Urban Grammar

(Urban) form/function through satellite data & AI

https://urbangrammarai.xyz

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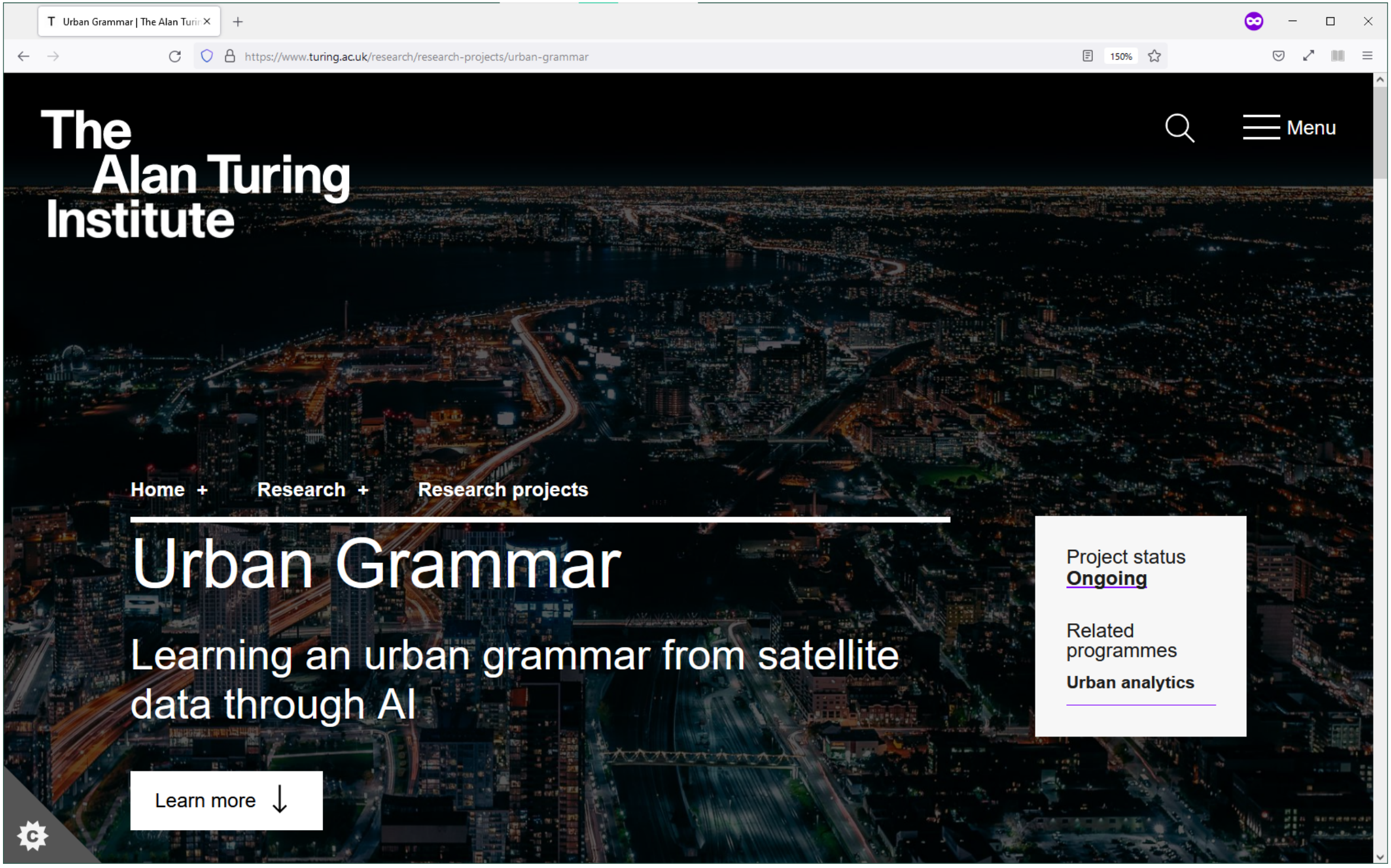
