ABSTRACT

Genetic-Fuzzy System's Generation and Simplification of a Knowledge Base proposes a methodology to develop a knowledge base for fuzzy systems through the utilization of evolutionary computational techniques. The evolved fuzzy systems are evaluated considering two distinct criteria: performance and interpretability. Another Fuzzy Logic-based methodology for multiobjective problem analysis was also developed in this work and incorporated in GAs fitness evaluation process. The aforementioned systems were analyzed through computational simulations, and the results were compared to those obtained through other methods, in some applications. The proposed methodology demonstrated that the evolved fuzzy systems are capable of not only good performance, but also good interpretation of their knowledge base, thus showing that they can be effectively used in real world projects.

Key Words: Fuzzy systems. Evolutionary computation. Intelligence computation, Multiobjective.