



**37th TSU (Transport Studies Unit) Seminar**  
**Travel behaviour modelling using emerging big data sources**

Date: August 22th (Thu.) 2019

Time: 15:00-16:30

Venue: Tokyo Tech. Ookayama Campus, Multi-Purpose Room, 1st Floor,  
Midorigaoka Buidling #6

Speaker:

Charisma F. Choudhury, PhD, FHEA

Deputy Director, Choice Modelling Centre Associate Professor,  
Institute for Transport Studies & School of Civil Engineering  
University of Leeds, Leeds, UK

Fee: Free

Presentation Abstract:

Over the last decade, passively generated big data sources have emerged as a very promising source of activity and mobility information. Examples include GPS, mobile phone, smartcard and social media data, online browsing and purchase records of tickets, cars/bikes, residential properties, etc. However, due to the coarse spatial and temporal resolution, sampling and privacy issues, these data sources are yet to be used for mainstream travel behavior modelling. The presentation will include four case studies on how these big data sources can be used for mainstream transport modelling - each focusing on a unique limitation of the big data. Case study 1 proposes a 'latent demographic model' framework to utilize large scale anonymous data from mobile phones and applies it in the context of trip generation modelling in Switzerland. Case study 2 proposes an application of the 'broad choice modelling' framework to deal with the coarse spatio-temporal resolution of the mobile phone data in the context of route choice modelling using call detail record data from Senegal. Case study 3 contrasts the performances of mobile phone and GPS data in the context of departure time choice modelling in Switzerland. Case study 4 proposes a methodology to fuse the household survey and mobile phone data to get the best out of both worlds. The presentation will conclude by summarizing the insights gained from these studies and an overview of some other ongoing research.

Bio:

Charisma Choudhury is an Associate Professor at the Institute for Transport Studies and School of Civil Engineering at the University of Leeds (UoL) where she leads the Choice Modelling Research Group. She also serves as the Deputy-Director of the interdisciplinary Choice Modelling Centre, UoL. Prior to joining UoL, she has worked as an Assistant Professor at Bangladesh University of Engineering and Technology (BUET), as a Postdoctoral Research Associate at Massachusetts Institute of Technology (MIT) and as Analysts in RAND Europe, UK and Cambridge Systematics, USA. Charisma holds PhD and MSc from MIT. For her doctoral work, she had focused on developing driving behaviour models with 'Dynamic Latent Plans'. The driving behavior models developed as part of her thesis have been implemented in leading commercial traffic simulation tools including AIMSUN and VISSIM. In recognition of her doctoral research, she has received the Gordon Newell Best Dissertation Prize from the HKSTS and an Honourable Mention from the IATBR. Her research interests include travel behaviour modelling using emerging data sources and transport issues in the Global South.

# MAP

- The **Ookayama campus** is a one-minute walk from Ookayama Station
- The **Suzukakedai campus** (former Nagatsuta campus) is a 5-minute walk from Suzukakedai Station
- The **Tamachi Campus** is a 2-minute walk from Tamachi Station

