



M2B – Mapas y OpenData: herramientas de localización, visualización y análisis de geodatos

TECNOLOGÍAS SIG





Mallas discretas y algoritmos en JS



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Mallas discretas y algoritmos en JS

- * Machine Learning
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Machine Learning

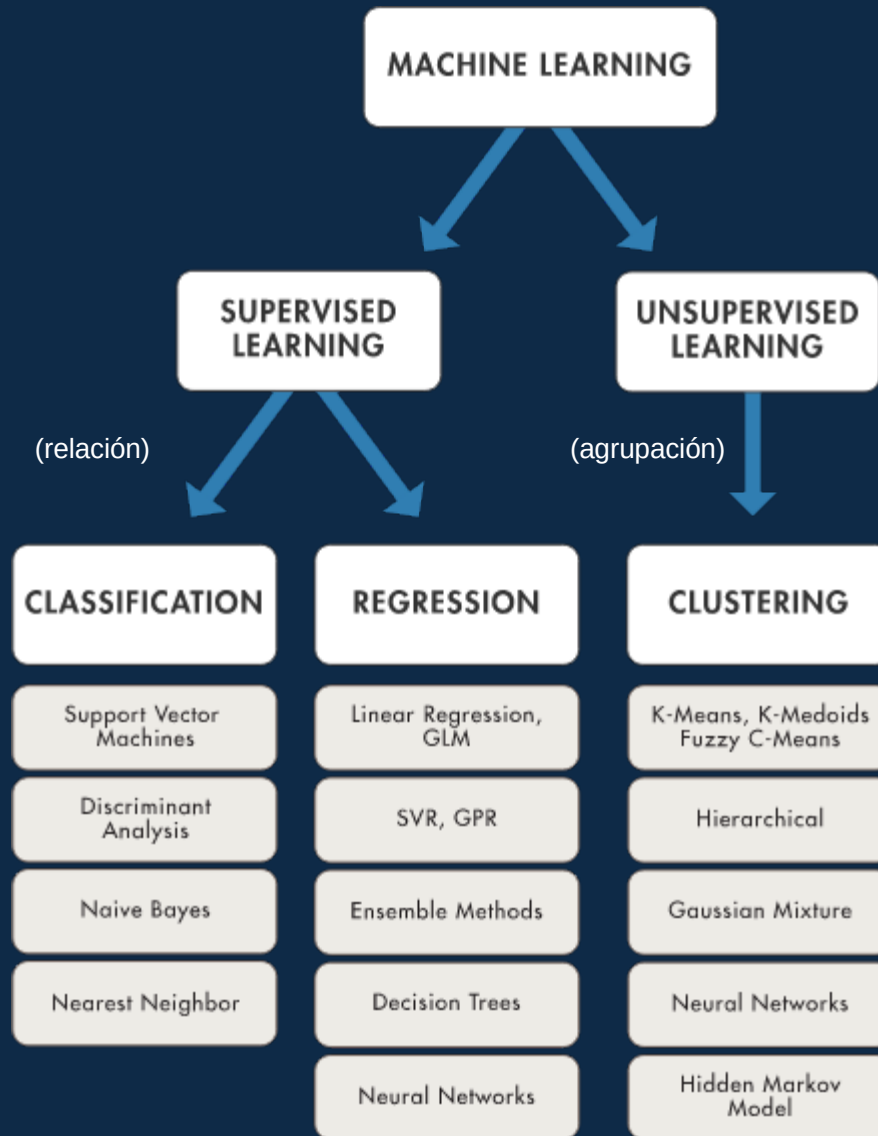
El **aprendizaje automático** (del inglés, *machine learning*) es ... una rama de la inteligencia artificial, cuyo objetivo es desarrollar técnicas que permitan que las computadoras *aprendan*

De forma más concreta, los investigadores del aprendizaje de máquinas buscan algoritmos y para convertir muestras de datos en programas de computadora, sin tener que escribir los últimos explícitamente.