Geographic Data Science Lab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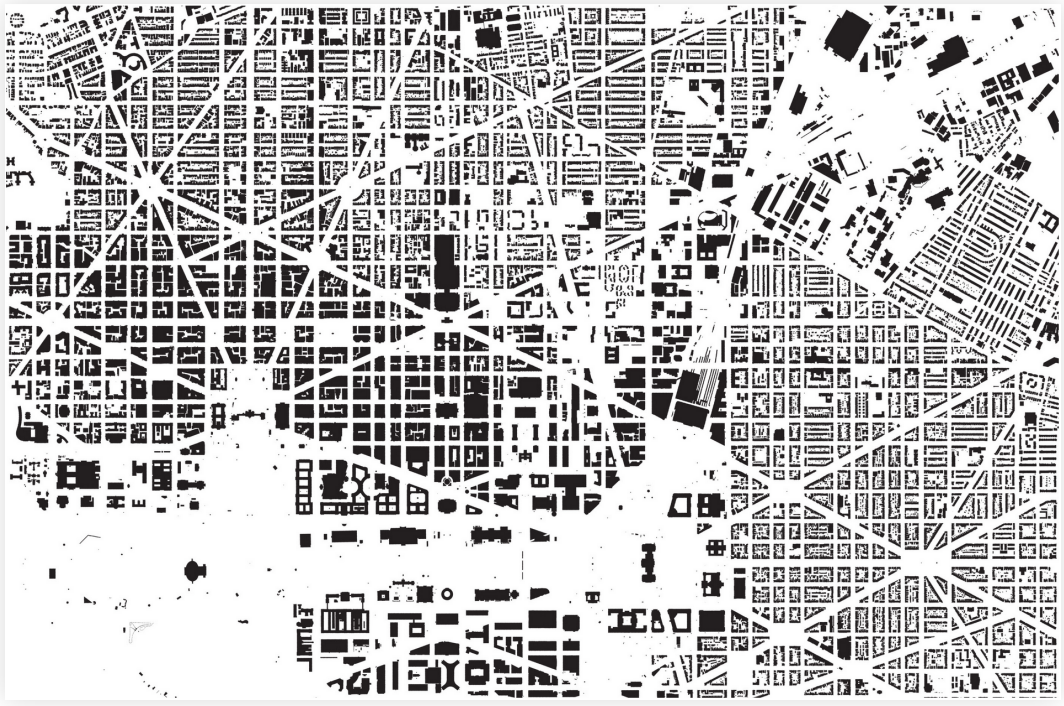
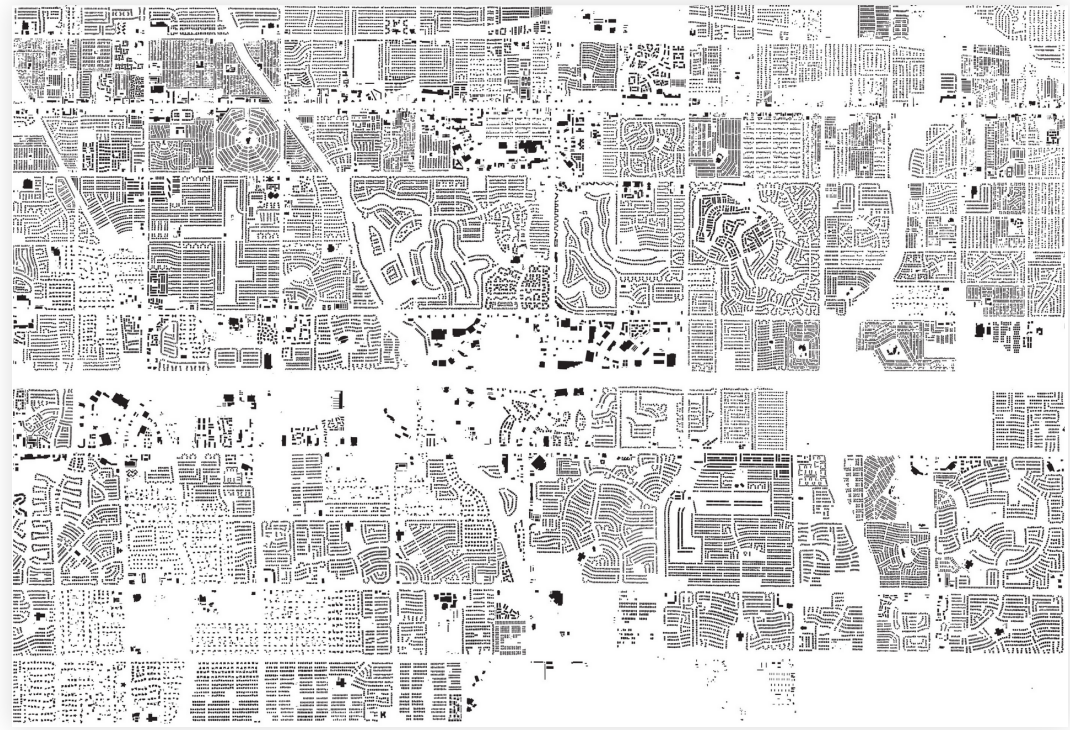
“The point”

