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## MapDraw - an online tool to draw anything you want on top of a map

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## 1. The MapDraw Tool

MapDraw is an online tool to draw on maps in order to annotate them. You can try it using the QR-Code on the right.

With MapDraw, you pan and zoom in a multi-scale map, and when you find the view you want to annotate, you can switch to the draw mode (Figure 1). When all your layers are finished, you can download the drawing as a georeferenced geojson file (Figure 2). You do not download the mouse stroke, but the painted polygon (Figure 3).

The tool is open source and can be installed and tuned on your server.

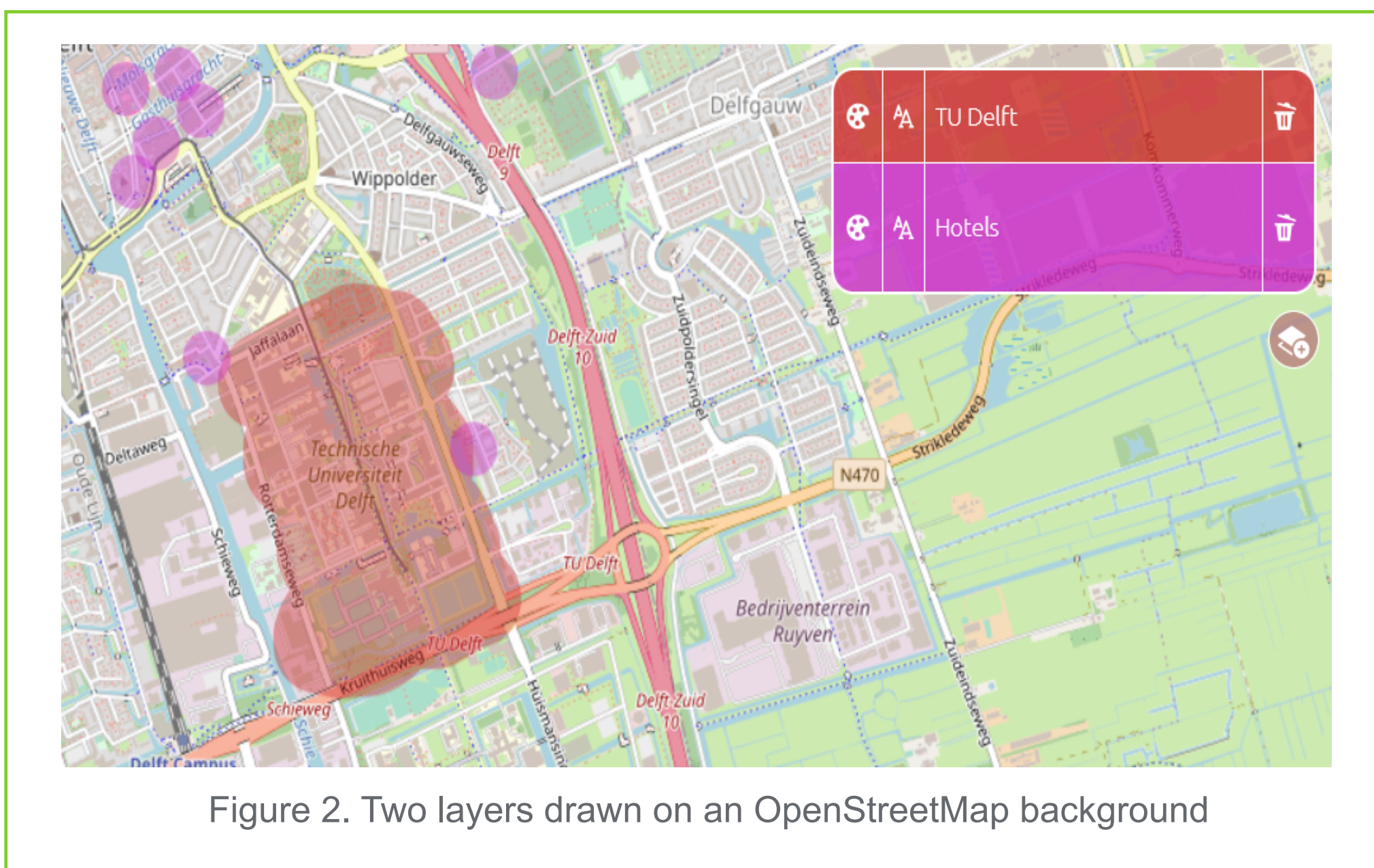


Figure 2. Two layers drawn on an OpenStreetMap background