Los modelos o programas resultantes deben ser capaces de generalizar comportamientos e inferencias para un conjunto más amplio (potencialmente infinito) de datos.

https://es.wikipedia.org/wiki/Aprendizaje_autom%C3%A1tico

Algoritmos



Clustering:
Agrupación por atributos

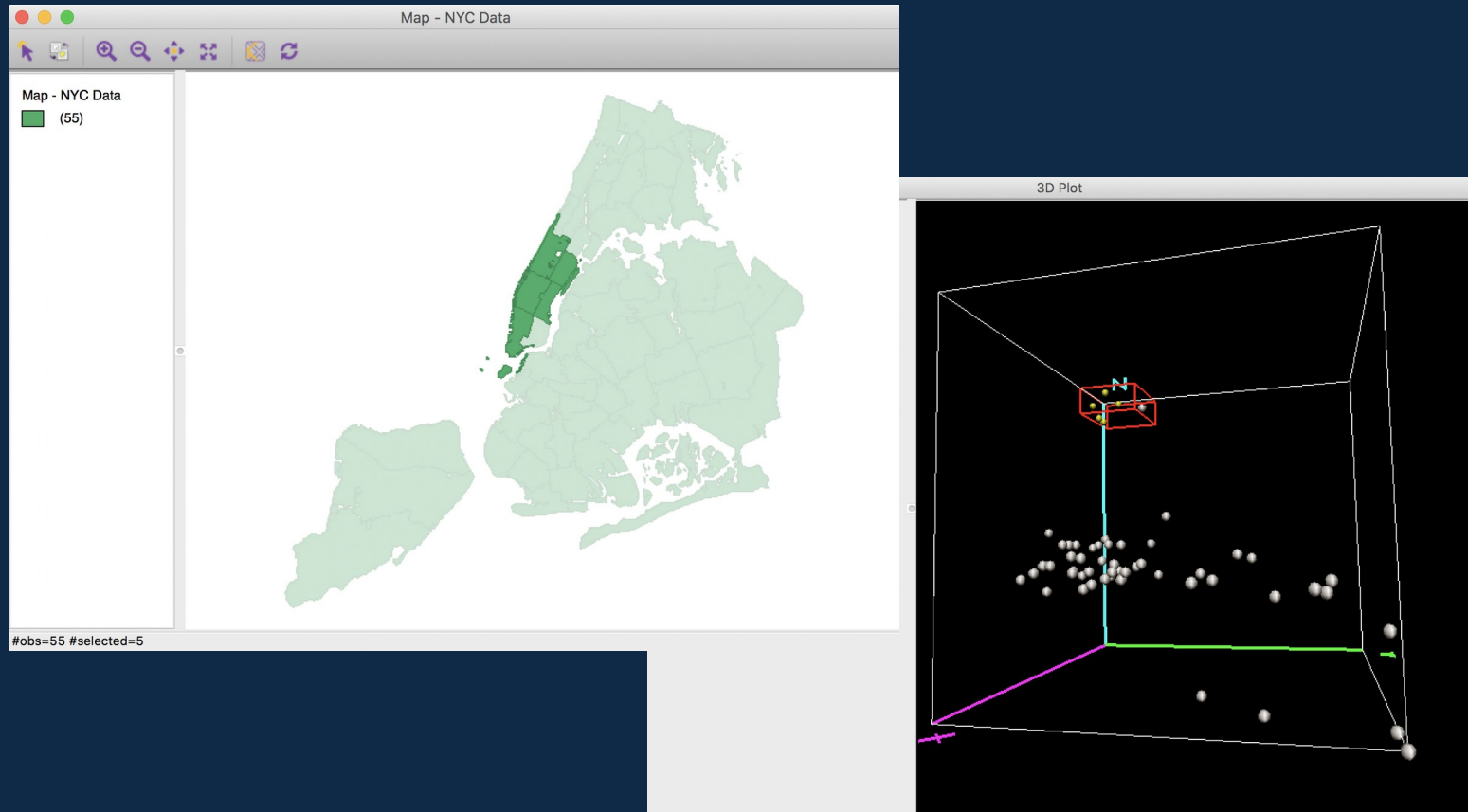
Classification:
Identificación a partir de variables

Regression:
Estimación de valores entre una variable dependiente y variables independientes



<https://github.com/sacridini/Awesome-Geospatial>

GeoDa un “clásico” de los SIG



<https://geodacenter.github.io/>

Javascript



[https://github.com/Turfjs](https://github.com/Turfjs/turf)
<http://rousseau.io/turf-mapboxjs/>



<http://geoblaze.io/>



<https://www.tensorflow.org/js>

“Problema”

