



## GeoAI workshops – GeoAI 2026

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Ghent, Belgium on 3 - 6 June 2026

<https://geoaiconference.org/>

# State of the Art and Outlook of Street-Level Imagery for Urban Science

## 1. Workshop description

Street-level imagery has become an important data source in urban research, offering a rich ground-level view of urban environments and capturing the visual and experiential qualities of streets and neighbourhoods on a scale. Recent advances in computer vision and geospatial artificial intelligence (GeoAI) have enabled the transformation of street-level imagery into structured and interpretable urban features, supporting applications across human perception, urban planning, transport, equity, public health, and related fields. This workshop explores how street-level imagery can advance human-centred understanding and fine-grained modelling of cities, supporting applications such as Image-based 3D Modelling, foundation models for analysing streetscapes, vision-language urban agents, human-in-the-loop urban digital twins, cross-view learning, generative place reasoning, and decision-making in the urban context.

### Call for Abstracts.

We welcome relevant topics, such as (but not limited to):

**Submission:** Please submit by e-mail to [Xiaobing.Wei@Ugent.be](mailto:Xiaobing.Wei@Ugent.be) before 30 March 2026

### 1) Street-level imagery as an emerging component of urban data infrastructure

- Data acquisition, sampling strategies, quality control, and preprocessing
- Spatial indexing, georeferencing, and linking street-level imagery to urban spatial units (e.g., segments, grids, neighbourhoods)
- Adoption by governments and interactions of stakeholders

## **2) GeoAI and computational methods for street-level imagery-based urban science**

- Feature learning and urban scene understanding from street-level imagery (e.g., computer vision, GeoAI)
- Spatially explicit modelling using street-level imagery-derived indicators
- Transferability, robustness, and evaluation across cities, cultures, and contexts

## **3) Foundation models and scalable representation learning**

- Vision-language models and foundation models for urban interpretation and measurement
- Self-supervised, weakly supervised, and prompt-based learning for limited-label settings
- Generative AI for urban scenario exploration, explanations, simulation, and design support

## **4) Multimodal urban analytics and data fusion**

- Combining street-level imagery with earth observation, GIS layers, mobility traces, POIs, urban sensing, and socio-demographic data
- Multimodal alignment across spatial (e.g., street, block, district, city) and temporal scales (e.g., hours, days, months, years).

## **5) Urban applications and interdisciplinary use cases**

- Transport systems, road safety, and active mobility
- Human perception, urban experience, and behavioural responses
- Urban climate, environmental exposure, and resilience
- Public health, accessibility, and social equity
- Urban design evaluation, real estate, governance, and policy support
- Emerging applications beyond the above domains

## **6) Explainability, ethics, and responsible use**

- Explainable and interpretable street-level imagery-based models
- Bias, fairness, and debiasing in street-level imagery datasets and models
- Privacy, governance, and responsible deployment in urban research and practice
- Open science, reproducibility, benchmarks, datasets, and tools

### **Note:**

All submissions will be reviewed by the workshop organising committee for relevance and quality. Authors who wish to present at the workshop must submit their abstracts directly

to the workshop organising committee.

## 2. Workshop format

Half-day workshop (approx. 3 - 4 hours):

- Session 1: Welcome & workshop goals + Framing talk (By **Dr. Filip Biljecki**)
- Session 2: Paper talks – Part I
- Coffee break
- Session 3: Paper talks – Part II
- Session 4: Summary & wrap-up discussion

## 3. Objectives

Bridge disciplinary communities by connecting researchers working with street-level imagery in transportation, urban planning, public health, climate studies, geospatial and spatial data science.

Demonstrate reproducible or transferable workflows for integrating street-level imagery with geospatial data and urban models.

Critically discuss the limitations and pitfalls of street-level imagery-based urban analysis, including spatial bias, transferability across cities, and interpretation challenges.

Discuss the research agenda and outlook for the future of street-level imagery in urban science.

Foster collaboration and shared standards for data preparation, evaluation, and reporting in fine-grained urban research.

## 4. Names of the organising member(s)



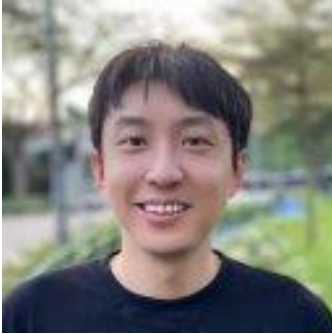
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## 5. Target audience

This workshop targets researchers and practitioners interested in the use of street-level imagery for urban research, including scholars from urban analytics, GeoAI, GIScience, and related spatial data science communities. It is particularly relevant for researchers working in transportation, urban planning, public health, environmental and climate studies, as well as those developing or applying computational methods for urban analysis.

The workshop is designed for participants who seek conceptual, methodological, and interdisciplinary insights into street-level urban analysis. Contributions and attendance are welcome from PhD students, early-career researchers, and senior scholars interested in methodological advances, empirical applications, and cross-disciplinary perspectives on street-level urban data.