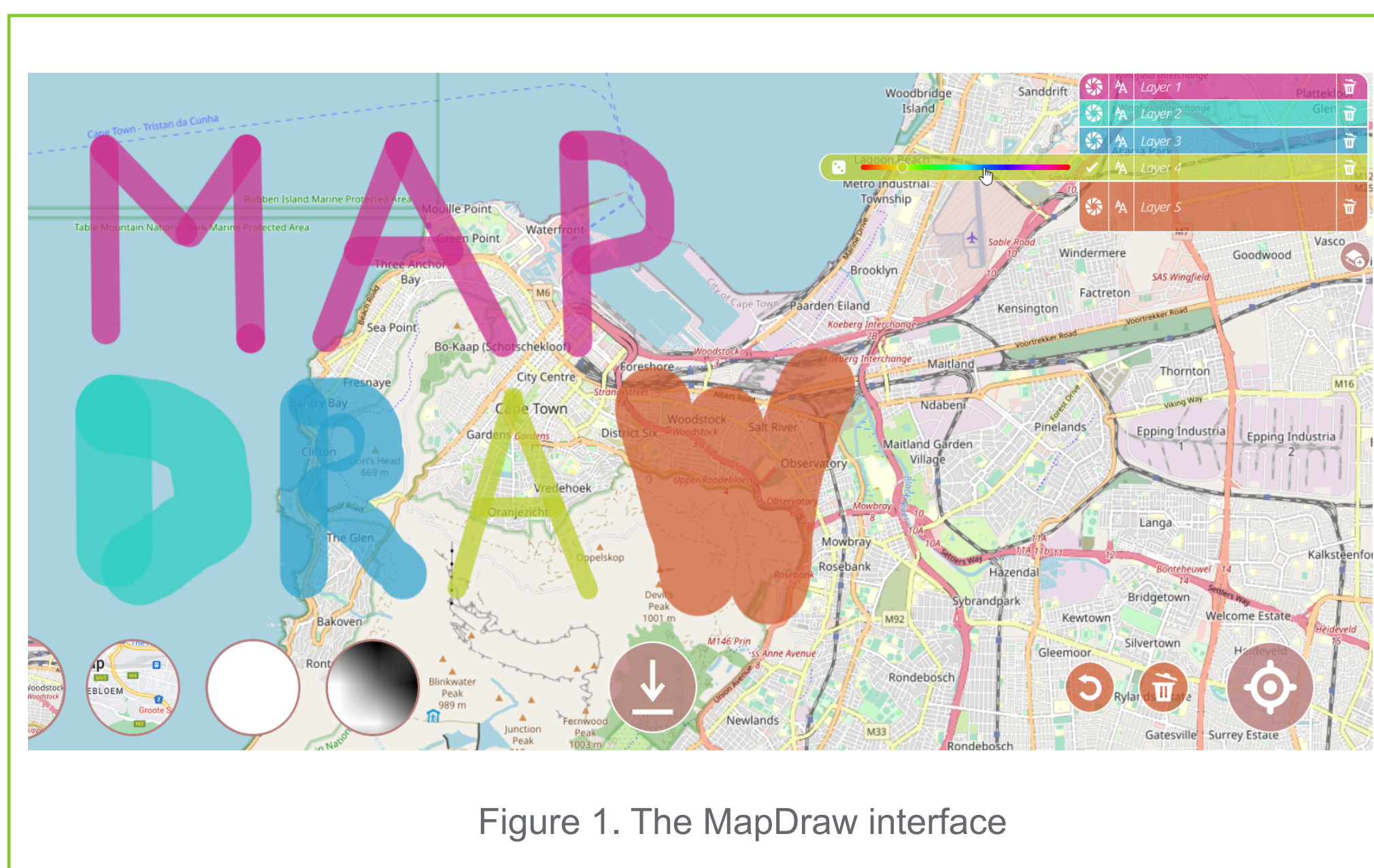


Figure 1. The MapDraw interface

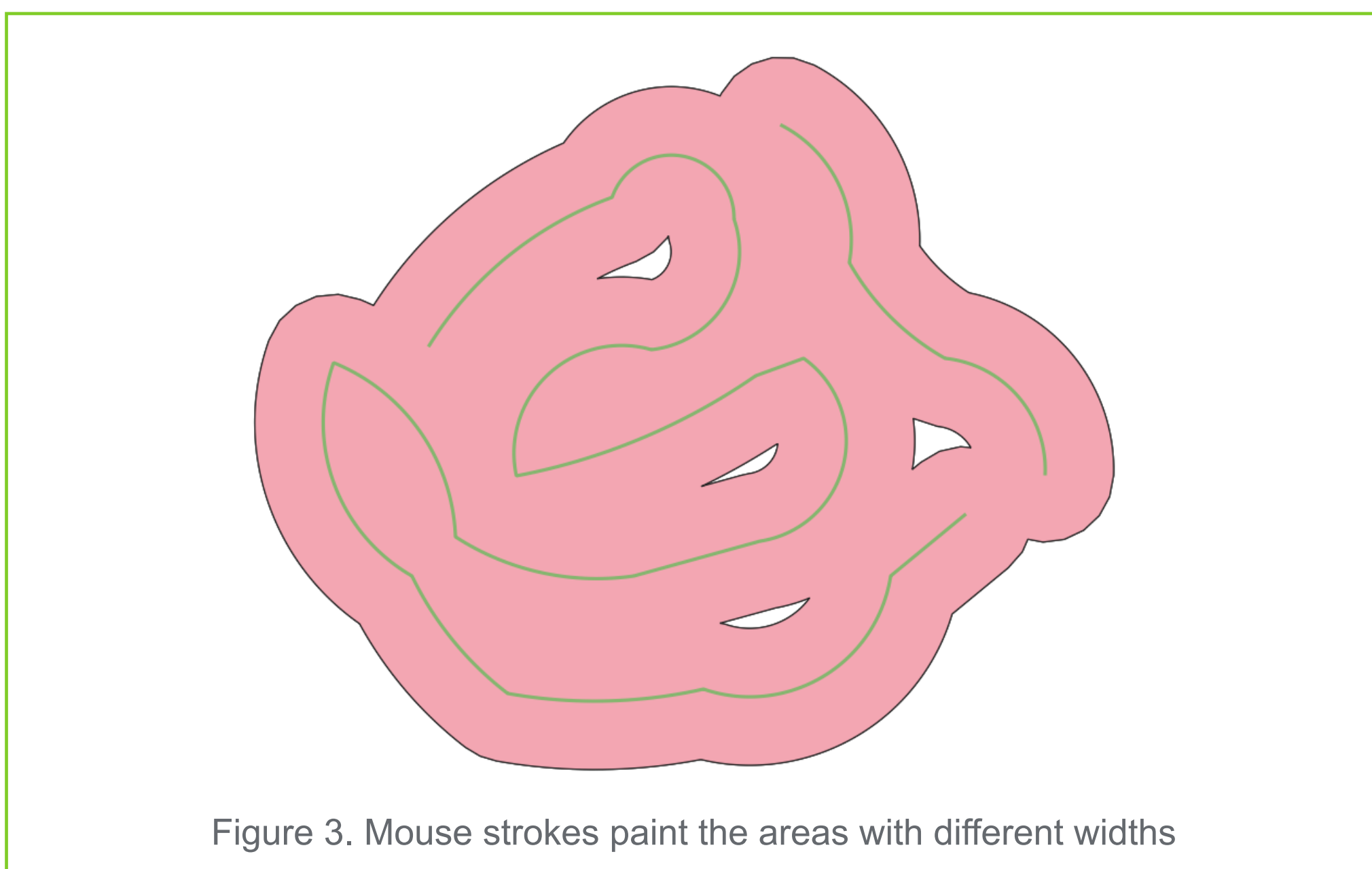


Figure 3. Mouse strokes paint the areas with different widths

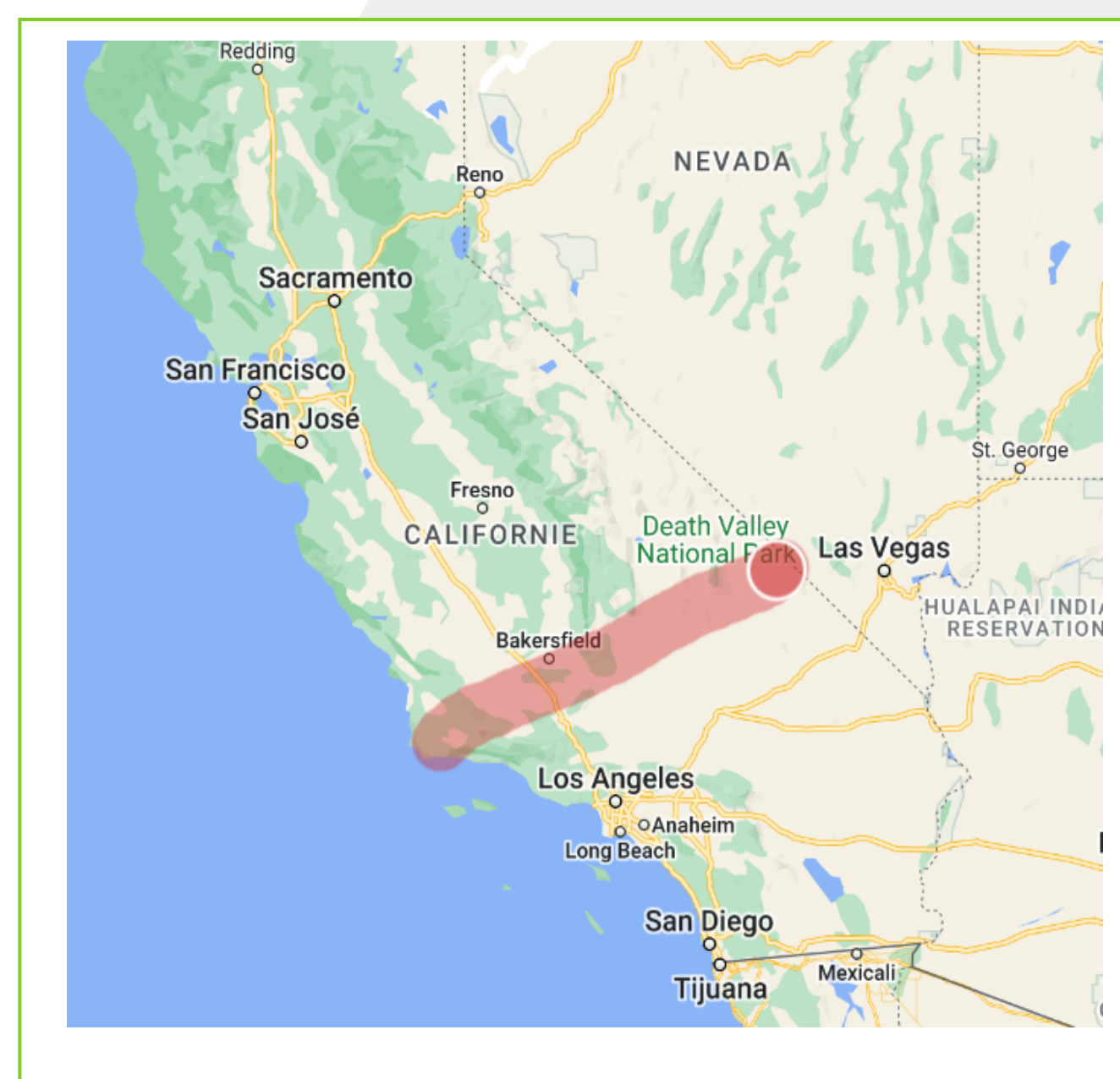
<https://github.com/LostInZoom/lostinzoom-experiments/tree/master/mapdraw>

