



# SpaceTimeLab

## Deep Learning in Urban Analytics

SpaceTimeLab Workshop, GIScience 2023

In recent years, GeoAI has emerged as an important topic in GIScience, leveraging advances in deep learning and artificial intelligence for geographical and spatio-temporal data analysis (SpaceTimeAI). One of the principal application domains has been in urban analytics, which uses the vast quantities of data generated in cities for tasks such as monitoring, forecasting and optimisation. Examples include:

- Computer vision of satellite and street-view imagery, including semantic segmentation and object detection, with applications in land cover mapping, traffic monitoring, visual walkability analysis etc.
- Deep learning models of traffic data for short-term traffic forecasting and congestion detection
- Multi-agent reinforcement learning for traffic optimisation and urban simulation

In this workshop, we will introduce the key deep learning technologies underpinning GeoAI and SpaceTimeAI, supported by instructor led computer sessions focussing on applications in urban analytics. The workshop is suitable for early career researchers, industry participants, as well as established researchers who are interested in learning how AI could be used in their work. The language of instruction will be Python and a good knowledge of Python programming language is essential.

### Contact

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