-Cacho (Katholieke Universiteit Leuven,, Belgium); Toon van Waterschoot (Katholieke Universiteit Leuven, Belgium); Marc Moonen (Katholieke Universiteit Leuven, Belgium); Søren Holdt Jensen (Aalborg University, Denmark)

NN3: Sampling
Friday, August 28, 14:50–16:10

Room: Buchanan Suite
Chair: Antonio Napolitano (Universita di Napoli Parthenope, Italy)

14:50 **Aliasing Effects in Sampling Spectrally Correlated Processes**
Antonio Napolitano (Universita di Napoli Parthenope, Italy)

15:10 **Randomized Sinc Interpolation of Nonuniform Samples**
Shay Maymon (Massachusetts Institute of Technology, USA); Alan Oppenheim (Masschusetts Institute of Technology, USA)

15:30 **Signal-dependent techniques for non-stationary signal sampling and reconstruction**
Modris Greitans (Institute of Electronics and Computer Science, Latvia); Rolands Shavelis (Institute of Electronics and Computer Science, Latvia)

15:50 **On Spectral Estimation and Fourier Transform Approximation from Sampled Data**
Hagai Kirshner (Technion - Israel Institute of Technology, Israel); Moshe Porat (Technion, Israel)

TH10: Adaptive Filtering and Optimisation 2
Friday, August 28, 14:50–16:30

Room: Green Room
Chair: Woon Seng Gan (Nanyang Technological University, Singapore)

14:50 **Analysis of a Set-Membership Affine Projection Algorithm in Nonstationary Environment**
Paulo Diniz (Universidade Federal do Rio de Janeiro, Brazil)

15:10 **Sparse Model Fitting in Nested Families: Bayesian Approach vs Penalized Likelihood**
Laure Amate (University of Nice-Sophia Antipolis, France); Joao Rendas (Centre Nacional Recherche Scientifique, France)

15:30 **Alternative Approach for Computing the Activation Factor of the PNLMS Algorithm**
Francisco de Souza (Federal University of Santa Catarina, Brazil); Orlando Tobias (University of Blumenau, Brazil); Rui Seara (Federal University of Santa Catarina, Brazil); Dennis Morgan (Bell Laboratories, Alcatel-Lucent, USA)

15:50 **Fast aggregation of Student mixture models**
Antoine Pigeau (University of Nantes, France); Marc Gelgon (Nantes university, France); Ali El Attar (University of Nantes, France, France)

16:10 **Blind Adaptive Equalizer for Broadband MIMO STBC Based on PDF Matching**
Samir Bendoukha (University of Strathclyde, United Kingdom); Adel Daas (University of Strathclyde, United Kingdom); Stephan Weiss (University of Strathclyde, United Kingdom)

