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## Editorial

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**Biographical notes:** Dimitrios A. Karras received his Diploma and MSc Degree in Electrical Engineering from the National Technical University of Athens (NTUA), Greece in 1985 and a PhD Degree in Electrical and Computer Engineering, from the NTUA in 1995, with honours. Since 2004 he has been with the Chalkis Institute of Technology, Automation Dept., Greece as Professor in Digital Systems and Signal Processing as well as with the Hellenic Open University as Visiting Professor in Communication Systems. He has published more than 50 journal papers in pattern recognition, image/signal processing, neural networks and bioinformatics and more than 140 research papers in international conferences. His research interests span pattern recognition and neural networks, image and signal processing and systems, biomedical systems, communications, networking and security. He has served as program committee member, program and general chair in many international workshops and conferences in signal, image and automation systems. He is Editor in Chief of the International Journal IJSISE.

G. Giakos is a Faculty in the Department of Electrical, Computer and Biomedical Engineering, at Akron University, OH, USA. He is the Director of Imaging and Surveillance Technologies, Molecular Nanophotonics, and Applied Nanosciences Laboratories. He received the Laurea Degree in Applied Physics from the University of Turin, Italy (1978), a Graduate Degree in Nuclear Instrumentation from the University of Edinburgh (UK), a MS Degree in Nuclear Space Physics from Ohio University (1985), and a PhD Degree in Electrical and Computer Engineering from Marquette University, Milwaukee, WI, (1991). He holds 15 US and international Patent Awards and has published more than 150 peer-review papers and journal publications. He is the recipient of a Distinguished Faculty Fellow Award, from the Office of Naval Research. He is the Editor in Chief, of the *International Journal IJSISE*, Associate Editor of the *IEEE Transactions on Instrumentation and Measurement*, Chairman of the TC-19 IEEE Technical Committee and General Chairman of the IEEE IST International Workshops.

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The present issue of the *International Journal of Signal and Imaging Systems Engineering* (IJSISE) is the very interesting double issue 3&4, V1, 2008 covering many aspects in the field of signal/image processing and systems engineering. It contains 13 regular papers.

The first paper by Fredric M. Ham et al. presents an important classification system for discriminating different infrasound events using a Parallel Neural Network Classifier Bank (PNNCB) consisting of radial basis function networks, involving a unique classifier architecture and very interesting pre-processing scheme.

The second one by Eric Dahai Cheng and Massimo Piccardi presents a 'cumulative colour histogram transformation' algorithm, which is capable of coping with

the typical illumination changes occurring in a surveillance scenario, for disjoint camera track matching of moving objects.

Next, Suneet Grover et al. present a novel and interesting method for filling-in the missing information in images and videos capable of reconstructing the structure as well as the texture in images/videos.

The fourth paper by T. Tuithung et al. develops a new approach of Motion-Compensated JPEG-2000 video compression using principal MPEG-2 properties as well as JPEG-2000 encoding for spatial compression.

In the sequel, the fifth paper by I. Gerace et al. deals with a fundamental micro-electro-phoretic technique used to study the damage caused by genotoxic drugs, namely the

comet assay method. Based on a suitable modification of the GNC algorithm the authors apply it successfully to the biological comet assay method.

The next paper by F. Ababsa and M. Malle presents new solutions for the problem of estimating the camera pose using particle filtering framework. A tracking framework for points and lines features is proposed and the sensitivity of the technique is analysed in the presence of outliers.

JPEG is a popular image compression standard used for compressing continuous-tone images. The seventh paper by A. Vasuki and P.T.Vanathi illustrates how an image could be compressed based on JPEG, but in place of Huffman coding, the authors propose to apply Run Length Encoding/Vector Quantisation and proper filtering for reducing blocking artifacts.

The eighth paper by B. Sankaragomathi et al. explores the performance when applying fractal coding on audio data. A review of fractal coding is presented too. The authors implement a fractal audio coding scheme.

Next, detailed analysis of the visual properties of the HSV (Hue, Saturation and Intensity Value) colour space is presented by A. Vadivel et al. Moreover, relative importance of hue and intensity is defined based on the results of these analyses, leading to suggest a weight function for estimating the degree by which any pixel is colour dominant or greyscale dominant.

The tenth paper by Praveen Kumar et al. presents a low cost framework for combining multimodal information (visible, IR and audio signal) for small area surveillance tasks and security applications. The proposed system is shown to capture different aspects of the environment using audio and video information.

In the sequel an approach to improve restoration of an image degraded by a blur function and corrupted by random

noise is proposed by S. Uma and S. Annadurai using a Modified recurrent Hopfield Neural Network (MRHNN) model.

The next paper by M. Ganguly and C.K. Sarkar presents the development of a self assembled quantum dot structure as a high speed signal processing platform. In this paper a generalised two layer quantum dot model is proposed for image processing, in which two layers are coupled electrically. The structure is similar to the Cellular Neural Network (CNN).

Finally, Nicholas Assimakis and Maria Adam propose a FIR implementation for the steady state Kalman filter. The method requires the knowledge of a subset of previous time measurements. The proposed algorithm is faster than the classical one, especially for large estimation time and it is applicable to periodic models.

We hope that this double issue, with such a rich content, will be interesting, meeting your expectations. Please note that this issue ends the first period of the journal, receiving and controlling papers review process via e-mails, the difficult and ad-hoc period of the journal. We have noticed that such a procedure slows down too much the publication process with all of us complaining. We apologise for the long delay in publishing several papers but we think the final outcome justifies, at least partially, that long waiting period. Therefore, now all papers are submitted and controlled through the Online System (OSPEERS), which significantly speedups and most importantly warranties the whole process. There is no need to say again that all your comments will be indispensable for improving the quality of this journal and therefore, they are more than welcome! Of course your high quality research reports are welcome too, for consideration for publication after a reasonably short peer review process, now even more possible through OSPEERS!