Journal of Fuzzy Logic and Modeling in Engineering (JFLME) is a new but well-established journal published on fuzzy set theory and applications with a strong international editorial board and anonymous referee list. JFLME will always be a journal where innovative articles will be accepted and published, contributing to science with a fast but accurate, fair, and reliable review process. It is our goal to make JFLME a journal with valuable indexes such as WOS, SCOPUS, SCI-E, and SCI in a short time, thanks to the quality articles that will be accepted after peer-reviewing. As the JFLME journal is included in the databases of university libraries, the citations of its published articles will accelerate this process.

Fuzzy set theory is expanding rapidly with new fuzzy set extensions developed in the literature. Each new extension offers researchers new research opportunities, both for new theoretical works and applications. Zadeh’s ordinary fuzzy sets are represented by a degree of membership, \( \mu \), and a degree of non-membership which is the complement of membership, \( 1-\mu \). To deal with the weaknesses of ordinary fuzzy sets, they have been extended to several new types by various researchers defining membership functions by more detailed parameters. Type-2 fuzzy sets handle the vagueness in membership functions as an extension of ordinary fuzzy sets as a third dimension. Intuitionistic fuzzy sets were introduced by Atanassov, which are composed of a degree of membership and a degree of non-membership whose sum is not necessarily equal to 1. Their objective is to consider the hesitancy of experts. Hesitant fuzzy sets (HFSs) introduced by Torra (2010) have been used to handle the potential membership degrees of an element in a fuzzy set. After intuitionistic type-2 fuzzy sets (IFSs) are proposed by Atanassov (1989), Yager (2013) called them Pythagorean fuzzy sets (PFSs) represented with a larger domain area for membership and non-membership degrees. q-rung orthopair fuzzy sets (Q-ROFSs) developed by Yager (2017) are the generalization of IFSs and PFSs. Neutrosophic sets developed by Smarandache (1998) involve degrees of truthiness, indeterminacy, and falsity for each element in the universe. The sum of these independent three degrees can be at most equal to 3. Picture fuzzy sets and spherical fuzzy sets characterized by the degrees of membership, non-membership, and hesitancy for each element in a set have been introduced by Coung (2015) and by Kahraman and Kutlu Gündoğdu (2018), respectively.

This issue includes 6 innovative research papers, which are written by well-known researchers in their research areas. The first paper extends the theory of intermediate quantifiers (i.e., expressions such as “most, almost all, many, a few,” etc.) to deal with partially defined fuzzy sets. It extends algebraic operations that are used in fuzzy logic by the additional value “undefined.” Then it introduces intermediate quantifiers using the former. The theory of intermediate quantifiers is developed as a special theory of higher-order fuzzy logic. The second paper develops a global warming indicator model under a fuzzy system. It is the light of the sun that environmental pollution is responsible for the cause and immediate effect of global warming. A literature survey is presented over the three major parameters of the environment namely oxygen, fresh water, and surface temperature exclusively. Utilizing the data set, the authors construct appropriate membership functions for the three major components of the environment. Then applying goal programming, they construct a fuzzy global warming indicator model subject to some goal constraints with respective priority vectors. In the third paper, the authors introduce the cut-set theory into the kernelled possibilistic C-means clustering (KPCM) and propose a novel cutset type KPCM (C-KPCM) algorithm to solve the coincident clustering problem of the KPCM. In the C-KPCM, the memberships of some data samples in a cluster core that is generated by the cut-set theory are selected. Then the values of the selected memberships are modified in the iterative process to introduce the between-class relationship in the KPCM. In the fourth paper, the authors propose a new fabric recommendation model to quickly realize fabric selection from non-technical fashion features only and predict fashion features from any fabric’s technical parameters. This approach is extremely significant for fashion designers who do not completely master fabric technical details. The proposed fabric recommendation model is built by exploiting designers’ professional knowledge and consumers’ preferences. The authors first use fuzzy sets for formalizing and interpreting measured technical parameters and linguistic sensory properties of fabrics and then model the relation between the technical parameters and sensory properties by
using rough sets. The fifth paper constructs a model that leads organizations to their fourth industrial revolution transition. Companies, especially small and medium-sized ones need clear, agile, and efficient road maps because of their limited resources. Lack of a procedure that guides organizations in the right way is the motivation of this study. A linguistic fuzzy inference system is used in this study. Concepts are determined and relations between concepts with if-then rules are constructed according to the expert opinions. The last paper proposes a fuzzy form of the Euler method to solve fuzzy initial value problems. The developed method is based on fuzzy arithmetic. The solution to this method is readily available in the form of fuzzy-valued functions. The method does not require rewriting fuzzy differential equations into a system of two crisp ordinary differential equations.

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