4.7 Author and Session Index

Kok, Chi-Wah	IM2.11			IM4.1
Kokiopoulou, Effrosyni	IM5.2		Lee, Sang-Hwa	IM4.1
Kokubo, Hiroaki	AE2.1		Lee, Su-Ling	TH3.10
Koldovsky, Zbynek	NN1.1			TH3.2
Kolodziej, Javier	TH7.8		Lee, Tae-Hyoung	IM2.9
Komatsu, Takashi	IM2.1		Léger, Christophe	IM7.5
Kosmas, Panagiotis	AP3.3		Legrand, Anne-Claire	DI1.7
Kotropoulos, Constantine	AE1.1		Lehmann, Frederic	IM6.1
Kressner, Daniel	IM5.2		Lenan, WU	TH2.4
Krishna, R.	CO9.1		Lengelle, Regis	TH7.3
Kroschel, Kristian	AM4.3		Lepauloux, Ludovick	AE2.12
	AP3.5		Lesot, Bertrand	SS14.1
Kurbiel, Thomas	SS15.1		Letexier, Damien	IM11.1
	SS15.1		Lettner, Martin	SS6.1
	SS15.1		Lezoray, Olivier	IM1.3
Kurimo, Mikko	SP1.2		Lheritier, Hugo	IM6.8
Kuroiwa, Yohei	TH3.3		Li, Jin	DI1.1
	TH3.7		Li, Li	TH3.1
Kurth, Frank	VM4.2		Li, Ming	CO6.1
Kuruoglu, Ercan	TH8.2		Li, Weifeng	AP1.4
Kusetogullari, Huseyin	IM8.2		Liang, Chen	TH2.4
Kuybeda, Oleg	IM2.6		Lie, Joni	AM2.4
Kwitt, Roland	TH8.3			AM3.1
Kyung, Wang-Jun	IM2.9		Lim, Chin Heng	AM3.1
Lachambre, Helene	TH6.5		Liming, Wu	VM3.4
Lachiri, Zied	AE2.15		Lin, Xiang	AE7.4
Lagunas, Miguel Angel	CO7.2		Lindqvist, Fredrik	SS13.1
Lajaunie, Christian	NN2.1		Lindqvist, Neiva	SS13.1
	TH5.11		Liu, Dake	CO9.9
Lajevardi, Seyed Mehdi	AP1.3		Liu, Qin	VM5.6
Lambotharan, S.	CO9.1			VM5.5
Lang, Hans-Dieter	AE2.3		Liu, Wei	AM1.2
Lang-Auinger, Claudia	SS6.1			AM1.1
Langley, Richard	AM1.2			AM2.1
	AM2.1		Liu, Yuncai	VM3.1
Larabi, Chaker	IM1.1		Loeliger, Hans-Andrea	AP2.2
	IM10.1			TH8.5
Larzabal, Pascal	CO1.11		Loellmann, Heinrich	SS15.1
Laskowski, Kornel	SP5.1		Loganathan, Pradeep	AE7.4
Lauwereins, Rudy	CO2.4		Loncaric, Sven	IM5.5
	CO4.2		Lopes, Ana	IM6.7
Le Bihan, Nicolas	AP5.1		Lopes, Carla	SP3.3
Le Bouquin-Jeanns, R.	AE3.1		Lopes-Pereira, Patricia	IM7.5
	AP6.1		Lopez, Jose Javier	SS5.2
Le Gal, Bertrand	DI2.3			SS5.3
	DI2.4		López, Juan	TH7.10
Le Guennec, Daniel	CO1.2		López Valcarce, Roberto	CO3.2
Le Jan, Guylaine	AP6.1			TH6.4
Le Nir, Vincent	CO7.3		Louis, Irene	AP2.3
Lebastard, Cédric	AP3.1			AP2.4
Lebrun, Yann	CO2.4		Louveaux, Jerome	SS1.5
	CO4.2			SS13.1
Lech, Margaret	AP6.1		Low, Alex Lu-Shih	AP6.1
Leconge, Rémy	VM3.8		Löytynoja, Antti	AM4.5
Lédée, Roger	IM7.5		Lozano, Cicilia	DI1.6
Lee, Chang-Heon	AM2.5			TH3.9
Lee, Cheol-Hee	IM2.9		Lu, Wu-Sheng	IM2.3
Lee, Kyungmin	TH5.1		Luba, Tadeusz	DI1.6
Lee, Sang Uk	IM2.7			TH3.9

5 Sponsors and Exhibition

5.1 List of Sponsors and Exhibitors

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We also welcome a Hindawi, Elsevier(Pearson) and EUSIPCO 2010 Aalborg to the exhibition, which is located on the first floor of the Glasgow Royal Concert Hall.

5.2 Details of Sponsors

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The Digital Communications Knowledge Transfer Network has been established by an industry-led group of leading players, with funding from the Technology Strategy Board. We seek to bring competitive advantage to the UK by promoting collaboration and knowledge sharing between the users and providers of Digital Communications, and helping to drive innovation in the sector.

For more detailed aims and objectives of the DC-KTN, additional information as well as member registration, please visit the website http://www.dcktn.org.uk/ .

