3–5 June 2026
University of East London
School of Architecture, Computing and Engineering

ICASA 2026 — Track 5

From Data to Models: Reproducible AI for Next-Generation Traffic Simulation

As cities grow and urban mobility demands intensify, understanding how traffic flows through streets and intersections has become essential for effective urban planning. Traffic simulation allows city planners, researchers, and policymakers to model complex transportation networks, test infrastructure changes, and evaluate the impact of new mobility policies; all before a single road is built or modified. From reducing congestion and emissions to improving safety and public transit efficiency, simulation tools offer a powerful, low-risk way to explore solutions to some of the most pressing challenges facing modern cities.

Workshop Overview

This half-day workshop introduces reproducible, data-driven methods for next-generation traffic simulation. Through a combination of short theoretical introductions and guided hands-on exercises, participants will go from raw open datasets drawn from Madrid, Brussels, and London, to reproducible simulation pipelines. The goal is to demystify this process and equip mobility experts and municipalities with knowledge they can adapt for real-world decision-making.

Activities & Outcomes

- Analysis of mobility data
- Build reproducible calibration workflows linking real data to simulation.
- Learn AI-enhanced techniques for calibration and scenario analysis.
- Gain hands-on experience with datasets from London, Brussels, and Madrid.
- Understand how data-driven simulation supports policy and planning with concrete, hands-on case studies.

Target Audience

Researchers, students, traffic engineers, planners, ITS developers, and policymakers interested in data-driven methods for mobility modeling and analysis.

Requirements

- Laptop with **Python 3.x** and **SUMO** installed.
- Basic Python familiarity (all levels welcome).
- All datasets and code provided during the session.

Provisional Schedule

- **13:30–15:00** Hands-on: Traffic data analysis.
- **15:00–16:00** Hands-on: Traffic modelling & simulation with SUMO (3 cities).
- **16:00–17:30** Hands-on: What-if scenarios & policy analysis.

Notes

- The workshop will run **subject to sufficient registrations**.
- Registration Fee: **£150**
- For Registration, visit: https://www.icasa-conf.co.uk/registration/
- SUMO installation: `https://sumo.dlr.de/docs/Installing/index.html`

Contact

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Organisers' Bios

Dr Davide Andrea Guastella
Associate Professor, AMU (France). His research focuses on data-driven traffic modelling, reproducible simulation workflows, and the integration of AI with transport simulation tools.

Dr Yijing Li
Associate Professor in Urban Informatics at Department of Informatics, King's College London. She is an interdisciplinary scholar conducting research on urban data mining, analysis and modelling, including safety, mobility, health, sustainability and resilience, in the aim to better inform policymaking with data-driven evidence and storytelling through data visualisation.

Dr Natalia García-Colín
Research and Innovation Lead at the Machine Learning Group of the Université Libre de Bruxelles (ULB), Belgium. A multidisciplinary scientist with expertise in advanced mathematics, data science, and machine learning, she leads R&I initiatives spanning financial instrument design and valuation and optimization, urban mobility, and electric grid systems.

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Data, models and instructions will be provided to registered participants.