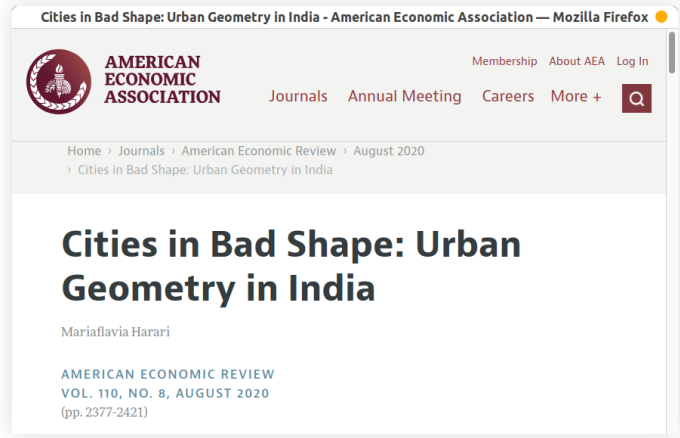
How we arrange “stuff” in cities matters…

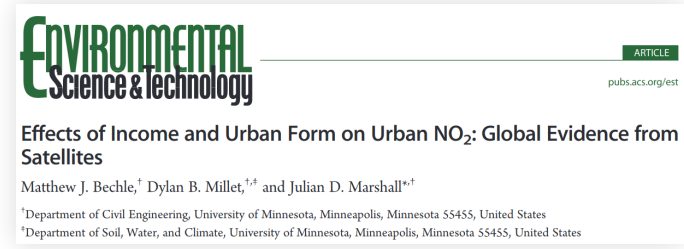


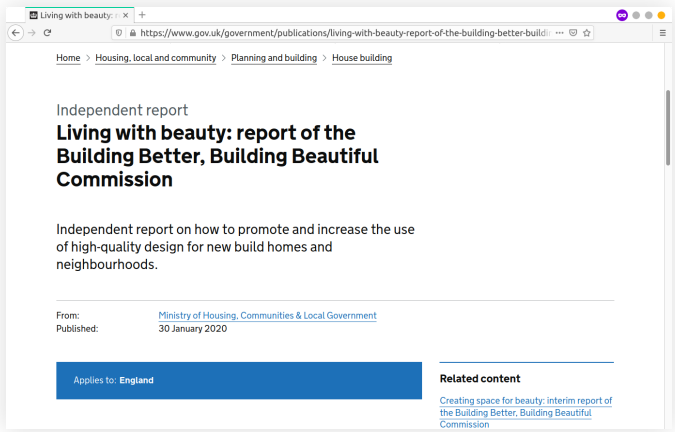


Source: *A map of every building in America* (New York Times)

… it matters *a lot*







Form

What does it look like?