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Over the last few years, the growth of indigenous Scottish companies, and continued inward investment from abroad, has realised a critical mass of engineers researching, developing and designing with Digital Signal Processing.

DSP is well known as the "glue" of technologies ranging from mobile, wireless, multimedia, audio, control systems, radio frequency (RF) and so on. Therefore the aim of DSPscotland to provide an integration point of where companies and organisations can interface. Through DSPScotland, the partnering companies and organisation work towards a further growth of investment as more companies start up in the region, and more inward investment is attracted by the existing capability and the growth plans in place for the future.

Electronics Knowledge Transfer Network (E-KTN)

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For further information, please visit http://www.electronics-ktn.com/.

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A partnership of the universities of Edinburgh, Glasgow, Heriot-Watt and Strathclyde, the Institute for System Level Integration (ISLI) is a collaborative initiative to promote and enhance industry engagement with the electronic engineering and computer science departments of these leading institutions.

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Selex / Galileo

SELEX Galileo is one of Europe's leading aerospace companies and is part of the Finmeccanica group. We employ over 7000 staff and have facilities from Edinburgh, Scotland to Palermo, Italy and Huntsville Alabama in the USA. We supply a wide range of advanced electronic equipment to security and defence customers across the world. Signal processing is central to all our advanced sensor systems and is a key differentiator in radar and electro-optic equipments.

In Edinburgh we develop electronically scanned radar systems that involve advanced signal and image processing algorithms for applications such as clutter rejection and SAR imaging. We also develop electro-optic systems that operate passively in the visible and IR wavebands and actively with laser based illumination. These systems include a wide range of image processing elements from image enhancement to automatic target identification. All our systems operate in real time under extreme environmental conditions.

Steepest Ascent

Steepest Ascent Ltd. is a provider of DSP design tools, consultancy and training with particular focus on wireless communication standards. The company product portfolio includes simulation libraries for LTE, 3G, HSPA, cdma2000, EV-DO, DVB-T/H, ISDB-T, fixed-point design and adaptive equalisation running on The MathWorks MATLAB & Simulink, Agilent SystemVue and Synopsys System Studio. The company has experience in a wide range of digital communication standards and has implemented custom DSP software, hardware and firmware solutions for applications such as Bluetooth testing, GPS, sonar and space communications. The company offers a programme of public short courses in DSP and

digital communications and has presented on-site courses for many companies in Europe, the USA and in Asia. Steepest Ascent has an extensive customer list including bluechips, SMEs and government R&D organisations. The company currently has strategic partnerships and alliances in place with Agilent, the Mathworks, Synopsys, Keithley Instruments, Xilinx and eASIC. Steepest Ascent headquarters is in Glasgow, Scotland, with offices in West Lake Village, California, USA.

Synopsys

Synopsys, Inc. is a world leader in electronic design automation (EDA), supplying the global electronics market with the software, intellectual property (IP) and services used in semiconductor design and manufacturing. Synopsys' comprehensive, integrated portfolio of implementation, verification, IP, manufacturing and field-programmable gate array (FPGA) solutions helps address the key challenges designers and manufacturers face today, such as power and yield management, software-to-silicon verification and time-to-results. These technology-leading solutions help give Synopsys customers a competitive edge in bringing the best products to market quickly while reducing costs and schedule risk.

Texas Instruments

The University Programme was established in 1994, to facilitate the inclusion of world-class real-time DSP and Analog technologies into electrical and electronic engineering research and course curricula.

In Europe, the program now supports over 1000 Universities offering EE, CE and CS courses. Our technologies are also being put to good use in Biomedical, Robotics, Mechatronics, Environmental Sciences, Aeronautical and many related courses.

