

Daduna, Joachim R.; Trépanier, Martin; Voß, Stefan

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# From computer-aided transit scheduling to systems and surveys in public transport

Joachim R. Daduna<sup>1</sup> · Martin Trépanier<sup>2</sup> · Stefan Voß<sup>3</sup>

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The *CASPT* has taken a long way from being an acronym for different conferences and workshops including *Computer-Aided Systems in Public Transport* up to being used for the *International Conference on Advanced Systems in Public Transport*. The first workshop of this series was held in Chicago in 1975 without actually having systems implemented and consistently used in practice, but it was envisaged. This changed by 1980, in Leeds, and 1983, in Montreal. The foundation started on the interface between operations research and information systems with a special focus on both heuristics and mathematical programming techniques, now known under the acronym of matheuristics once intertwined.

Previous editions of these conferences were held all around the globe and are well documented, e.g., in Wren (1981), Rousseau (1985), Daduna and Wren (1988), Desrochers and Rousseau (1992), Daduna et al. (1995), Wilson (1999), Voß and Daduna (2001), Hickman et al. (2008). Ever since the inauguration of the journal *Public Transport: Planning and Operations*, we have had special issues devoted to this conference; see the following editorials: Lo et al. (2010), Muñoz (2013), Schmidt and Voß (2017). The last edition of this conference was held in Brisbane, Australia, in July 2018, as indicated in Trépanier and Hickman (2021). Under the current Corona conditions the next one is supposed to be held in Tel Aviv, Israel, in October/November 2022.

This issue includes some additional papers stemming from the 2018 CASPT-edition and bridging towards the 2022 edition as follows.

Dekker et al. provide insights into the treatment of disruptions and disturbances. They describe the development of a multidisciplinary framework combining

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✉ Stefan Voß  
stefan.voss@uni-hamburg.de

<sup>1</sup> Berlin School of Economics and Law, Badensche Straße 52, 10825 Berlin, Germany

<sup>2</sup> CIRRELT and Polytechnique Montreal, Université de Montréal, CP 6128, Succursale Centre-Ville, Montréal, QC H3C 3J7, Canada

<sup>3</sup> Institut für Wirtschaftsinformatik, Universität Hamburg, Von-Melle-Park 5, 20146 Hamburg, Germany

techniques from different areas including operations research, aiming at reducing the impact of related situations.

Lei et al. focus on in-detail views of the coupling order and station level constraints in train unit scheduling. The goal is to prevent unit blockage whenever possible.

Nesheli et al. consider limited-stop transit operations including the description of a mathematical programming model as well as the use of an agent-based simulation platform to treat this problem. A case study is provided for the transit system of Hamilton, Ontario, Canada.

Brands et al. look at perceived travel times of travellers. Comparing survey data and automatic vehicle location data provides interesting insights. A special consideration refers to results from before and after the opening of a new metro line in Amsterdam, Holland.

Over the years, the conferences also included quite a few seminal surveys well documenting the progress in various areas devoted to public transport. In this issue, beyond those conference submissions, we have put together a series of survey papers in public transport issues.

Ceccato et al. consider the topic of crime and safety in transit environments focusing on English and French literature.

Durán-Micco and Vansteenwegen provide a survey on the transit network design and frequency setting problem and describe the existing wealth of approaches as well as their limitations opening up for additional research on this topic.

Ge et al. provide a very comprehensive treatment and a wealth of references regarding robustness and disturbances in public transport. As a takeaway, more integrated problem settings incorporating robustness and disturbances should be investigated in future planning and operations.

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