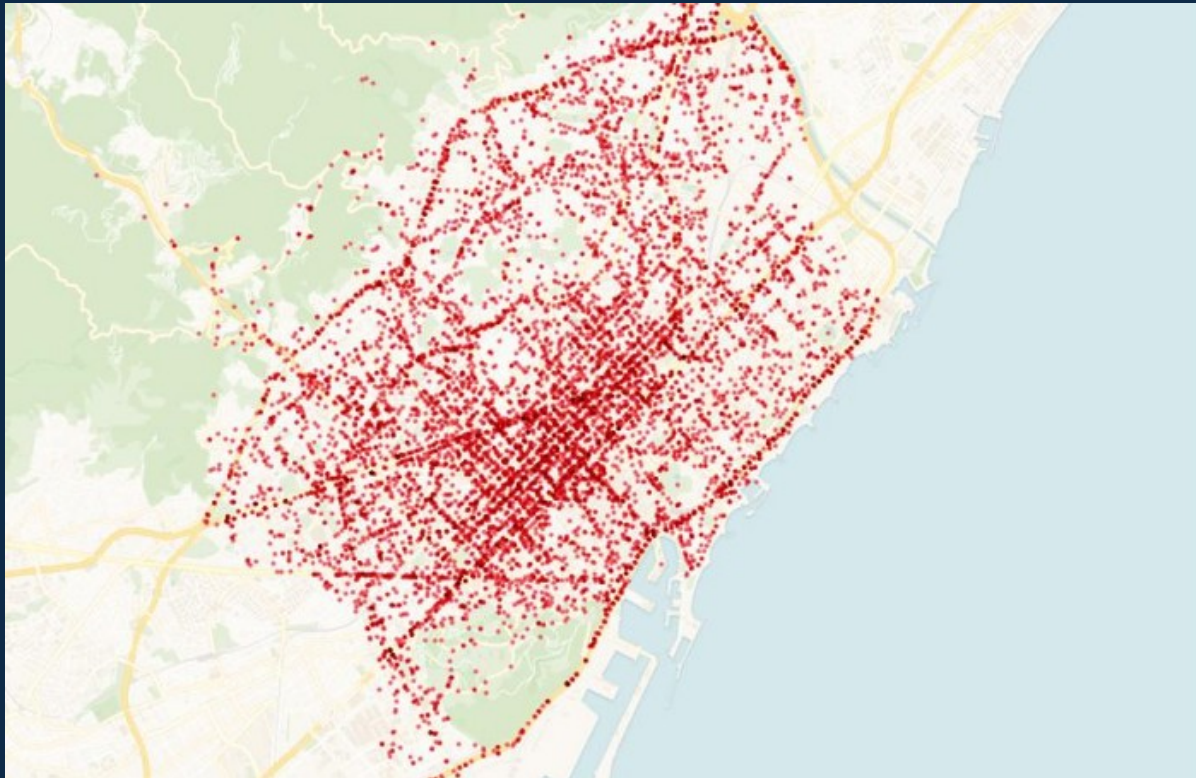
Cuando analizamos y utilizamos algoritmos con fenómenos puntuales (puntos) y queremos realizar predicciones.

Las coordenadas NO pueden ser tomadas en consideración tanto com input o output



Accidentes tráfico

¿En que sitios de BCN es más probable que haya un accidente un Sábado a las 5h de la mañana?

