

The Hong Kong Polytechnic University
Department of Logistics and Maritime Studies
Research Seminar

Optimizing intermodal transit network through fare design: two case studies in Sydney

by

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Date: 7 December 2018 (Friday)
Time: 3:30pm-4:30pm
Venue: DE401, Lui Che Woo Building
The Hong Kong Polytechnic University

(Conducted in English)

Abstract:

Intermodal transit networks play an essential role for urban mobility. In this research, we use optimal fare design to balance the travel demand for better utilization of our transit networks from the perspective of system optimality. Two case studies will be carried out. The first refers to fare design for a long commuting train line with part and ride facilities. With the proposed fare structure, the system performance will be increased with no redundant trips being imposed. In the second case study, we deal with boarding/alighting congestion of congested commuter train stations at central business district (CBD), in which the additional fares are determined to shift an appropriate number of passengers to board/alight at the neighboring uncongested stations on the railway line. A bi-objective model is investigated to minimize both fare increases of the congested stations, while alleviating their boarding/alighting congestion to a certain level simultaneously.

Bio:

Dr Xiaobo Qu is a Professor and Chair of Urban Mobility Systems at Chalmers University of Technology. His research is focused on practically improving transport safety, efficiency, equity, and sustainability through traffic flow and network modelling and optimization. He has authored or co-authored over 60 journal articles published by leading international peer reviewed transportation journals such as Transportation Research Part A, Part B, Part C, Part E, Accident Analysis and Prevention, ASCE - Journal of Transportation Engineering, and Risk Analysis. He is a recipient of Ministry of Transport (Singapore) Minister's Innovation Award in 2009, President's Graduate Fellowship (Singapore) in 2010-2011, Griffith University Pro-Vice Chancellor Research Excellence Award (Group Category) in 2015, Australian Department of Education and Training Endeavor Cheung Kong Research Fellowship in 2016, and Australian Research Council Discovery Project Awardee in 2017. He is currently an Associate Editor for IEEE Transactions on Cybernetics (Impact Factor: 8.803, JCR Q1), ASCE Journal of Transportation Engineering, Part A: Systems (Impact Factor: 0.983, a flagship journal of ASCE), IEEE Intelligent Transportation Systems Magazine (Impact Factor: 3.654, JCR Q1), ASCE ASME Journal of Risk and Uncertainty in Engineering Systems, and Journal of Intelligent and Connected Vehicles.

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All are welcome!