LTDS and NTS work at bigger scale - define the rules

Mobile data: disaggregate scale and providing updates.

The Netlogo model

Target: to simulate the relationship between prediction accuracy with data availability and uncertainty in people’s travel behaviour.

Currently, the type of factors considered are:

* Land use considered: residential, shopping, work and school
* Day of week – weekdays, weekends
* Type of employment – full time employee; part-time; students; unemployed (basically decides their schedule)

What can be set:

1. Speed of travel (although this is universal, can’t define separate speed for different journeys yet, but should not be too difficult to do)
2. Type of data available: mobile phone data;
3. Setting how complicated the road network to be
4. The number of agents to be simulated
5. Data availability: Mobile phone: number of phone calls a day (assuming uniform distribution)
6. Variability

How the model works:

1. Generate land use based on the defined coordinates
2. Generate road networks and assign random link length based on the parameters set on the network
3. Generate the population and assign parameters, including type of employment, day schedule (once it’s set it’s fixed at the moment)
4. Starts the simulation, each agents move based on their schedules. Detailed routes are selected based on the shortest path problem.
5. Data recorder writes data into a text file for machine learning

What can be predicted:

1. When will people travel, to which land use area

Things not so smooth:

1. The “enroute” status not available in the schedule, but available in the simulation
2. At the moment only forecast “move”, “stationary”
3. Connection with python and netlogo is a bit slow – have to do frequent file writing and reading through hard disk which slows down the performance
4. Use pcolor to represent zone (maximum at the moment 140)