

Dynamic Hyperpath Search in Congested Transit Network

Ms. Valentina Trozzi from CTS, Imperial College London

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Abstract

A dynamic route choice model is presented to be embedded in transit assignment. The major assumptions made are that, due to lack of service information passengers do not know exact vehicle arrival times at any stop, furthermore at each stop several competing lines can be boarded in order to reach the destination. In this context, the rational travel behaviour requires to select for each bus stop a bunch of competitive lines (attractive set) which are convenient to board and board the first line that actually becomes available. This route choice model which is commonly known as best travel strategy or shortest hyperpath has been studied in the static context since late eighties (Nguyen Pallottino, 1988. Spiess and Florian, 1989). The new challenge addressed by this research is the extension of the shortest hyperpath search to the dynamic and congested scenario, where travel variables such as travel times and frequencies vary with the time wise during day, also because of vehicles' capacity constraints passengers cannot always board the first vehicle approaching the stop which means they have to queue until the service actually become available.

Biography

Ms Valentina Trozzi is a PhD Candidate at Imperial College London – Centre for Transport Studies. Her research focus is on the extension of dynamic hyperpath search in congested transport networks with formation and dispersion of passengers queues at transit stops. Valentina completed her undergraduate in Rome University "La Sapienza" (2005), where she also got her MSc in Transportation Engineering (2007), as well as a post-graduate master degree on Urban Environment (2009). After a short, but intense experience in industry as a Transport Planner, in 2009 she moved to London, where she started her PhD supervised by Prof Michael Bell.