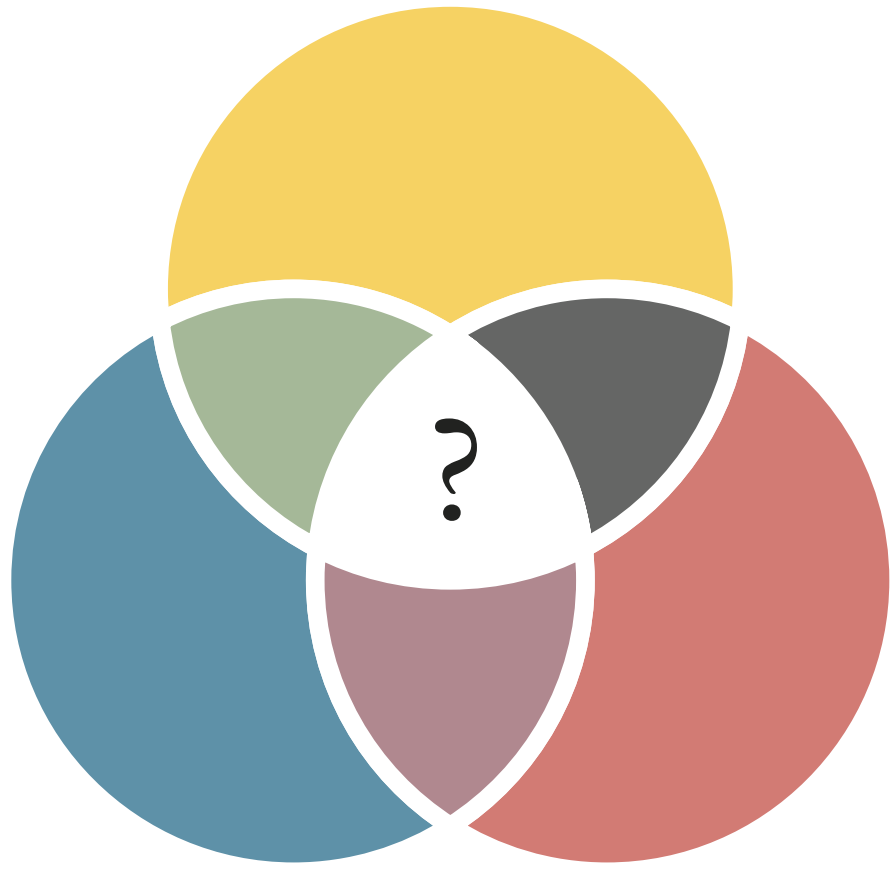
"Physical structure and appearance of cities"

Function

What is it used for?

"Activities that take place within an environment"

detailed



scalable

consistent

Spatial Signatures

A characterisation of space based on form and function designed to understand urban environments

A characterisation of space based on form and function designed to understand urban environments

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A characterisation of space based on form and function designed to understand urban environments

