

## Accepted Manuscript

Title: Using Differential Evolution for Improving Distance Measures of Nominal Values

Authors: Diab M. Diab, Khalil El Hindi

PII: S1568-4946(17)30722-6  
DOI: <https://doi.org/10.1016/j.asoc.2017.12.007>  
Reference: ASOC 4603

To appear in: *Applied Soft Computing*

Received date: 6-8-2017  
Revised date: 5-12-2017  
Accepted date: 6-12-2017



Please cite this article as: Diab M.Diab, Khalil El Hindi, Using Differential Evolution for Improving Distance Measures of Nominal Values, Applied Soft Computing Journal <https://doi.org/10.1016/j.asoc.2017.12.007>

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.

# Using Differential Evolution for Improving Distance Measures of Nominal Values

Diab M Diab\*, Khalil El Hindi  
Department of Computer Science  
College of Computer and Information Sciences  
King Saud University,  
P.O. Box-51178, Riyadh-11543,  
Kingdom of Saudi Arabia

E-mail: ddiab@ksu.edu.sa, khindi@ksu.edu.sa

## Highlights

- Transform the conditional probability estimation problem into an optimization problem, and exploit three meta-heuristic approaches to solve it
- Using three metaheuristic algorithms to solve the probability estimation problem of distance measures of nominal values; two population-based (i.e., MPDE and GA) and one single-based solution (i.e., SA).
- We propose a new fine-tuning method which we name modified selective fine-tuning (MSFT) method, a new hybrid fine-tuning method (i.e., a combination of two fine-tuning methods).
- Propose three initial population generators to create the initial population for the MPDE
- The proposed methods significantly improve ISCDM, and VDM.
- Using MPDE\_MSFT achieves better results than the other proposed methods.

## Abstract

Enhancing distance measures is the key to improve the performance of instance-based learning (IBL) and many machine learning (ML) algorithms. The value difference metrics (VDM) and inverted specific-class distance measure (ISCDM) are among the top

Download English Version:

<https://daneshyari.com/en/article/6904055>

Download Persian Version:

<https://daneshyari.com/article/6904055>

[Daneshyari.com](https://daneshyari.com)