Network Design and Evaluation
when only the state-of-the-art will do

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... a haunting history
2% of land surface
20% of population
35% of national GDP
10% of African GDP
Low income commuters on the periphery
Taxi war flares up

Taxi drivers declare war

This is not like war — it is war

Bullets fly in downtown Joburg as taxi violence erupts
autonomous
dynamic
intelligent
Commuter vs Agent
Diedericks & Joubert (2006)

TRANSIMS

Multi-Agent Transport Simulator (MATSim)

initial demand → execute → score → analyse

replan
MATSim visualization of specific result features
GoogleEarth visualization of results
no badge, yet!
GIS

Population generation algorithm

GIS software

3

Commuter coordinates (Production & Attraction)

Route network with vehicle types and frequencies

5

OD distances & OD demand data

Positions of bus stops & Commuter-bus stop connection

Border of study area, Road network & Positions of commuters

Demand data & Demarcated area

GIS software

Proper network

Population generation algorithm

Bus stop placement algorithm

Multimodal network design algorithm
next hurdle

Processing
Abstract: Several research teams working on integrated land use, transportation and environmental modelling have begun an international collaboration to develop an Open Platform for Urban Simulation (OPUS). The initiative is creating an Open Source platform that simulates land use, activity-based travel demand, and dynamic traffic assignment, and that can be extended by users and adapted to alternative modelling applications. This paper summarizes the objectives and design of OPUS, and describes a framework for extending the system through packages contributed by the user community.

Keywords: microsimulation, open source, land use, activity-based travel, network assignment