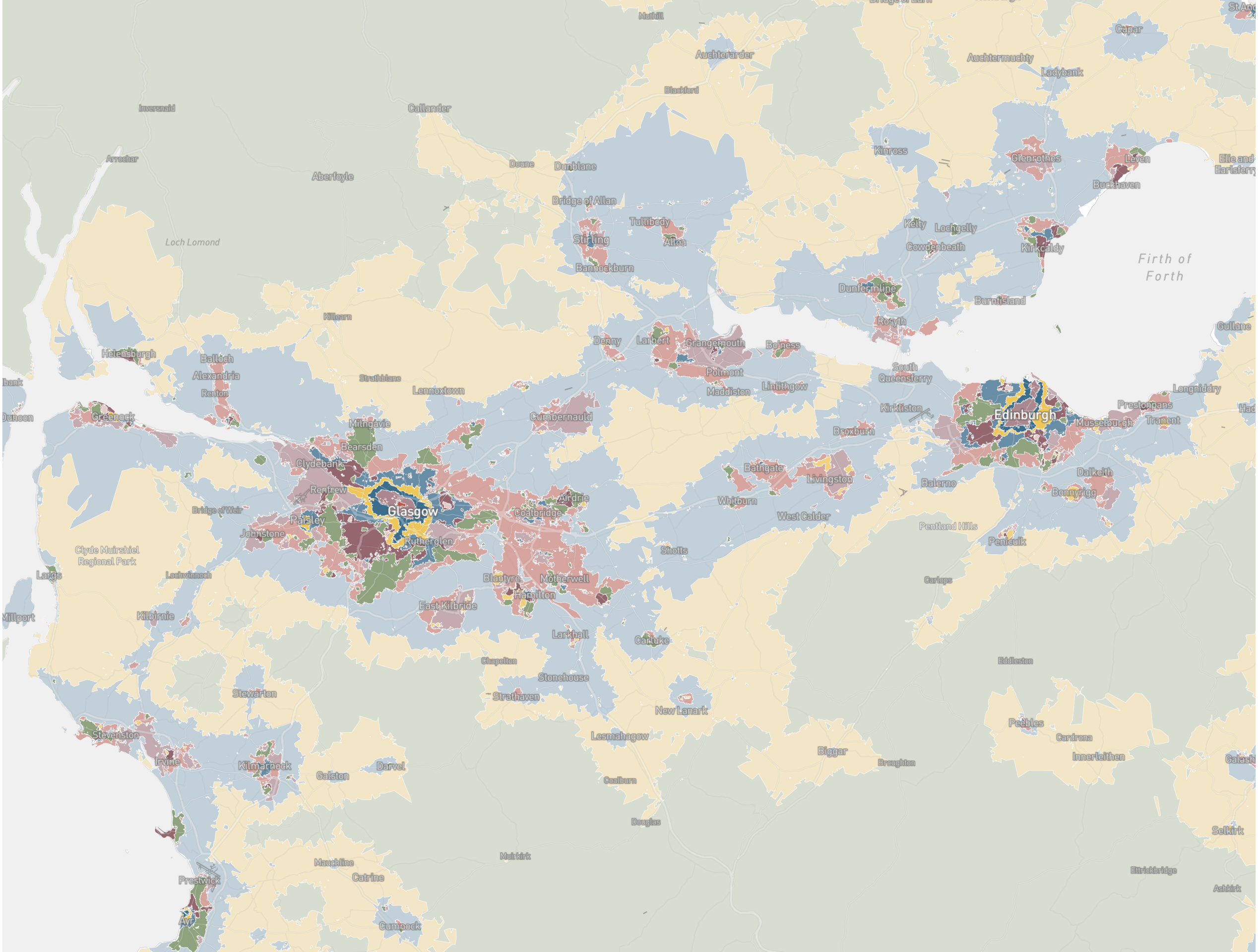
BRITISH SIGNATURES

Countryside

-

Urban Areas

- Periphery 
- Suburbs 
- Cities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Callander
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Dunblane
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Blantyre
Motherwell
Hamilton
Carlops
East Kilbride
Millport
Kilbirnie
Larkhall
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Eddleston
Chapelton
Stonehouse
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Stewarton
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Peebles
Cardrona
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Douglas
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Mauchline
Catrine
Prestwick
Ayr
Cumnock
Ettrickbridge
Ashkirk


