PhD Open Days

Living Urban Landscape Mapping: AI-Driven Capture of People's Image of the City

Territorial Engineering and Spatial Planning (DEAETPT)
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01 Context & problem

> *"Landscape means an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors."*
> European Landscape Convention [1]

Landscape Character Assessment (LCA) provides an established framework for characterising landscapes, yet it remains methodologically underdeveloped for urban environments [2, 3], where three limitations persist:

- **Traditional, expert-centred methods** [4]
- **Public participation is optional, uncommon and unrepresentative** [4–6]
- **Character maps seldom reach planning instruments** [7, 8]

02 Aim

Develop and empirically test a replicable, **AI-supported implementation methodology** for Urban Landscape Character Assessment (ULCA) at **city scale**, capturing and integrating individuals' **perceptions, behaviours and knowledge** in support of territorial analysis and decision-making.

Operational lens: liveability

Structural | **Perceived** | **Used**

Case studies: Lisboa and Odivelas

03 Methodology: one study per ULCA phase [7, 9]

Completed | In progress | Planned

SO1 — Foundation
Scoping review
PRISMA 2020 [10]
10 studies
IN PROGRESS

SO2 — Expert mapping
Generative AI vs expert characterisation
PLANNED

SO3 — Perception mapping
Pairwise survey of street scenes [11, 12] + AI image segmentation [13]
IN PROGRESS

SO3 — Behaviour mapping
Mobile network and visitation data; presence and use profiles
PLANNED

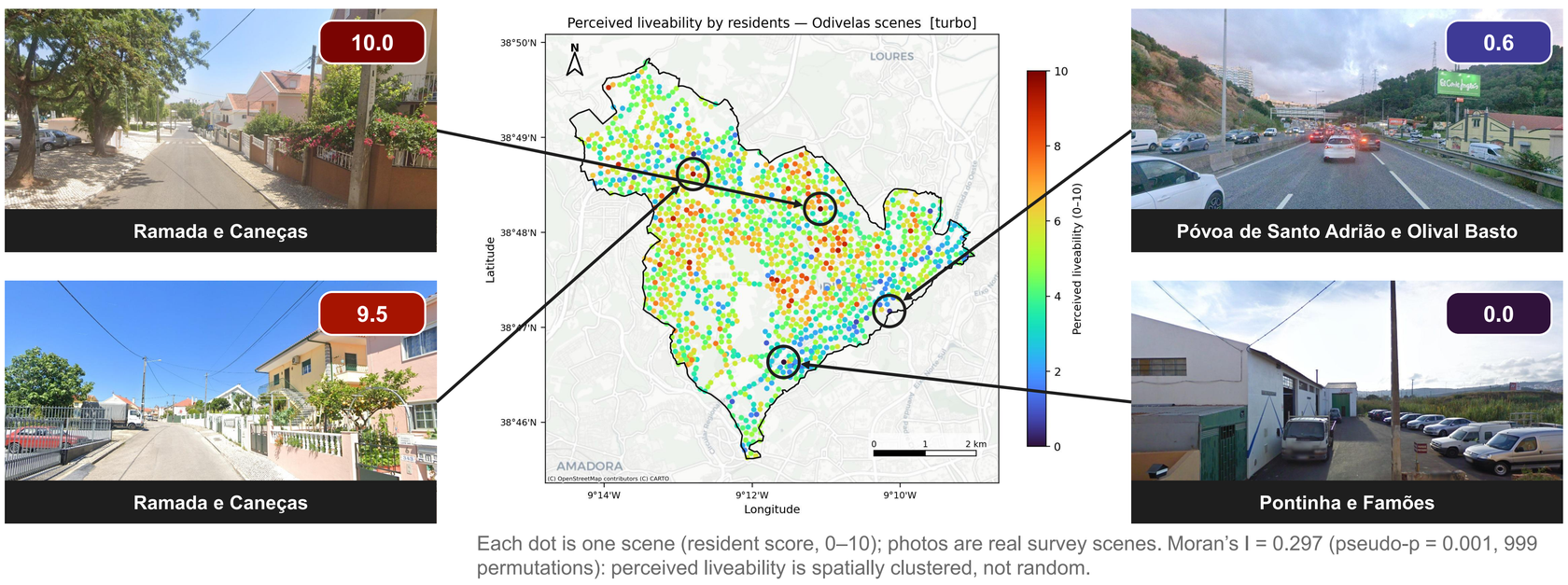
SO4 — Knowledge mapping
GenAI-assisted co-creation of visual scenarios
PLANNED

SO5 — Implementation & governance
Phase-by-phase protocol into planning instruments
PLANNED

Scope Definition | Desk Study | Classification and Description

04 Results so far

Perceived liveability in Odivelas Residents only · 35,558 comparisons · 458 voters · 1,383 reliable scenes

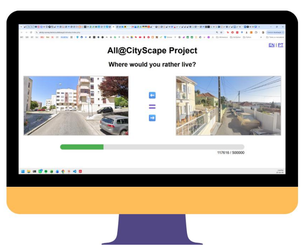


Each dot is one scene (resident score, 0–10); photos are real survey scenes. Moran's I = 0.297 (pseudo-p = 0.001, 999 permutations): perceived liveability is spatially clustered, not random.

Help us map Lisbon!

Scan, compare two street scenes and answer:

Where would you rather live?



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