Special Issue in Transportation Research Part C - Emerging Technologies

“Operations with Automated and Connected Vehicles: Applications in Freight and Passenger Transport”

Guest Editors

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Description

The rapid development of automated vehicles (AVs) will soon allow many new possibilities for managing transportation systems, both in freight and passenger movement. Recently, a platoon of wireless-linked trucks travelled to the port of Rotterdam, demonstrating how future freight transport could be organized in such convoys. On the passenger side, vehicle automation development is rapid: Singapore recently started a pilot operating a small self-driving taxi fleet (nuTonomy) and Uber launched its first automated fleet in Pittsburgh (USA). Despite impressive technological developments in trucks and cars, the literature lacks studies on how such technologies can change daily logistics processes, in both freight and passenger movements. At the outset separating the human component from the vehicles brings new degrees of freedom in operation, control, management and maintenance of transport systems, but to what level? What does it change? How?

In freight transport, AVs can take many forms: trains, ships, barges, trucks, distribution vehicles. In addition to traveling individually and independently, large and small vehicles will be able to connect and platoon. Automation may allow for cost reductions in labor, but information technology and other costs may rise, so it is difficult to foresee net benefits of system-wide implementations. In dense networks, such as city distribution and warehousing, decisions regarding scheduling, fleet size, and route optimization could be improved. In long-distance transport with trucks, there is the need for greater coordination and cooperation, if truck platooning is to deliver safety and efficiency benefits.

On the passenger side of transport, AVs allow more freedom in public transport fleets, on a daily basis, providing routing and scheduling freedoms that were not so feasible with human-driven vehicles. Automation will give

transport-system managers new tools, that were previously more associated with freight and system logistics. The coupling of shared mobility companies with automobile manufacturers is a strong trend that will probably provide a human mobility system in which driver behavior is substituted by real-time centralized, optimized, management decisions. Some unpredictability in mobility patterns could be eliminated, but the need for robust logistics methods to actively manage these systems - either shared or private - is needed.

This Special Issue calls for papers that contribute to developing methods for managing and operating transport systems that make use of AVs, with movement and routing decisions taken by the vehicles individually, or via a central computer algorithm. The editors encourage submission of work that sheds light on the possibilities, opportunities, limitations or challenges that AVs will bring, to the daily logistics of managing transport systems, from both freight and passenger perspectives. The special issue's focus is on AVs' implications for the planning, management and operations of transportation systems according to the scope of Transportation Research Part C; it is not on the development of the AV technology itself.

Topics of specific interest include, but are not limited to:

- Truck platooning
- Automated guided vehicles (AGVs)
- Operation of distribution centers or terminals
- Operation of urban distribution centers
- Demand responsive transportation
- Route optimization
- Fleet scheduling
- Carsharing and ridesharing operations
- Parking management

Submission Method

For this special issue, authors are encouraged to use Elsevier's online multimedia tools and submit supplementary materials such as simulation code and data, video, and AudioSlides along with their manuscripts. All submissions will go through the journal's standard peer-review process. For guidelines to prepare your manuscript and for manuscript submission, please visit http://ees.elsevier.com/trc. When submitting your manuscript, please choose "***VSI:Operations & automation***" for "Article Type". This is to ensure that your submission will be considered for this special issue instead of being handled as a regular paper.

Important Dates

Submission website opens: March 1, 2017
Submission of full paper due: July 1, 2017
Feedback from first-round reviews: October 1, 2017
Return of revised manuscripts: December 1, 2017
Feedback from second-round reviews (if indicated): February 1, 2018
Final manuscripts due: March 1, 2018
Planned publication: June 1, 2018

Inquiries

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