Registration is open to all post-graduates working in academia — Lecturers, Lab Engineers, Professors and Researchers, and brings access to:
- Preferred pricing on tools and evaluation modules specifically for academic users;
- Unrestricted access to TI expertise through the European Customer Support Center (ECSC);
- A 50% discount on the price of all TI workshops for academic participants;
- Regular e-mailings of relevant information and support;
- Access to useful materials: Teaching Materials, Brochures, Proceedings, Challenge Entries;
- Engineer to Engineer Communities (E2E) — dedicated forums for support and discussions.
Register: http://www.ti.com/europe/docs/univ/docs/regist.htm

The Institution of Engineering and Technology (IET)

The Institution of Engineering and Technology is one of the world's leading professional societies for the engineering and technology community. The IET has more than 150,000 members in 127 countries and offices in Europe, North America and Asia-Pacific. The IET provides a global knowledge network to facilitate the exchange of ideas and promote the positive role of science, engineering and technology in the world.

IET Journals produces 22 titles across a wide range of engineering subjects. Of particular interest to EUSIPCO attendees will be IET Signal Processing (bi-monthly, Ed. John Thompson), IET Image Processing (bi-monthly, Ed. Farzin Deravi) and IET Computer Vision (quarterly, Ed. Edwin Hancock). Come and visit our stand in the Exhibition area for more information. All IET Journals are available on IEEE Xplore.

Wolfson Microelectronics

Wolfson Microelectronics is a global leader in the supply of high performance mixed-signal semiconductors to the consumer electronics market.

Renowned worldwide for our high performance audio and ultra low power consumption, Wolfson delivers the audio technology at the heart of many of the world's highest profile digital consumer goods. In the home, in the office and on the move, our innovative products can be found in a wide spectrum of end applications, including mobile phones, portable media players, portable navigation devices, digital still cameras, flat panel televisions, gaming consoles, sound systems, all-in-one printers and scanners, automotive infotainment systems and bluetooth headsets.

Xilinx

Xilinx, Inc. (NASDAQ: XLNX) is the worldwide leader in programmable solutions, with more than 50% market share and $1.9B in revenues in 2008. Xilinx award-winning products — silicon, software and IP — enable designers to drastically reduce time-to-market in a variety of end markets, including aerospace/defense, automotive, consumer, industrial, networking and telecommunications. For more information, see www.xilinx.com .

5.3   Additional Exhibitors

Elsevier

Elsevier is a world-leading publisher of scientific, technical and medical information products and services. Working in partnership with the global science and health communities, Elsevier's 7,000 employees in over 70 offices worldwide publish more than 2,000 journals and 1,900 new books per year, in addition to offering a suite of innovative electronic products, such as ScienceDirect (http://www.sciencedirect.com/), MD Consult (http://www.mdconsult.com/), Scopus (http://www.info.scopus.com/), bibliographic databases, and online reference works.

Academic Press, an Elsevier company, is well known for publishing high quality books in signal processing which include Mallat: A Wavelet Tour of Signal Processing, 3rd edition and Theodoridis: Pattern Recognition, 4th edition. Academic Press has just launched a new book series with EURASIP.

Hindawi

Hindawi is a rapidly growing academic publisher with 150+ Open Access journals covering all major areas of science, technology, and medicine, and a book publishing program that spans all scholarly disciplines. All articles published in Hindawi journals are open access and distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. Hindawi's journals maintain the highest standards of peer review, with more than 6,000 internationally-recognized Editors serving on the Editorial Boards of Hindawi's journals. In addition, a number of Hindawi's journals are published in association with a scholarly society. The majority of Hindawi's journals are included in one or more of the leading abstracting and indexing databases, including the Science Citation Index, Scopus, PubMed, INSPEC, Mathematical Reviews, and Chemical Abstracts.

EUSIPCO 2010, Aalborg

EUSIPCO 2010 will be held in Aalborg, Denmark. For a call for papers, please see the back of this programme booklet on page 97.

5.4   Meeting Brokerage Event

At this year's conference we are running a meeting brokerage service sponsored by the UK Electronics Knowledge Transfer Network (E-KTN). This event allows academic, industry and Government attendees to schedule appointments/meetings for 20 minutes at the conference with other interested persons attending the conference.

