



# DAFNI Champion update – 14/01/2021

Champion update

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# DAFNI



## Current work update

- Running on DAFNI
  - OpenMOLE embedding: sensitivity analysis, calibration
  - Road network preprocessing for MATSim on Functional Urban Areas
  - SPENSER model for synthetic population generation
  - Synthetic population preprocessing for MATSim on Functional Urban Areas
  - One-mode MATSim model coupled with road network and synthetic population processors
- Current work:
  - Four-stage model for travel demand: gravity model for O-D flows
  - MATSim visualisations and output indicators
  - Multimodal data
  - Dissemination
- Future work:
  - Health indicators downstream MATSim
  - Sensitivity analysis, calibration and validation using OpenMOLE

# Full MATSim workflow on DAFNI

facility.secure.dafni.rl.ac.uk/workflows/523ae3a1-deb2-4180-8b2a-6e3d3102afd9

DAFNI

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Reset position

Click and drag on the white area around the Workflow to pan the canvas.

matsim

network

population

matsim

visualisation

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Execute

Create workflow





## SPENSER synthetic population microscopic distribution

- Synthetic individuals and households at the OA level in 2020 for all UK, integrated in the NID
- Implemented in *spatialdata*: distribute uniformly within the OA on network nodes; attribute jobs randomly within the FUAs given the OA employment distribution; basic home-work plans with uniform start/end times
- **In progress (code)**: Four-stage transportation model
  - Distribute households within OAs according to population density grid (100m Eurostat or 1km GHSL) and buildings (OpenStreetMap; OSM pbf implemented in *spatialdata*) – individuals already matched in SPENSER data
  - Use QUANT calibrated parameters to estimate potential home-work flows
  - Sample workplace given these flows, accessibility patterns and car ownership



## MATSim visualisation and outputs

- Test of the OTFVis tool: conversion of MATSim output events into movie files -> integration into DAFNI Jupyter notebook with python
- Relevant output indicators (mode shares, congestion)

## Multimodal data

- Test of the Matsim extension to convert GTFS data into matsim schedule files
- Test of *eqisim* pipeline for OSM/GTFS data preparation (implemented for Paris)
- Package UK2GTFS (developed at Leeds) to collect and harmonize data





# DAFNI



## Dissemination

- Conferences
  - Abstract submitted at the Applied Urban Modeling conference
  - EWGT2021 conference: deadline for extended abstracts (full paper in March) tomorrow
- Roadshow event
  - Demonstration of MATSim integration into DAFNI, seminar
  - Mid or end of February?