

## Cars Redistribution Optimization Problem in the Free-Float Car-Sharing

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**Abstract :** Free-Float car-sharing is an one-way car-sharing service where cars are available anytime and anywhere in the streets such that no dedicated stations are needed. This means that after driving a car you can park it anywhere. This car-sharing system creates an imbalance car distribution in the cities which can be regulated by staff agents through the redistribution of cars. In this paper, we aim to solve the car-reservation and agents traveling problem so that the number of successful cars' reservations could be maximized. Beside, we also tend to minimize the distance traveled by agents for cars redistribution. To this end, we present a mixed integer linear programming formulation for the car-sharing problem.

**Keywords :** one-way car-sharing, vehicle redistribution, car reservation, linear programming

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