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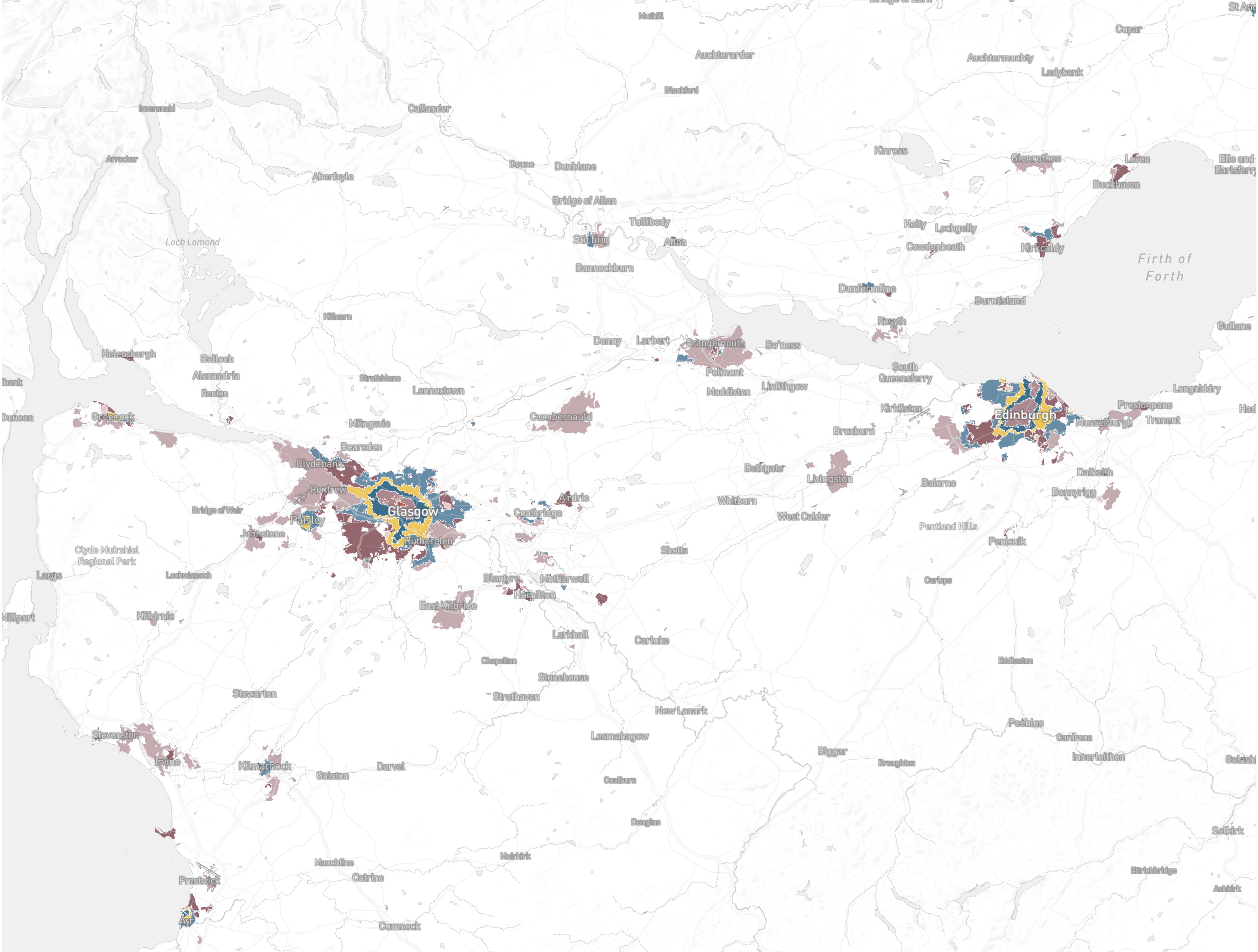