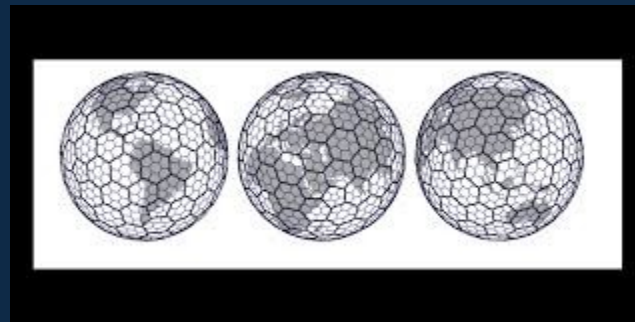


Mallas globales discretas

Hierarchical Geospatial Indexing

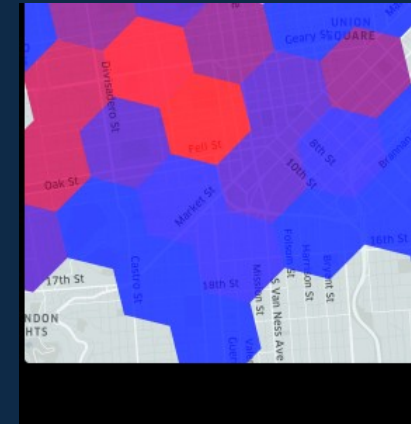
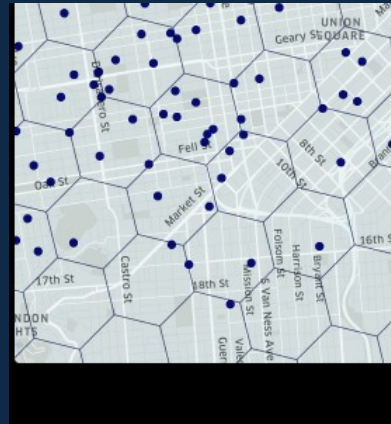
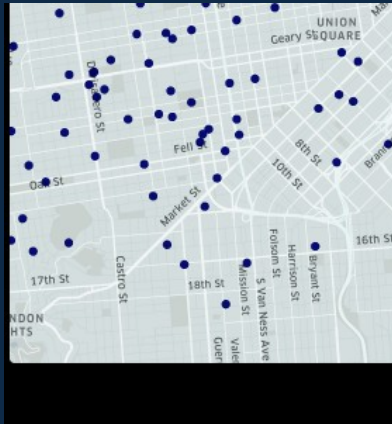
Son mallas (grids) de ámbito mundial, que dividen el mundo en –rectángulos, triángulos o hexágonos a diferentes resoluciones (niveles de zoom) .