## 2. Applications of MapDraw



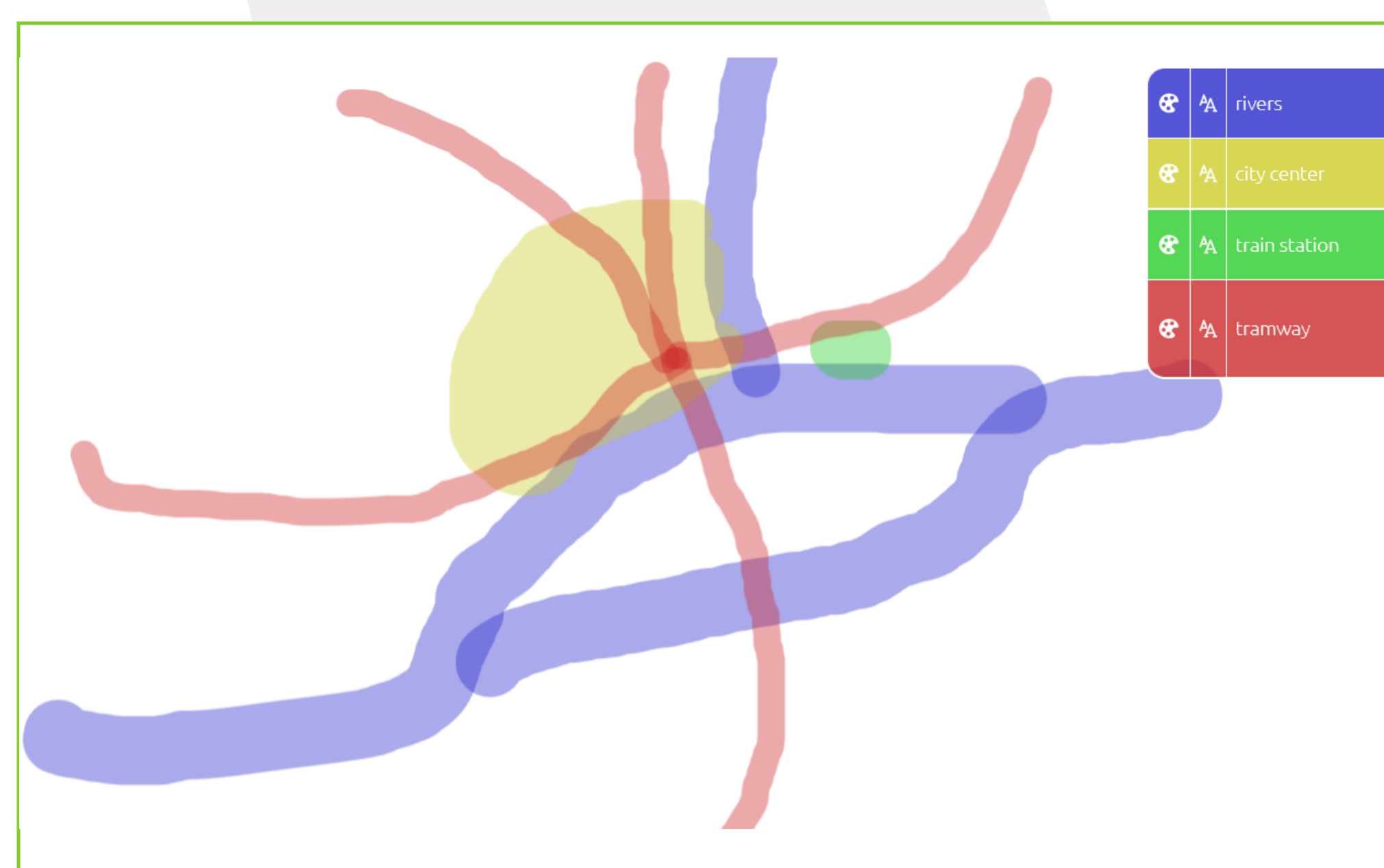
### Annotating maps for machine learning

Annotating images has become a classical task to generate training datasets for deep learning models. MapDraw can also be used to annotate maps and then generate tiles of images to train models dedicated to pattern recognition in maps (Potié et al. 2022).