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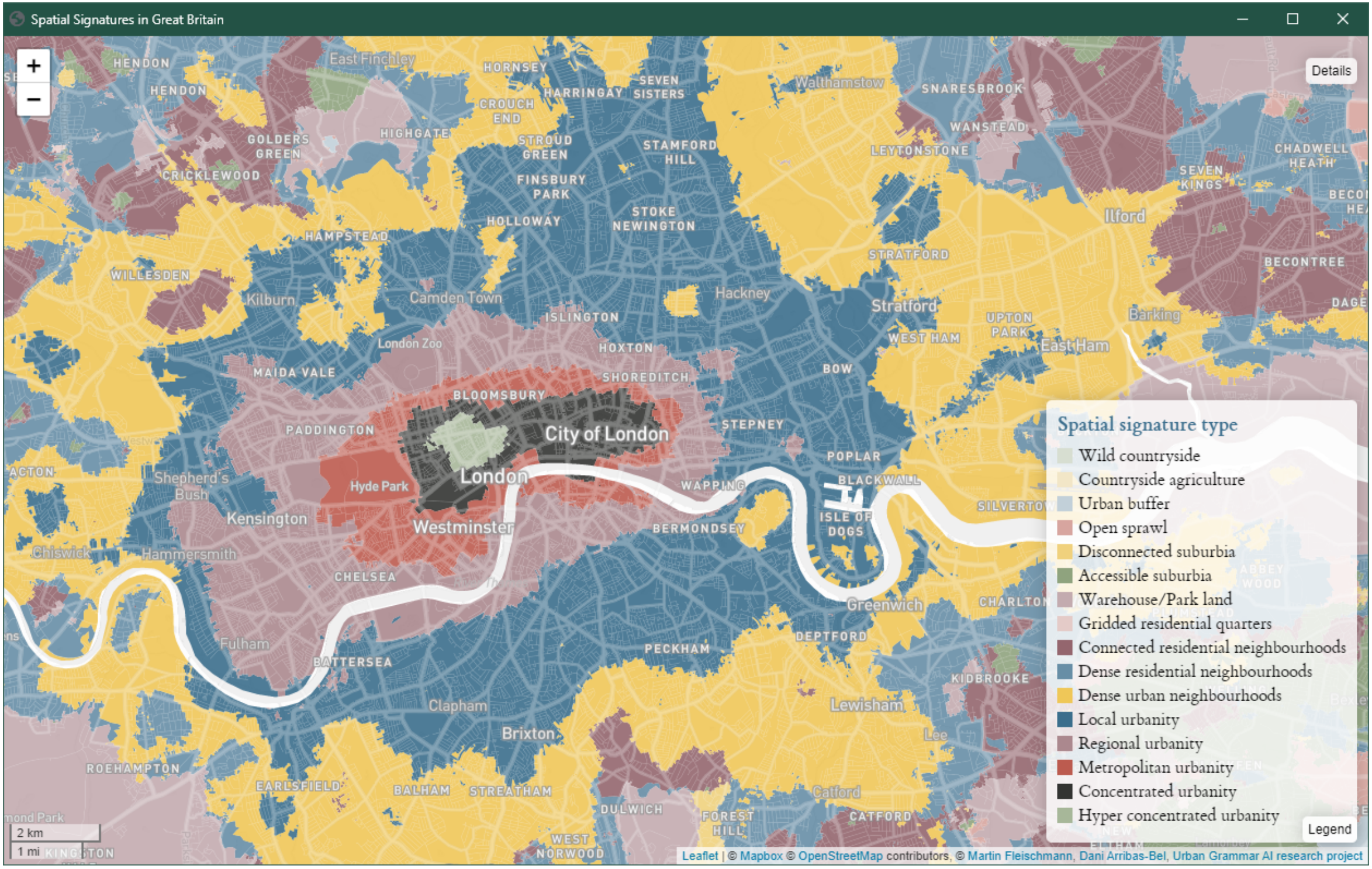
London's unique…



