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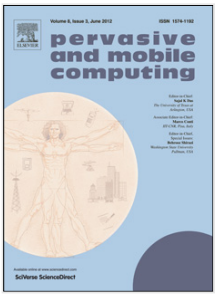

Individuals among commuters: Building personalised transport information services from fare collection systems

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Individuals Among Commuters: Building Personalised Transport Information Services from Fare Collection Systems

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Abstract

This work investigates how data from public transport fare collection systems can be used to analyse travellers' behaviour, and transform travel information systems that urban residents use to navigate their city into personalised and dynamic systems that cater for each passenger's unique needs. In particular, we show how fare collection data can be used to identify behavioural differences between passengers: we thus advocate for a personalised approach to delivering transport related information to travellers. To demonstrate the potential for personalisation we compute trip time estimates that more accurately reflect the travel habits of each passenger. We propose a number of algorithms for personalised trip time estimations, and empirically demonstrate that these approaches outperform both a non-personalised baseline computed from the data, as well as published travel times as currently offered by the transport authority. Furthermore, we show how to easily scale the system by pre-clustering travellers. We close by outlining the wide variety of applications and services that may be fuelled by fare collection data.

Keywords: Public Transport, Personalisation, Urban Data Mining

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