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Generalization of the restricted planar location problems: Unified metaheuristic algorithms

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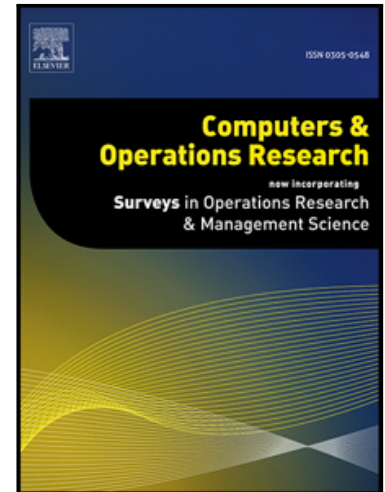
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Highlights

- We introduce the restricted facility location problem with congested regions on the Euclidean plane (RLocP-CR).
- The RLocP-CR generalizes other restricted planar facility location problems (RLocPs) in the literature.
- Three meta-heuristic algorithms, namely simulated annealing, particle swarm optimization, and evolutionary algorithm, are introduced to solve the general problem and its special cases.
- The RLocP instances in the literature are consolidated and used to generate a large number of new test instances.
- For the special cases of the problem, the algorithms are compared with exact and heuristic methods in the literature and favorable results are provided.
- The algorithms show promising performance on solving small and medium size instances as well as large size instances with up to 33,810 customers which are solved for the first time in the RLocP literature.

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