Matching Drivers and Transportation Requests in Crowdsourced Delivery Systems

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Abstract:
While the sales volume of e-commerce transactions is growing rapidly, the traditional concept of packages delivery has been challenged by innovative approaches such as crowdsourced delivery. Using individuals, for example commuters, to deliver packages from senders to receivers can provide several economic and environmental benefits. This paper illustrates an algorithm that automates and optimizes the assignment of drivers to transportation requests by matching them based on transportation routes and time constraints. We evaluated our algorithm by using a simulated setting based on mobility data recorded in a major German city. This paper contributes to theory by giving guidance for future research on matching algorithms for crowdsourced delivery systems and to practice by illustrating an algorithm that can be adapted by existing and new crowdsourced delivery platforms.
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