Cada celda tiene un identificador único

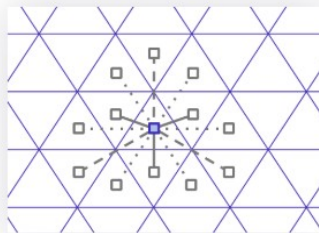


https://en.wikipedia.org/wiki/Discrete_global_grid

Mallas discretas

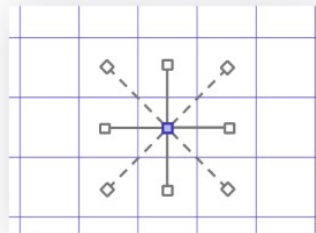


Triangle



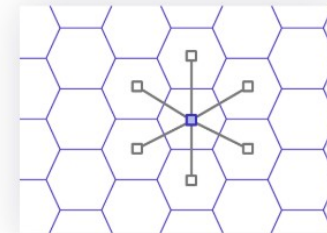
Triangles have 12 neighbors

Square



Squares have 8 neighbors

Hexagon



Hexagons have 6 neighbors

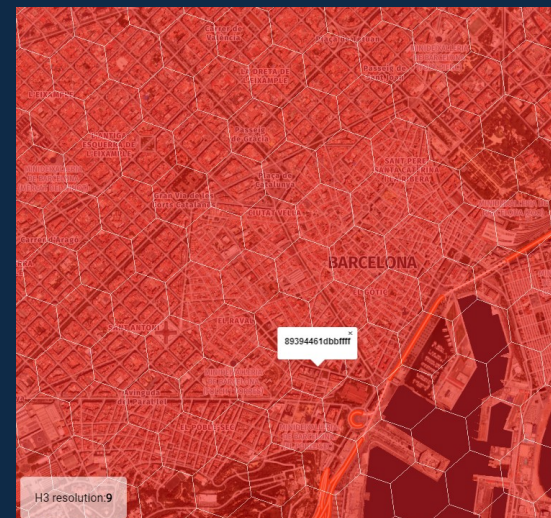
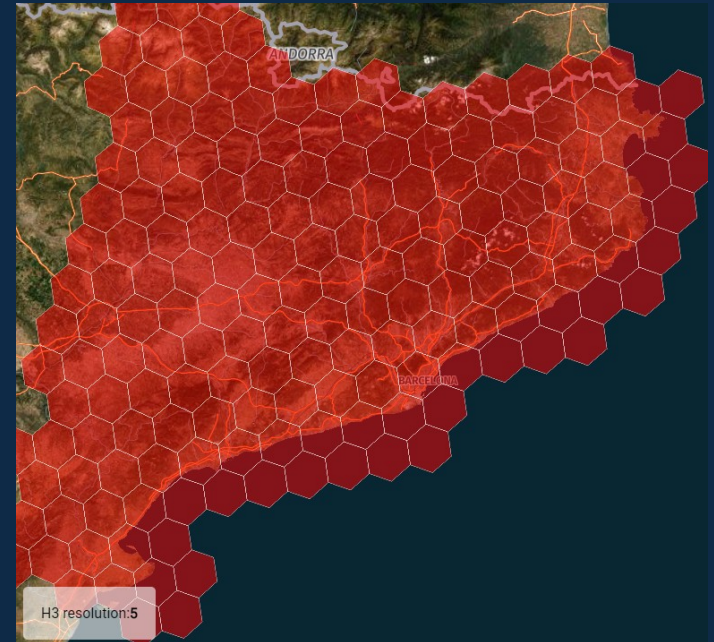
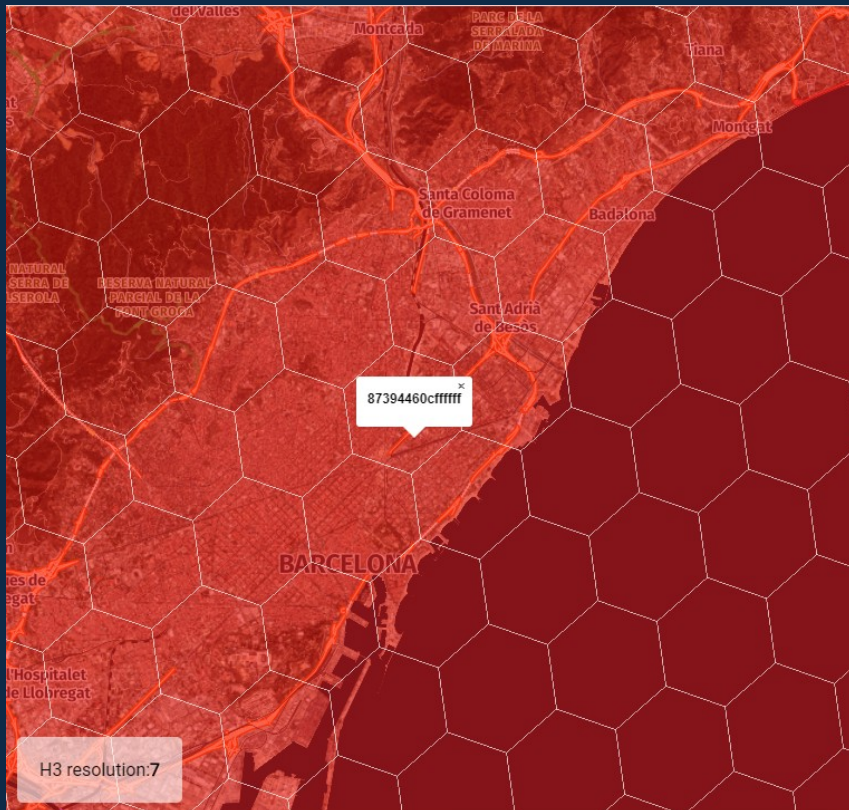
H3 –Uber : <https://eng.uber.com/h3/> (hexagonal)

GeoHash: <https://en.wikipedia.org/wiki/Geohash> (rectangular)

