UNIVERSITI TEKNOLOGI MARA

TECHNICAL REPORT

ANALYTICAL COMPARISON OF FUZZY SIMILARITY METHODS

P7S18

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IN THE NAME OF ALLAH, THE MOST GRACIOUS, THE MOST MERCIFUL

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TABLE OF CONTENTS

ABSTRACT

Fuzzy similarity methods have been widely used for decision making in numerous application domain. However, there is lack of specific guideline in choosing the most suitable method thus leading to struggles in solving the problem. This is particularly true for researcher or user who are not familiar with fuzzy similarity methods as they might apply unsuitable method which may lead to unreliable result and possibly invalid outcomes. In this research, Pearson correlation is used to determine the relationship between fuzzy similarity methods. Furthermore, the analytical behavior between methods will be compared and classified. Fourteen methods have been chosen to be a part of the process in computing the fuzzy similarity. Experiments on fuzzy similarity methods had been conducted based on four types of fuzzy sets which are two distinct trapezoidal fuzzy sets, two distinct triangular fuzzy sets, trapezoidal and triangular fuzzy sets and non-convex fuzzy sets. Outcomes from each experiment are analyzed based on graphical analysis and Pearson correlation coefficient. For further validation, the outcomes will be analyzed based on Analysis of Variance (ANOVA). The findings of this research indicate that the fuzzy similarity methods can be classified into three categories which are methods with similar behavior, methods with distinct behavior and methods with opposite behavior.