

عنوان مقاله:

(Providing a Robust Heterogeneous Vehicle Fleet Routing Model Based on Artificial Intelligence of Things (AIoT)

مجله انتشار:

مجله ایرانی مطالعات مدیریت, دوره 17, شماره 4 (سال: 1403)

تعداد صفحات اصل مقاله: 16

نویسندگان:

Abdolsalam Ghaderi - Department of Industrial Engineering, Faculty of Engineering, University of Kurdistan, Sanandaj, Iran

Javid Ghahremani Nahr - Department of Industrial Engineering, Faculty of Engineering, University of Kurdistan, Sanandaj, Iran

Saba Safari - Department of Industrial Engineering, Faculty of Engineering, University of Kurdistan, Sanandaj, Iran

خلاصه مقاله:

This paper introduces a novel bi-objective routing model based on Artificial Intelligence of Things (AIoT) principles. Our model not only aims to minimize vehicle transportation costs and prevent time window violations but also endeavors to mitigate environmental pollutants. This study addresses the complex challenge of optimizing routes for heterogeneous vehicle fleets using AIoT technology. Analyzing the bi-objective model using AI tools (MOSCA and NSGA II), we unveil a fascinating trade-off: as energy consumption decreases, system costs increase. Employing robust optimization techniques, we validate the model's performance under pessimistic conditions characterized by rising uncertainty rates. Notably, heightened uncertainty correlates with increased objective function values. Through a series of diverse test cases, we observe that MOSCA demonstrates superior efficiency, notably outperforming in NP, MD, and T indices. Our findings offer valuable insights for practitioners, policymakers, and researchers in the domains of transportation optimization, AIoT, and environmental sustainability.

کلمات کلیدی:

Vehicle routing, Artificial Intelligence of Things, Soft Time Window, Green Logistics, Robust Optimization Method

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/2079149>

