

Modeling of urban mobility to solve environmental and transportation problems

Abstract: Heat waves and heavy traffic have been increasingly becoming severe problems for people living in urban areas especially in mega cities such as Hong Kong and Singapore. To better understand heat patterns produced by vehicular flows, grid-based *directional* traffic flows with accurate *quantitative* information have been estimated by using observed data from traffic counting stations, and it suggests that heat produced by vehicles could be one of the most important causative factors for heat waves. To mitigate the heat waves, possible solutions can (i) predict *directional* congestion and send notifications to the *involved* drivers in a timely manner to avoid or mitigate congestion, and (ii) provide *real-time* ride-sharing services to allow people having similar trips to share the same vehicle so as to decrease vehicular flows. An implemented intelligent traffic information hub will be presented systematically for the first solution. The second solution will be discussed with the support of the latest research, using taxi data in Singapore.

Rui Zhu



Dr. Rui Zhu is a Postdoctoral Associate in Senseable City Laboratory of Future Urban Mobility IRG in SMART. His research interests are in ride sharing, urban mobility, and urban heat islands. Dr. Zhu holds a Ph.D in Geo-Informatics from The Hong Kong Polytechnic University (Hong Kong SAR), with an exchange study at Université Laval (Canada). Before that, Dr. Zhu obtained an MSc in Geodesy and Geo-Informatics from Royal Institute of Technology – KTH (Sweden), and a BSc in Geographical Information Science from Nanjing Normal University (China). Further information on his background, academic research and professional work can be found on his website at <http://911zrfelix.wixsite.com/giser>

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