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Call for Papers

Special issue on "Artificial Intelligence for Automation in Freight Transport"

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The *International Transactions in Operational Research* (ITOR) will publish a special issue dedicated to "Artificial Intelligence for Automation in Freight Transport".

During the last decades, the increasing volume of information and operational workload in transportation processes, as well as the need for accurate planning and transport services, resulted in an increasing interest in the automation of transport and related decision-making processes. This automation is characterized by the utilization of computational technologies or automated physical machinery to improve the efficiency of transport operations. Although the focus has long been on internal logistics, e.g. warehousing and sorting centers, it is becoming a more and more frequent topic and key enabler in transportation, such as autonomous trucking, automation of port services, and automated multi-modal transportation planning. Because of this, companies, institutions, and logistics stakeholders are becoming increasingly aware of the benefits and forms of automation to improve their freight transportation processes, but also as a way of reacting more efficiently to changes and disturbances in their daily operations. In this sense, incorporating automation permits more accurate transportation plans, and enables or widens customer and service individualization while, in many cases, reducing operational costs and improving quality of service.

Despite the considerable potential of automation in freight transport, stakeholders have to cope with relevant challenges and barriers preventing the automation of their operations, e.g., getting accustomed to a high degree of technological development, the use of advanced optimization models, the integration of Information and Communication Technologies (ITs), data and knowledge sharing, safety and reliability issues, development and integration of artificial intelligence technologies, etc. Overcoming these barriers requires more research in the combined transportation and artificial intelligence domain, to improve automated processes through systems, platforms, algorithms, and tools. This results in advances in both theoretical and practical aspects as well as technical innovations in several logistics sectors such as last-mile distribution, multi-modal transportation, and maritime logistics. In this context, intending to reflect and report on the latest research and developments on the interplay between artificial intelligence and the automation of freight transport, we organize this special issue entitled "Artificial Intelligence for Automation in Freight Transport".

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The main goal of this special issue is to bring and comprehensively collect cutting-edge research and recent advances in AI and optimization to promote and foster automation in freight transport. This issue will provide readers with high-quality contributions exploring and dealing with optimization problems in the field of transportation while discussing advanced approaches for automating operations. Examples involve the joint use of machine learning and mathematical programming to automate physical processes (robots, drones, automated vehicles), integrating information systems with optimization algorithms to automate decision-making, and developing truly-brained systems to support logistics decisions. This special issue will contribute to the literature with relevant theoretical and practical works advancing the progress of operations research and artificial intelligence towards automation in all types of freight transportation areas.

Authors of selected works from the 12th International Conference on Computational Logistics (ICCL 2021) will be invited to submit an extended version of their ICCL 2021 accepted papers to this special issue. However, this call for papers is also open to the entire community of researchers and practitioners and we encourage submissions from authors that did not participate in the conference, provided that these contributions fit within the scope of this special issue.

Each paper will be peer-reviewed according to the editorial policy of ITOR (http://www3.interscience.wiley.com/journal/118505725/home), published by the International Federation of Operational Research Societies – IFORS. Papers should be original, unpublished, and not currently under consideration for publication elsewhere. Manuscripts should be prepared according to the instructions to authors that can be found on the journal homepage. Authors should upload their contributions using the submission site http://mc.manuscriptcentral.com/itor, indicating in their cover letter that the paper is intended for this special issue and listing the novel contributions considering related literature.

The deadline for submissions is March 15, 2022. Other inquiries should be sent directly to any of the Guest Editors in charge of this issue: Martijn Mes (m.r.k.mes@utwente.nl), Eduardo Lalla-Ruiz (e.a.lalla@utwente.nl), and Stefan Voß (stefan.voss@uni-hamburg.de).

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