Abstract

In this paper, a cooperative Continuous static game (F-CCSG) with fuzzy parameters in the cost function of the player is presented. Through the use of the $\alpha$-level sets of fuzzy numbers, the F-CCSG is converted to the corresponding $\alpha$-CCSG and an extended Pareto optimality concept called the $\alpha$-Pareto optimality is introduced. An algorithm for solving the $\alpha$-CCSG is suggested. The algorithm is based mainly on the reference attainable point (ARP) method introduced by Wang et al., [20] and reference direction (RD) method introduced by Narula et al., [7]. One of the major improvement is the reduction of the number of iterations and hence the computational effort required to obtain the final solution. The stability of the first kind without differentiability corresponding to the final solution is determined. To clarify this approach, a numerical example is given for illustration.
An Interactive Approach for Solving Fuzzy Cooperative Continuous Static Games


Index Terms
Keywords
Game theory; Cooperative continuous static game; Fuzzy numbers; \( \delta \)-cut; \( \delta \)-Pareto optimality; Reference attainable point; Reference direction; Parametric study.