Abstract

In this paper we propose an approach to solve multi-objective structural design problem using basic t-norm based fuzzy optimization programming technique. Here a planer truss structural model in fuzzy environment has been developed. In this structural model formulation, the objective functions are the weight of the truss and the vertical deflection of loaded joint; the design variables are the cross-sections of the truss members; the constraints are the stresses in members. A classical truss optimization example is presented here in to demonstrate the efficiency of our propose optimization approach. The test problem includes a three-bar planar truss subjected to a single load condition. This approximation approach is used to solve this multi-objective structural optimization model. The model is illustrated with numerical examples.

References

Multi-Objective Structural Design Optimization using Fuzzy Optimization Programming based on T-Norm

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Index Terms

Computer Science  Fuzzy Systems

Keywords
Multi-objective Optimization  Triangular Norm  Fuzzy Set  Structural Optimization