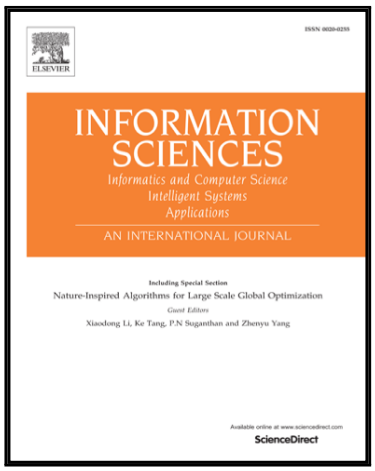
Accepted Manuscript




# Adaptive fuzzy interpolation based on ranking values of interval type-2 polygonal fuzzy sets

Shyi-Ming Chen , Stenly Ibrahim Adam

PII: S0020-0255(18)30005-7
DOI: 10.1016/j.ins.2018.01.003
Reference: INS 13357

To appear in: *Information Sciences*

Received date: 24 September 2017
Revised date: 21 October 2017
Accepted date: 3 January 2018

Please cite this article as: Shyi-Ming Chen , Stenly Ibrahim Adam , Adaptive fuzzy interpolation based on ranking values of interval type-2 polygonal fuzzy sets, *Information Sciences* (2018), doi: 10.1016/j.ins.2018.01.003

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ACCEPTED MANUSCRIPT

# Adaptive fuzzy interpolation based on ranking values of interval type-2 polygonal fuzzy sets

**Shyi-Ming Chen[*, a], Stenly Ibrahim Adam[b]**

[a] *Department of Computer Science and Information Engineering, National Taiwan University of Science and Technology, Taipei, Taiwan*
[b] *Department of Computer Science, Universitas Klabat, Airmadidi, Indonesia*

***Corresponding author.**
**E-mail address: smchen@mail.ntust.edu.tw (S.-M. Chen).**

## Abstract

In recent years, some adaptive fuzzy interpolative reasoning (AFIR) methods have been proposed to deal with contradictions occurred during fuzzy interpolation processes. However, the degrees of consistency of the AFIR results of the existing AFIR methods are too low. Moreover, the existing AFIR methods are based on type-1 fuzzy sets (T1FSs), which cannot deal with AFIR using interval type-2 fuzzy sets (IT2FSs), where IT2FSs are more suitable to represent the fuzziness of information than T1FSs. In this paper, we propose a new AFIR method based on the ranking values of interval type-2 polygonal fuzzy sets (IT2PFSs). We also apply the proposed AFIR method based on IT2PFSs to deal with the diarrheal disease prediction problem. The proposed AFIR method based on the ranking values of IT2PFSs can overcome the shortcomings of Yang and Shen's AFIR method (2011) and Cheng *et al.*'s AFIR method (2016) because it gets a higher consistency of the AFIR results in terms of the degree of similarity between the AFIR results and it deals with AFIR based on IT2PFSs rather than T1FSs.

***Keywords:*** Adaptive fuzzy interpolative reasoning; Fuzzy interpolative reasoning; Interval type-2 polygonal fuzzy sets; Interval type-2 trapezoidal fuzzy sets.

Download English Version:

https://daneshyari.com/en/article/6856703

Download Persian Version:

https://daneshyari.com/article/6856703

Daneshyari.com