Times and Location. The arrangement of meetings will commence on August 18, 2009, while the meetings will be scheduled to run in the Brokerage Cafe at EUSIPCO 2009 at the following times:

- Wednesday, August 26 2009, 13:00 - 17:30

- Thursday, August 27 2009, 13:00 - 17:30

- Friday, August 28 2009, 13:00 - 17:00

Joining Instructions To join the meeting brokerage event, the EUSIPCO 2009 conference website provides instructions at `www.eusipco2009.org/Meeting-Brokerage-g.asp` for the following three steps:

(1) Visit the EUSIPCO brokerage registration at the E-KTN website. A link to this website is provided `www.eusipco2009.org/Meeting-Brokerage-g.asp`)

(2) Click on "Participate in Brokerage Event". You will then be asked to either login or register with the E-KTN. Register (if you are not already a member of the E-KTN this is free and will take about 2 minutes.)

(3) Once you have activated your account, click on the above link under step 1, then login,and you will now be able to create your profile ready to use for the brokerage event. Create a profile of about 30-100 words of who you are, who your company / institution / organisation is, and perhaps the profile of who you might like to make contact with. You can add your mobile phone number if you want alerts on meetings to be sent to your mobile phone as well as to your email. The more precise you are in formulating your profile, the more likely you will be to attract good meeting partners during the brokerage session!

What happens after I put up my profile? On 18th August 2009, the meeting booking tool will open. We will send you an e-mail to remind you, and you will be asked to login, review the other participants who have registered, and schedule meetings with them. You will be able to search for partners by company or by person. New profiles can still be added . 20 minute meetings are then set up at specific tables for the dates you request your meetings at the "Brokerage Cafe" at the conference. Remember, other people will also request meetings with you, and it is very important that you either confirm or reject these requests to enable the process to flow smoothly. You will be alerted of new meetings requests by SMS and email.

What can I get from this Brokerage? If you are a university, you can perhaps look for industry partners; or if you are a company you can review and introduce your sales, services, or look for EU partners perhaps; if you are a researcher looking for a job, you can let people know you are interested in employment and try and organise "interviews" (bring your CV). There are no limits. The aim of the event is networking.

Do I need to take meetings if asked when the booking tool opens? No, you can decide when your receive the request. Of course, the whole point is to enable meetings and networks, therefore you might choose to have just one or two strategic meetings over the event, or perhaps 4 or 5, or if you a company marketing director ... 10 or more! We look forward to you participating in this.

Acknowledgement. The EUSIPCO Organising Committee would like to thank the UK Electronics Knowledge Transfer Network (E-KTN) and its chief executive Ashley Evans for their sponsorship and the provision of this tool.

6   Social Programme

6.1   Civic Reception — Glasgow City Chambers

The City of Glasgow has invited all registered conference participants to a civic reception in the Glasgow City Chambers on Tuesday, August 25, 2009 from 7pm onwards. The reception ends at around 9pm.

The City Chambers are on George Square, Glasgow's central square, and home to the Lord Provost (lord mayor) and the city council and government.

A grand and imposing edifice overlooking George Square, the City Chambers is an impressive symbol of Glasgow's political strength and historical wealth. Completed in 1888, the City Chambers has for over a hundred years been the headquarters of successive councils serving the City of Glasgow.

Access to the civic reception is free for all registered conference participants. Please bring your conference badge for admission into the City Chambers.

6.2   Conference Banquet — Kelvingrove Art Gallery & Museum

The building of the Kelvingrove Art Gallery and Museum was partially financed by the 1888 International Exhibition held in Kelvingrove Park, designed by Sir John W. Simpson and E.J. Milner Allen and opened as the central building of another International exhibition in 1901. The Kelvingrove Art Gallery is designed in Spanish Baroque style and is — like much of Glasgow's architecture — built from local red sandstone.

