Abstract

Nature-inspired methodologies are currently among the most powerful algorithms for optimization problems. This paper presents a recent nature-inspired algorithm named Firefly algorithm (FA) for automatically evolving a fuzzy model from numerical data. FA is a meta-heuristic inspired by the flashing behavior of fireflies. The rate and the rhythmic flash, and the amount of time form part of the signal system to attract other fireflies. The paper discusses fuzzy modeling for zero-order Takagi-Sugeno-Kang (TSK) type fuzzy systems. Simulations on two well known problems, one battery charger that is a fuzzy control problem and another Iris data classification problem are conducted to verify the performance of above approach. The results indicate that the FA is a very promising optimizing algorithm for evolving fuzzy logic based Systems as compared to some of the existing approaches.

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Index Terms

Computer Science          Fuzzy Systems

Keywords

Fuzzy logic     Firefly algorithm     Rule Base     Nature-inspired optimization     Fuzzy Modeling