EVOLUTIONARY ARTIFICIAL NEURAL NETWORK FOR SELECTING FLEXIBLE MANUFACTURING SYSTEMS UNDER DISPARATE LEVEL-OF-SATISFACTION OF DECISION MAKER

Arijit Bhattacharya

The Patent Office, Bouddhik Sampada Bhawan
CP-2, Sector V, Salt Lake, Kolkata – 700 091 West Bengal, India
arijit.bhattacharya2005@gmail.com

Ajith Abraham

School of Computer Science and Engineering
Yonsei University
134, Shinchon-dong, Seoul 120-749, Korea

Pandian Vasant

Universiti Teknologi Petronas
31750, Tronoh, BSI, Perak DR, Malaysia

Crina Grosan

Department of Computer Science
Babes-Bolyai University
Kogalniceanu 1, 400084, Cluj-Napoca, Romania

ABSTRACT. *This paper proposes the application of Meta-Learning Evolutionary Artificial Neural Network (MLEANN) in selecting the best flexible manufacturing systems (FMS) from a group of candidate FMSs. Multi-criteria decision-making (MCDM) methodology using an improved S-shaped membership function has been developed for finding out the "best candidate FMS alternative" from a set of candidate-FMSs. The MCDM model trade-offs among various parameters, viz., design parameters, economic considerations, etc., affecting the FMS selection process under multiple, conflicting-in-nature criteria environment. The selection of FMS is made according to the error output of the results found from the proposed MCDM model.*
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1. **Introduction.** Flexible manufacturing system (FMS) is a set of integrated computer controlled automated material handling equipments and numerical controlled machine tools capable of processing a variety of machine parts. FMSs are popular in industries [10, 11, 15] due to its competitive advantages, e.g., flexibility, speed of response, quality, reduced lead-time, reduced labour etc. Manufacturing strategy is purely a choice of alternatives aiming towards better productivity as well as profit thereby maintaining quality of product and responsiveness to customers. In this rapid liberalised economic scenario, the overall objective is to purchase a minimum amount of capacity (i.e., capital