

This topic is “practice ready.” Yes No

A Trilevel Optimization Model for Resilient Transportation Network Design

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Abstract

We propose a trilevel optimization model for transportation network design, which improves the resiliency of the network against uncertain disruptions. The middle and bottom levels are the network interdiction problem, in which we identify the worst-case scenario disruptions that could lead to a maximal cost to the transportation system. The top level takes the system perspective, which designs the optimal strategy to expand the existing transportation network so that it confronts the worst-case scenario disruptions in the most resilient manner. We also designed an iterative algorithm to solve the trilevel optimization model.

Keywords: Transportation network design—Trilevel optimization model—Resilient network

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