Title: Data-driven adaptive robust optimization with minimax regret criterion: Multiobjective optimization framework and computational algorithm for planning and scheduling under uncertainty

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Data-Driven Adaptive Robust Optimization with Minimax Regret Criterion: Multiobjective Optimization Framework and Computational Algorithm for Planning and Scheduling under Uncertainty

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Highlights

- ARO framework that incorporates conventional robustness and minimax regret criteria
- Solution algorithms for bi-criterion multilevel mixed-integer programming problem
- Innovative applications on planning and scheduling under uncertainty
- Leveraging big data analytics for data-driven decision-making under uncertainty

Abstract

Regret is defined as the deviation of objective value from the perfect information solution, and serves as an important evaluation metric for decision-making under uncertainty. This paper proposes a novel framework that effectively incorporates the minimax regret criterion into two-stage adaptive robust optimization (ARO). In addition to the conventional robustness criterion, this ARO framework also simultaneously optimizes the worst-case regret to push the