The Kelvingrove Art Gallery houses one of Europe's great civic art collections. Since its refurbishment in 2006 the museum is the most popular free-to-enter visitor attraction in Scotland, and the most visited museum in the United Kingdom outside London. It is located on Argyle Street, in the West End of the city, on the banks of the River Kelvin (opposite the architecturally similar Kelvin Hall). It is adjacent to Kelvingrove Park and is situated immediately beneath the main campus of the University of Glasgow on Gilmorehill.

The museum's collections came mainly from the McLellan Galleries and from the old Kelvingrove House Museum in Kelvingrove Park. It has one of the finest collections of arms and armour in the world and a vast natural history collection. The art collection includes many outstanding European artworks, including works by the Old Masters, French Impressionists, Dutch Renaissance, Scottish Colourists and proponents of the Glasgow School. Most notably, the museum houses Christ of Saint John of the Cross by Salvador Dalí, which was purchased by the City of Glasgow from Dalí himself.

For the Conference Banquet in the Kelvingrove Art Gallery and Museum, you require a separate banquet ticket, which can be purchased as part of the conference registration or separately at the conference registration desk at the Glasgow Royal Concert Hall, subject to availability.

We will depart by taxi flotilla from the North Entrance of the Glasgow Royal Concert Hall at 7pm. Taxis are an exciting and common way to travel around the city! Please show your banquet ticket to the driver for a free ride to and from the Conference banquet, and make use of car pooling as best as possible — taxis take up to five passengers.

The banquet commences at 7:30pm with a drinks reception in the Galleries, followed by dinner, awards, and entertainment. The banquet will finish at around 11:30pm. Pubs in the adjacent Kelvinhall area and the city centre are open until late/early!

6.3   Day Trips and Excursions

If you or your accompanying guests would like to book sightseeing tours while in Glasgow, please go to the Scottish Tours website. We strongly recommend you book on-line in advance to guarantee a seat. Tours can also be booked at Buchanan Bus Station, across from the conference venue, subject to availability.

7 EUSIPCO 2010 Call for Papers

Organising Committee

General Chair:
Søren Holdt Jensen
Aalborg University

General Co-Chair:
Mats Viberg
Chalmers University of Technology

Technical Co-Chairs:
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KTH Royal Institute of Technology

Jan Larsen
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Lars Kai Hansen
Technical University of Denmark

Marc Moonen
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Tutorials:
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Visa Koivunen
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Aalborg University

Jan Østergaard
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Exhibits:
Zheng-Hua Tan
Aalborg University

CALL FOR PAPERS
2010 European Signal Processing Conference (EUSIPCO-2010),
August 23-27 2010, Aalborg, Denmark

The 2010 European Signal Processing Conference (EUSIPCO-2010) is the 18th of its kind organized by the European Association for Signal, Speech, and Image Processing (EURASIP). The conference will be held at Aalborg Congress & Culture Centre in Aalborg, Denmark and is organized by Aalborg University. The focus will be on signal processing theory, algorithms, and applications. Papers will be accepted based on quality, relevance, and novelty and accepted papers will be published in the proceedings of EUSIPCO-2010 as well as presented at the conference.

Areas of Interest
Submissions are invited in, but not limited to, the following areas:
* Audio and electroacoustics
* Design and implementation of signal processing systems
* Multimedia signal processing
* Speech processing
* Image and video processing
* Signal estimation and detection
* Sensor array and multi-channel processing
* Signal processing for communications
* Nonlinear signal processing
* Signal processing applications

Submission
Procedures to submit a paper, proposal for special sessions and tutorials are detailed at www.eusipco2010.org. Submitted papers must be camera-ready, no more than five pages long, and conforming to the format specified on the EUSIPCO-2010 website.

Important Dates
* Proposals for special sessions December 4, 2009
* Proposals for tutorials February 5, 2010
* Electronic submission of papers February 5, 2010
* Notification of acceptance April 30, 2010
* Submissions of camera-ready papers May 28, 2010

www.eusipco2010.org

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