



## SOFA 2014: Special Session Proposal

### Soft Computing & Fuzzy Logic in Biometrics

(SCFLB – SOFA - 2014)



Chairs: dr. Nicolaie Popescu-Bodorin & dr. Valentina E. Balas

The aim of this special session is to present interdisciplinary state-of-the-art results in the fields of Biometrics, Soft Computing and Fuzzy Logic and to get together researchers that are active in these three areas. In short, since the partitioning of comparisons space in *genuine*, *imposter* (and eventually *undecidable* pairs) is *f-granular*, giving a biometric decision using today's state-of-the-art biometric systems means, in fact, giving a *fuzzy biometric decision*. In a simplified view, the cumulatives of the imposter and genuine score distributions are the fuzzy indicators of the two (or three) *f-granules*, whereas the point of equal error define a defuzzification in which the security risks (expressed as False Accept Rate) and user comfort risks (expressed as False Reject Rate) are balanced. When speed-precision balance is at stake, regardless the biometric traits used in today's state-of-the-art biometric systems, analyzing biometric decision with fuzzy instruments and processing the biometric data with soft computing instruments both illustrate the direct connection and causality between imprecision and speed in defining digital identity – on the one hand, and the security or comfort risks assumed in these systems – on the other. From this perspective, the special session aims to provide an opportunity for international researchers in the field of Biometrics to share and review recent advances in better defining the fuzzy biometric digital identity toward minimizing the security and comfort risks. Submissions reflecting both new theoretical advances and new highly experimental works that use the largest publicly available biometric databases are especially encouraged. A list of potential contributors includes researchers from Romania, Hungary, Poland, China, Coreea, United Kingdom, Japan and USA.

Suggested topics of **SCFLB** special session include but are not limited to Ssoft computing & fuzzy techniques for face / eye / ear detection; for iris segmentation (pupil detection, limbic boundary detection); for face / iris / ear / fingerprint / palm understanding; (essential points / features detection / definition); for face / iris / ear / palm / fingerprint encoding; for face / iris / ear / palm / fingerprint template matching; for face / iris / ear / palm / fingerprint template classification; Fuzzy scoring schemes for multi-sample based biometric systems; for multi-classifier fusion in biometrics; for multi-biometrics fusion; Crisp/Fuzzy Biometric Theory and Practice: Aging, Verification, Identification, Fusion; All of these topics are considered for online or offline biometric systems, as appropriate.

#### Program Committee:

President: Adrian Stoica (NASA Jet Propulsion Laboratory, Pasadena, CA, USA);

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- Zahid Akhtar (University of Udine, Italy);
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- Shan Suganthan (Smart Sensors Ltd, UK);
- Bozhao Tan (Silicon Valley Labs, Texas Instruments, USA);
- Jianguo Wang (MorphoTrak, USA);

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Deadline for paper submission: 31 May, 2014.

Paper submission: <http://www.sofa2014.org/> (online submission system) & [bodorin@ieee.org](mailto:bodorin@ieee.org) (backup copy)

Registration: <http://www.sofa2014.org/registration.php>