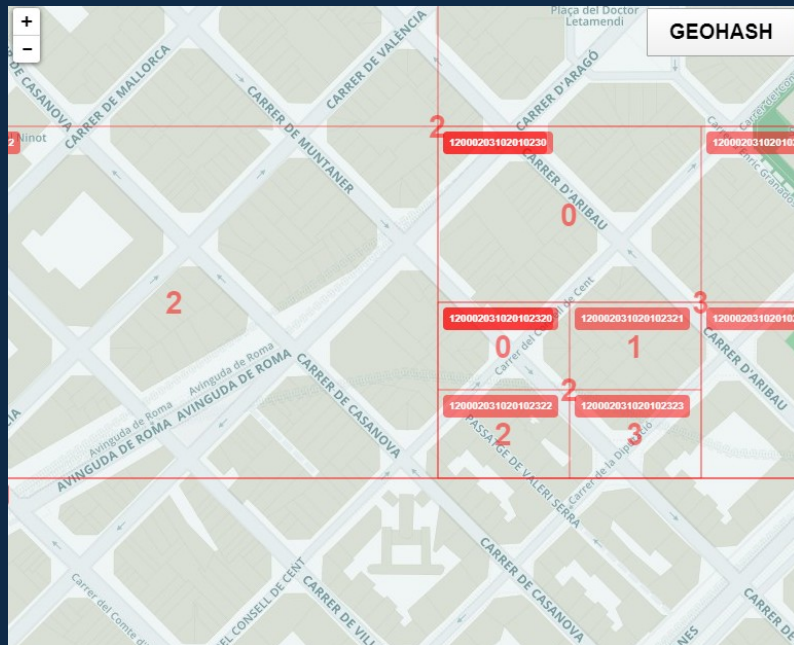
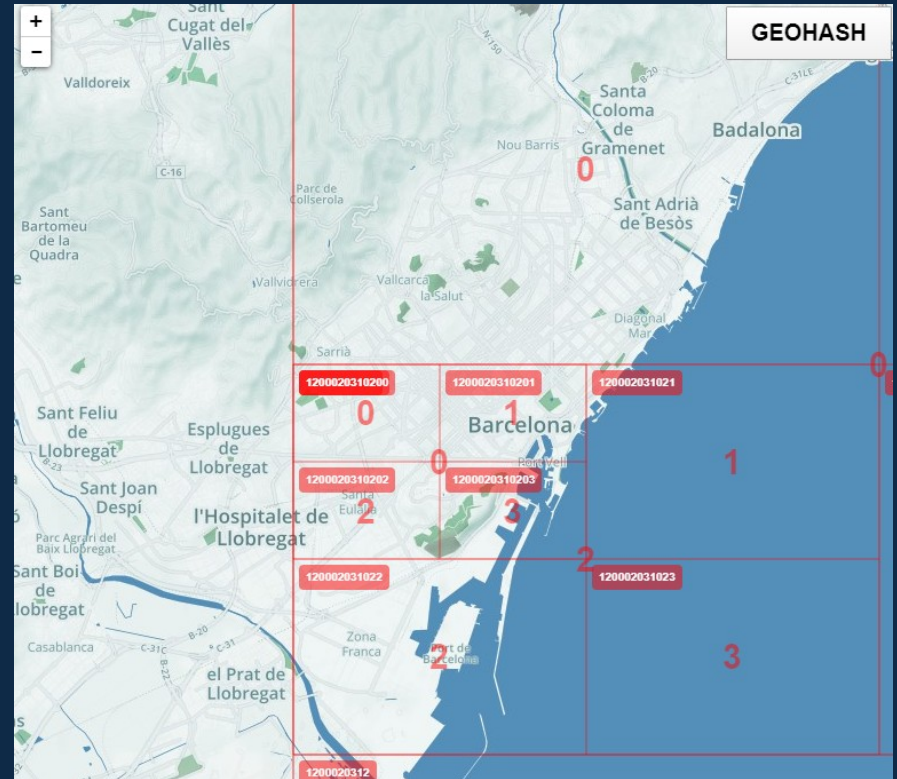
Google Location Codes: <https://plus.codes/> (rectangular)

What3Words: <https://what3words.com/> (rectangular)

Malla H3



Malla GeoHash



Modelo de Negocio

Avuxi: clasifica todos los rincones del planeta según su popularidad

<https://www.avuxi.com/>

The screenshot displays the Avuxi website interface. At the top, the Avuxi logo is on the left, and navigation links for Products, Demos, Pricing, Blog, and Contact are in the center. On the right, there are buttons for 'Free Trial' and 'Log In'. Below the navigation bar, a search bar contains the text 'Ciutadella Park, Passeig de Picasso, Barcelona, Spain'. To the right of the search bar is a language selector button labeled 'English'. The main content area shows the search results for 'Ciutadella Park'. It includes a title 'Ciutadella Park', a location pin icon, and the text 'Superb location for Sightseeing!'. Below this, there are four circular rating icons: 9.8 for 'Superb Sightseeing', 7.5 for 'Very good Eating', 6.5 for 'Good Shopping', and 7.2 for 'Good Nightlife'. Each icon is accompanied by a small icon representing the category. Underneath the ratings, there is a section titled 'Nearby top locations' which lists several nearby places with their walking distance in minutes: Parc de la Ciutadella (1 min), Museu de la Xocolata (4 min), Mercat de Santa Caterina (8 min), L'Antic Teatre (10 min), Barcelona Zoo (3 min), El Xampanyet (6 min), El Vaso de Oro (8 min), Can Paixano (9 min), Vila Vinitca (8 min), and El Corte Inglés (15 min). At the bottom of the page, there is a note 'Based on 1,205,418 interactions by locals and travellers.' and a logo for 'Powered by TopPlace™'.

AVUXI

Products ▾ Demos ▾ Pricing Blog Contact

Free Trial Log In

Ciutadella Park, Passeig de Picasso, Barcelona, Spain

English

Ciutadella Park

📍 **Superb** location for Sightseeing!

9.8 📷 **Superb** Sightseeing

7.5 🍴 **Very good** Eating

6.5 🛒 **Good** Shopping

7.2 🍷 **Good** Nightlife

Nearby top locations

📍 1 min Parc de la Ciutadella

📍 4 min Museu de la Xocolata

📍 8 min Mercat de Santa Caterina

📍 10 min L'Antic Teatre

📍 3 min Barcelona Zoo

📍 6 min El Xampanyet

📍 8 min El Vaso de Oro

📍 9 min Can Paixano

📍 8 min Vila Vinitca

📍 15 min El Corte Inglés

time / distance

Based on 1,205,418 interactions by locals and travellers.