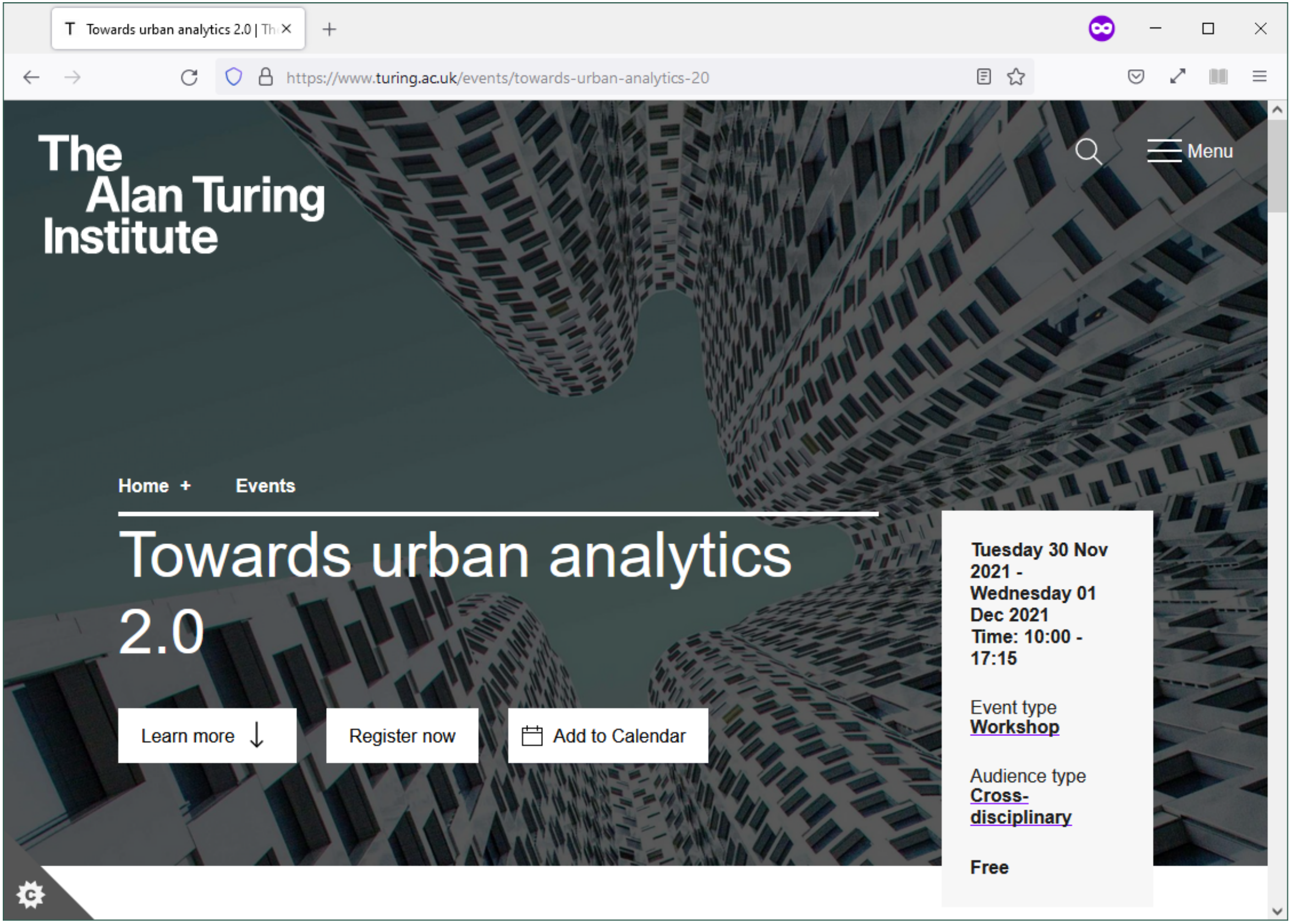
Milton Keynes…

Building an Urban Grammar

- Spatial Signatures are *building blocks* (the "words")
- For the rules to combine them, you need *time*
- `Phase II`: learn Spatial Signatures from *satellite*

Timeline

- Open data products: Spatial Signatures
- `2022-Q1`: AI experiments
- `2022`: Temporal open data product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Time: 10:00 - 17:15
Event type
Workshop
Audience type
Cross-disciplinary
Free

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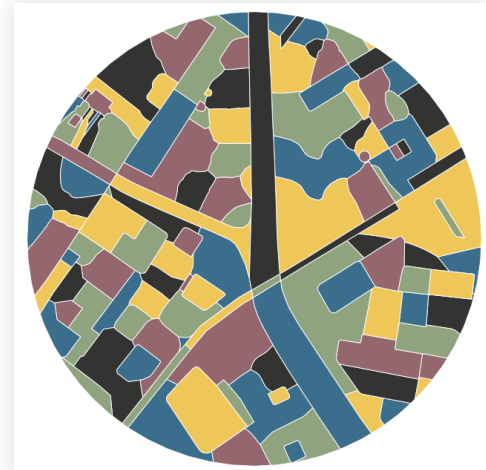
Appendix

Enclosed Tessellation



Characters

Form

- Dimension
- Shape
- Intensity
- Connectivity
- Diversity

Function

- Population
- Employment
- Industry
- Land use/cover
- Amenity access

$N \approx 300$

Context