

Semantic geocoding

Description

In the previous post I examined the what3words proprietary geolocation/geocoding tool. With that system the 3 words are pre-assigned randomly from a lexicon of acceptable words.

There are good reasons for detaching the 3 words from the content of the grid squares. If the 3 words referred to the content of the squares then map readers would take them as descriptive interpretations, that may also imply a value judgement. Erroneous descriptor words would also present as failures in the system, and decrease confidence amongst users.

However, with language-based AI tools it is possible to generate 3-word geocodes that meet the criteria, to be: memorable, simple, common, inoffensive, and able to form 3-word combinations that are unique for each square.

I presented ChatGPT with this challenge. The platform was able to demonstrate its ability to read a gridded plan while in conversational mode. This followed a conversation about the requirements for such a system. Here is an aerial photograph divided into 9 squares. The grid square here are larger than the 3m x 3m of W3W.



ChatGPT offered the following 3-word geocodes

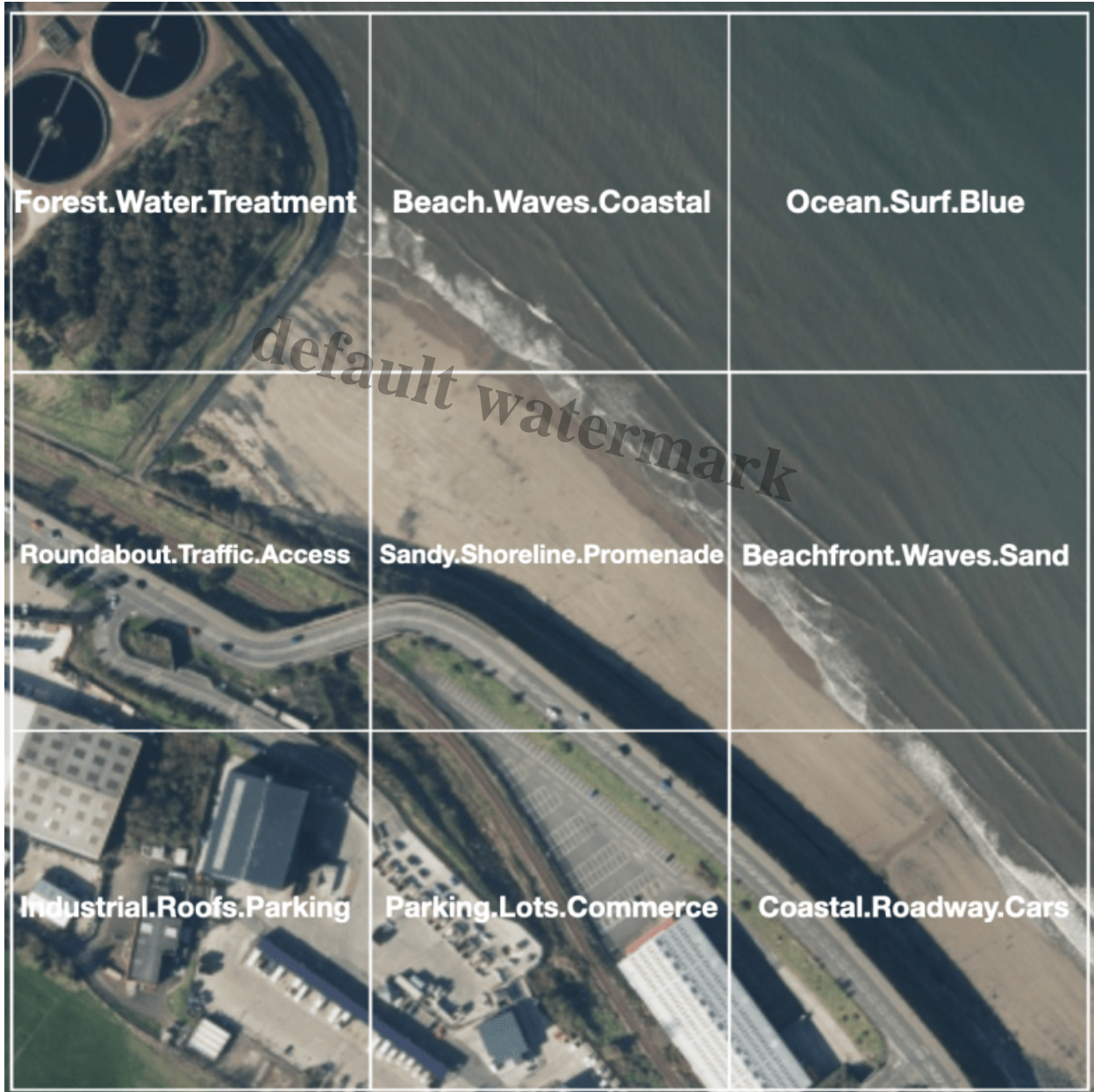
1. Top Left: **Roadside.Houses.Greenery**
2. Top Center: **Industrial.Roofs.Parking**
3. Top Right: **Tennis.Courts.Structures**

4. Center Left: **Grassy.Playfield.Residential**
5. Center: **Dense.Homes.Crossroads**
6. Center Right: **Gardens.Rooftops.Balconies**
7. Bottom Left: **Field.Paths.Trees**
8. Bottom Center: **Recreational.Fields.Paths**
9. Bottom Right: **Wooded.Parkland.Secluded**



This demonstrate the potential of NLP-based geocoding that takes account of ground features. Presumably, the semantic geocodes would have a different character in urban, rural, coastal, industrial, and wilderness areas, enhancing their usefulness beyond arbitrary word sequences.

Hereâ??s ChatGPTâ??s semantic geocoding for a coastal area.



ChatGPT concluded our conversation on the process with

â?¡ the current capabilities of OpenAIâ??s models can address many tasks without the need for additional training specific to a new dataset. The models are trained on diverse data, including text and images, which allows them to process and understand content to generate meaningful outputs based on given prompts. This existing capability could be

harnessed to perform tasks such as semantic geocoding based on aerial imagery, as demonstrated in our earlier exchanges. For many use cases, such as the generation of descriptive tags for geographic locations, the pre-trained models can indeed be directly applied.

Note

- Aerial photographs are in and around Edinburgh and are sourced from Digimap under provision of academic research. See <https://digimap.edina.ac.uk/help/copyright-and-licensing/> High Resolution (25cm) Vertical Aerial Imagery [JPG geospatial data], Scale 1:500, Tiles: nt2576,nt2575,nt2476,nt2475, Updated: 28 October 2022, Getmapping, Using: EDINA Aerial Digimap Service, <https://digimap.edina.ac.uk>, Downloaded: 2024-01-11 17:30:04.939

Category

1. Uncategorized

Tags

1. geocode
2. geotag
3. map
4. semantic
5. what3words

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