Powered by **TopPlace™**

Modelo de Negocio

Starlab: (Greendex) Índice verde urbano

<https://greendex.es/>

The screenshot shows the Starlab GreenDEX website. The header features the Starlab logo (Living Science) and the GreenDEX logo. Navigation links for Home, How, Why, and Greenmaps are present. The main banner displays an aerial view of a city street with the text "Check the Greendex of your house !". Below this, there is a search input field labeled "Enter your address" and a green button labeled "Navigate through the Greenmaps".

Below the banner, the "Property Vegetation Rating" section is visible. It includes a table with a rating scale from G1 to G5, where G1 represents the highest rating (darkest green) and G5 represents the lowest (lightest green). The table also includes a note: "Very green surrounding area (%) - More healthy surrounding".

Property Vegetation Rating	
G ₁	[Darkest Green Bar]
G ₂	[Dark Green Bar]
G ₃	[Medium Green Bar]
G ₄	[Light Green Bar]
G ₅	[Lightest Green Bar]

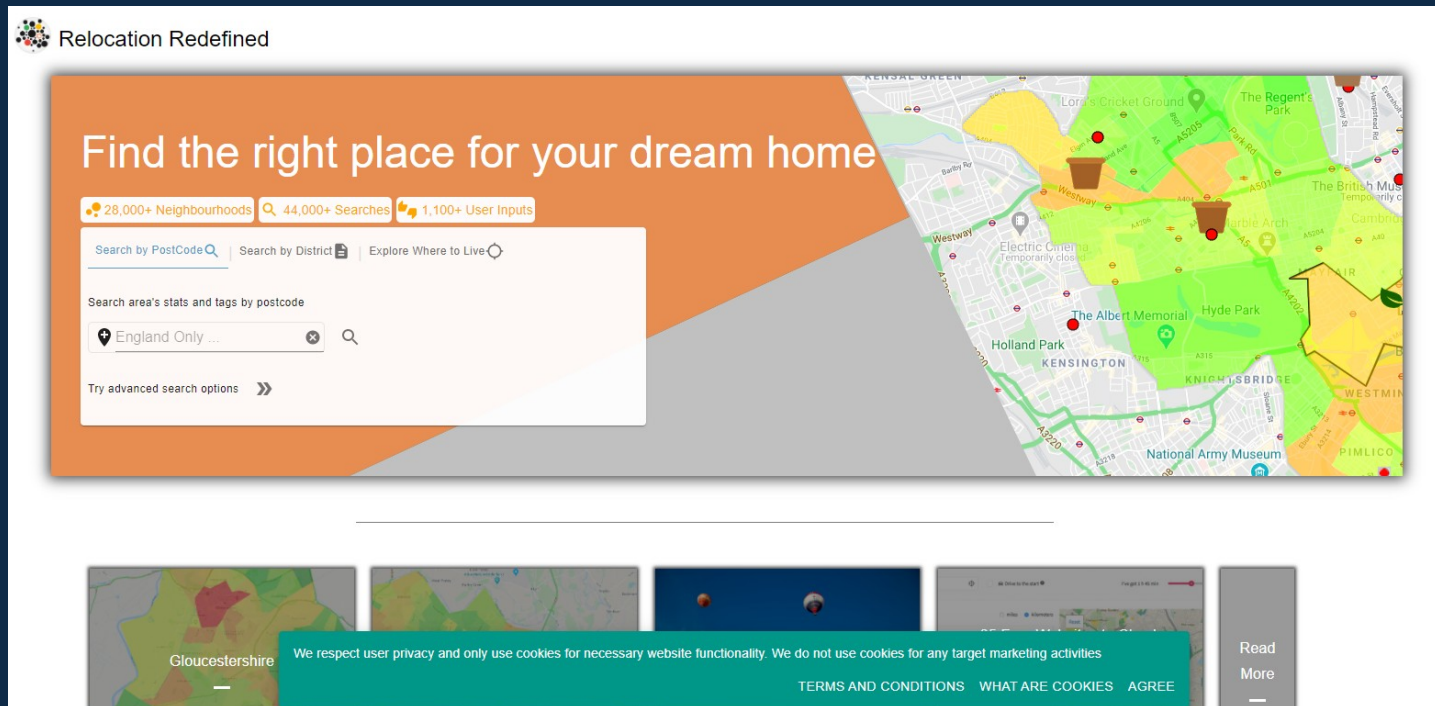
Very green surrounding area (%) - More healthy surrounding

The GreenDEX logo is also displayed next to the rating table. Below the logo, a text block explains: "The Green Index translates the vegetation observed from satellite data to an easily interpretable value (Gx), quantifying the vegetation present around your home. The higher the green intensity of the leaf, the healthier surrounding!"

