

# Call for Papers for a Special Session on Advanced Type-2 Fuzzy Logic Methods and Technologies

organized in conjunction with

The 13th International Conference on Artificial Intelligence and Soft Computing  
ICAISC 2014, Zakopane, Poland on June 1-5, 2014

<http://www.icaisc.eu/>

Fuzzy Logic Systems (FLSs) are known to form adequate methodology for designing systems that are able to deliver satisfactory decisions immune to uncertainty and imprecision. There are many sources of uncertainty in FLSs some of which can translate into uncertainties about membership functions of fuzzy sets. Consequently, fuzzy sets of type-2 have the capacity to model the membership imprecision. The use of type-2 fuzzy sets in logic systems should follow from limited perception or lack of knowledge about the actual membership function. However, there are several related concepts for handling membership uncertainty. For example, lack of attributes is usually solved by rough approximations of fuzzy sets. The opposed concept relies on the use of possibility and necessity measures of fuzzy events. Both of them can be modeled by interval type-2 FLSs. Besides, fuzzification of attributes can be handled with fuzzy-rough approximation of fuzzy sets, and some solutions may lead to construction of general (not-interval) type-2 fuzzy sets.

To date, mostly interval type-2 fuzzy sets have been used to construct many concrete working designs of fuzzy logic systems. Unfortunately, most of such realizations are burdened with the same level of uncertainty regarding membership functions, which makes their performance not satisfactory improved beyond that of the classical fuzzy logic systems. However, membership uncertainty taken into account for some particular system parameters, for which we have only limited perception, undoubtedly, brings more reliable responses of type-2 (and other fuzzy-valued) fuzzy systems. At present, there is lack of efficient applications of general type-2 fuzzy sets, since the applicability of general type-2 FLSs due to their computational complexity still raises a lot of skepticism.

The aim of this special session is to provide a forum for the academic community and industry to discuss the recent advances on the type-2 fuzzy logic application in the various domains. These include, but are not limited to, using type-2 fuzzy systems (as well as other formulations of uncertain fuzzy logic systems) in control, pattern recognition, signal processing, finance, industry, healthcare etc.

All accepted papers will be published in the Springer Lecture Notes in Artificial Intelligence Series. Submission of papers, in accordance with Springer guidelines, is the same as for the ICAISC'2014. The deadline is: November 20, 2013.

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