

## Editorial

# Fuzzy Functions, Relations, and Fuzzy Transforms 2013

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In this issue which continues the series of these specials devoted to fuzzy functions, relations, and fuzzy transforms, these concepts must be here intended in the widest sense, as noted in the papers whose contents can be resumed in the following way.

In a paper by F. Di Martino and S. Sessa, two algorithms for constructing a GOP sequence of colour frames (differentiated in intra, predictive, and bidirectional in the space RGB) are proposed. A classification of these frames is made by means of a similarity measure defined by the Lukasiewicz  $t$ -norm. Furthermore, they are divided in subframes called blocks and are compressed via direct fuzzy transforms. These blocks are decompressed with the inverse fuzzy transforms; successively they are reassembled for giving the reconstructed frames whose PSNR (calculated as mean in the three bands R, G, and B) is fully comparable with the PSNR obtained by using the traditional fuzzy transforms and MPEG-4 methods.

In the paper by L.-C. Chang et al., the authors propose a fuzzy inference system for management of surface and subsurface resources water. A detailed discussion of all fuzzy rules and related parameters is presented as well.

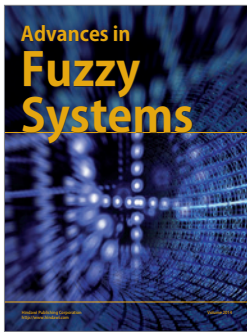
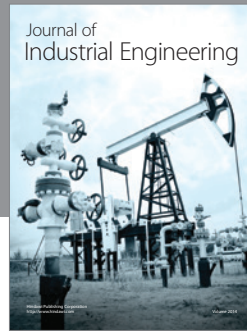
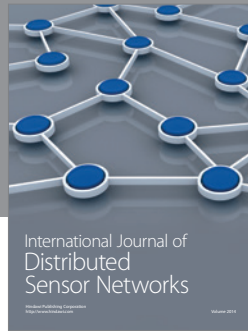
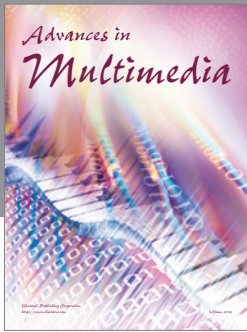
In another paper by F. Di Martino and S. Sessa, the authors use the fuzzy transforms for matching problem with many grey images extracted from a well-known dataset. The authors prove that their results are analogous to those obtained with the GEFS and SEFS based methods contained in their previous work for images of square dimensions, but the presented method is extended to images of arbitrary dimensions. Experiments are performed also over colour images.

In the paper by B. D. Pant et al., the authors prove a common fixed point theorem for two pairs of compatible and subsequentially continuous (or, in alternative, subcompatible and reciprocally continuous) maps under a suitable contractive condition in a fuzzy metric space. Two numerical examples support their results.

In the paper by P. Vlačánek, the author shows that the choice of the basic functions in the reconstruction of images based on fuzzy transforms is crucial. Indeed, he analyzes how to improve this choice by finding the best basic functions also for damaged testing images and by proposing an algorithm for reconstruction.

We hope that these topics are stimulating for wide audience.

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