Modelo de Negocio

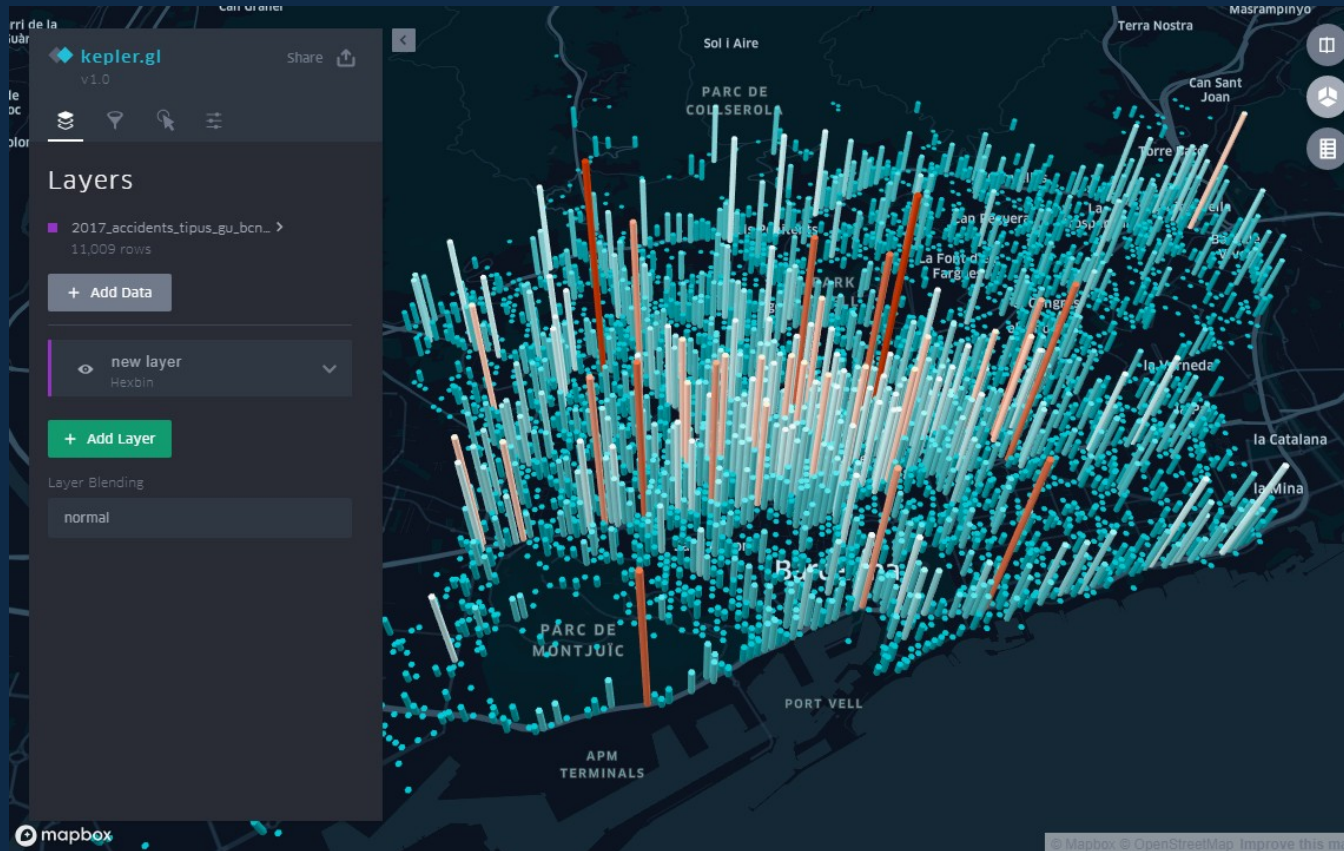
SmartPostCode: Sitios dónde vivir en UK según preferencias

<https://www.smartpostcode.co.uk/>



KeplerGL

Es una aplicación que nos permite trabajar con hexágonos



<https://kepler.gl/>