

A NEW CLUSTERING SCHEME FOR CRISP DATA BASED ON A MEMBERSHIP FUNCTION AND OWA OPERATOR

Murat Alper Basaran^{*†}, Alparslan A. Basaran[‡], Biagio Simonetti[§]
and Antonio Lucadamo[§]

Received 12:01:2012 : Accepted 28:08:2012

Abstract

Clustering is a very important tool which is applied in several areas, ranging from pattern recognition and marketing to chemistry. A majority of the clustering algorithms classify observations based on distance measures. According to the literature, if the units of measurement of the variables are different, then the result of the clustering is said to be unreliable. Even sometimes, distance based clustering shows contradictory results when measurement units are closely related. Therefore, a new clustering scheme is proposed in this paper based on combining the membership function and *OWA* operator when classic clustering seems to have failed. For this purpose, a real data set from chemistry with ten variables are used to exemplify the new clustering scheme.

Keywords: Fuzzy membership function, Fuzzy set, OWA operator, Cluster analysis.

2000 AMS Classification: 03 E 72, 91 C 20.

^{*}Akdeniz University, Faculty of Engineering at Alanya, Management Engineering Department, Alanya, 07425 Turkey. E-mail: muratalper@yahoo.com

[†]Corresponding Author.

[‡]Hacettepe University, Faculty of Economics and Administrative Science, Department of Public Finance, Ankara, 06800 Turkey. E-mail: aab@hacettepe.edu.tr

[§]University of Sannio, Department of Economical, Juridical and Social System Studies, Benevento, 82100 Italy. E-mail: (B. Simonetti) simonetti@unisannio.it (A. Lucadamo) alucadamo@unisannio.it