

Imperial College London

Special event in CTS seminar series

Prof. Michael G.H. Bell

Tuesday, 22 September 2009 - 15:00

Location: Room 601, Skempton (Civil Eng) Bldg, Imperial College London

Abstract

The session will feature as speakers:

- Associate Professor Fumitaka Kurauchi (Gifu University)
- Associate Professor Nobuhiro Uno (Kyoto University)
- Dr. Achille Fonzone (Imperial College London)
- Ms. Solmaz Haji Hosseinloo (Imperial College London)

Professor Michael G.H. Bell will host the workshop.

The full programme can be accessed via the link below.

Presenter

Fumitaka KURAUCHI (Associate Professor, Gifu University)

Title

Traffic flow analysis at the merging section of urban expressway by video image data

Abstract

By the recent progresses on the development of image processing technologies, it is technically possible to obtain both macroscopic and microscopic flow indices from video image data automatically. In this study, the video survey was conducted on the merging section of the Hanshin Expressway, and by the vehicle recognition system, vehicle trajectories are extracted. Traffic flow indices such as traffic volume and velocity are then calculated. Also the vehicle trajectory data obtained manually are used for understanding the detail vehicle movement. By both macroscopic and microscopic analyses, this paper discusses the mechanism of the congestion. Further analysis on modelling vehicle movement will also be presented.

Short bio

Fumitaka Kurauchi is an Associate Professor at Gifu University. He received his Doctor of Engineering Degree from Kyoto University in 2002. His research interests include traffic control and operation, public transport modelling, traffic flow analysis and network reliability analysis.

Presenter

Nobuhiro UNO (Associate Professor, Kyoto University)

Title

An Analysis of Effects of Trend Information upon Route Choice Behaviour by In-Laboratory Experiment

Abstract

This study focuses on the possibility that providing the information on short-term trend of traffic condition (trend information) with existing travel time information might affect the decision-makings of travellers and lead to the enhancement in traffic control by information provision. As an initial step to confirm the effectiveness of trend information, this study conducts the in-laboratory experiment to obtain a kind of panel data of route choices under the provision of information. In this study the parameters of Mixed Logit Model are estimated in order to statistically analyze the influences of trend information upon decision-makings of respondents considering the accuracy of information. The basic findings obtained in this study are as follows. 1) There is a strong possibility that the trend information may significantly affect the decision-makings on route choices of respondents. 2) The influence of information upon the decision-makings of respondents may depend upon the accuracy of both travel time information and trend one. 3) Judging from the estimated parameters of standard deviation of travel time information, there must be the heterogeneity in the sensitivity toward the travel time information among the respondents.

Short bio

Nobuhiro Uno is an Associate Professor at Graduate School of Management, Kyoto University, Japan. He received his Ph.D from Graduate School of Engineering, Kyoto University in 1997. He stayed at University of Delaware as a visiting scholar from 1997 to 1998. His research interests include travel behaviour under provision of information, traffic control for urban expressway and microscopic analysis of vehicular movement using video image data.

Presenter

Solmaz HAJI HOSSEINLOO

Title

Finding time-dependent hyperpaths in traffic networks with uncertainty

Abstract

The main idea behind the research comes from incorporating the notion of strategies in the context of traffic assignment. Traditional traffic assignment models are based on the assumption that flow is distributed along the paths with respect to current (flow-dependent) travel delays (Wardrop, 1952). It is proposed here that in some cases road users must be able to alter their routes depending on certain events happening which can unfold after they have set upon their journey. As a result, users must develop a set of strategies which would allow them to alter their route at a further point in the journey, if a certain route becomes unavailable or unattractive. Such behaviour requires more sophisticated modelling techniques which can be achieved using the concept of hyperpath with an objective to minimize expected travelling time. The new concept which is being introduced is time-dependent nature of link travel time. An approach has been taken which considers the speed profile of links from which time-dependent travel times are deduced.

Short bio

Solmaz Haji Hosseinloo is a PhD researcher at the Centre for Transport Studies, Imperial College London. She holds a MEng degree in Industrial Engineering from University of Birmingham and an MSc in Manufacturing and Management from University of Cambridge. Her research interests include networks modelling, traffic assignment formulations and route optimization problems

Presenter

Achille FONZONE (Research Associate, Imperial College London)

Title

Bounded Rationality in Transit Assignment

Abstract

Rationality in transport field is a strong assumption, often justified as a consequence of a process of learning through repetition (“reinforcement”) which should teach travellers their best option. This hypothesis has been contradicted by recent research. In this study a transit assignment method is presented based on a behavioural model called Locally Rational Traveller (LRT) which, considering bounded rationality, is deemed able to generate more realistic outputs. LRT can think in terms of hyperpaths but has a limited planning horizon and so he cannot elaborate too complex strategies. Implementation on a test network demonstrates that the model can generate results considerably different from those derived from the perfect rationality assumption and so further work is needed to improve its realism and to test it in real world problems.

Short bio

Achille Fonzone is Research Associate at the Centre for Transport Studies of Imperial College London. He got a PhD in Transport at Politecnico di Bari, Italy. His research concerns transit assignment and routing guidance, network reliability and human factors affecting mobility demand.