Abstract

This article presents an approach to acquire the solution of multi-objective linear fractional programming problems where the parameters are assumed to be triangular fuzzy numbers. This is done through a fuzzy mathematical programming perspective based on an approximation method using Taylor series. The problem is first formulated into an equivalent deterministic form using the concept of $\alpha$-cuts. The associated membership function of each objective function is formulated using the individual optimal solution and is then converted into a linear function by applying the first order Taylor series. The multi-objective linear fractional programming problem then gets reduced to a linear programming problem by applying fuzzy mathematical programming. To illustrate the computational simplicity and applicability of the proposed approach, a numerical example is solved and the results are compared with existing methods.

References


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Index Terms

Computer Science

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Keywords

Multi-objective linear fractional programming problem, fuzzy mathematical programming, Taylor series, triangular fuzzy number, α-cut