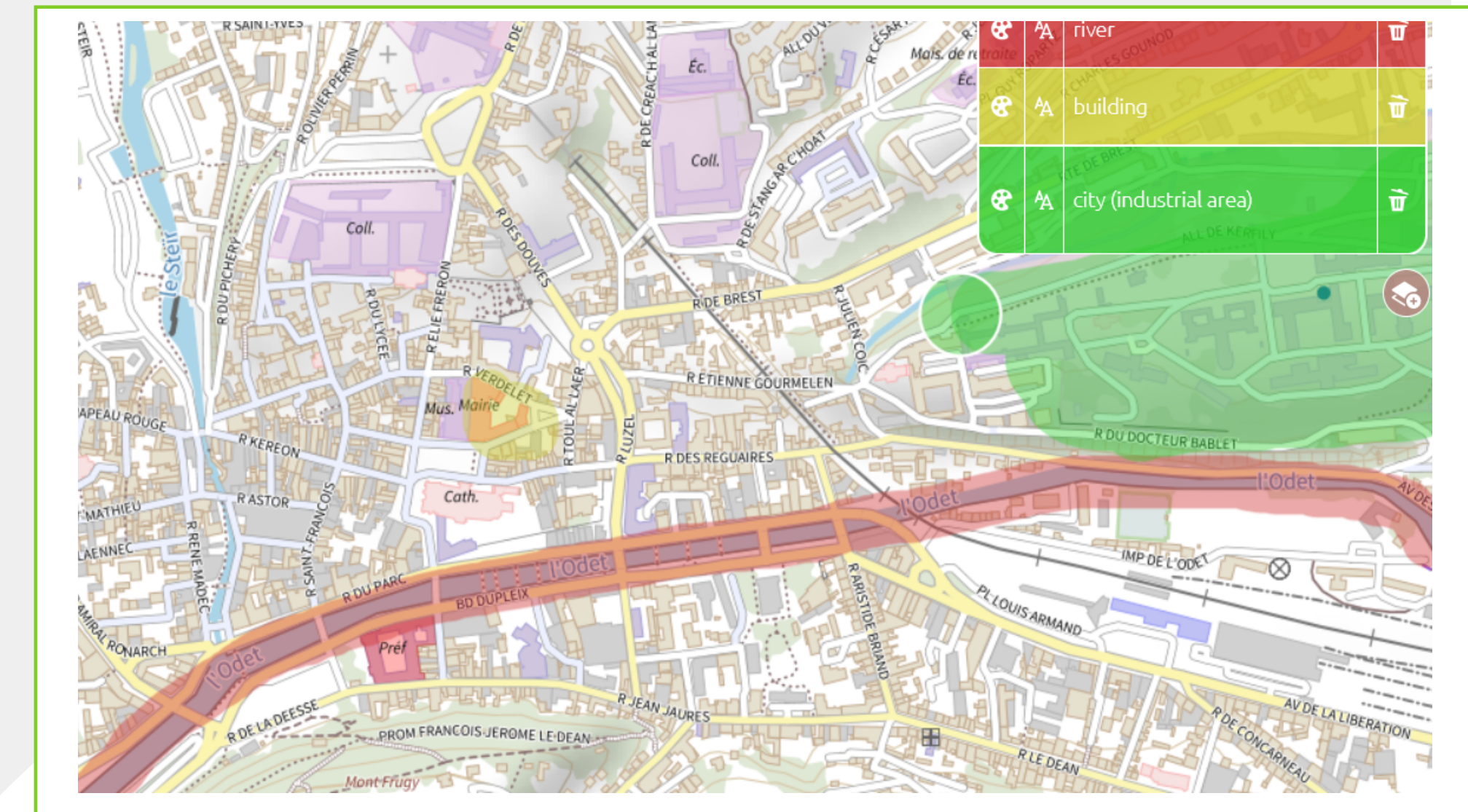
### Expert evaluation of maps

MapDraw can be used to help cartographic experts to evaluate a map that was produced with an automatic process (e.g. map generalisation or text placement). You can explore a multi-scale map and then stop on a view that is worth annotating and then draw on areas of bad or good quality



### Annotating maps during crisis management

During a crisis caused by a natural disaster (earthquake, storm, flood, etc.), the crisis management teams, i.e. firemen in France, use maps to make all their decision. They usually have paper maps on which they draw to decide field operations, but it is complex to have multi-scale views with paper maps, or even share the annotations with the field agents. MapDraw can replace the paper maps to allow this shareable and multi-scale view of the crisis space.



### Digital 'paper and pencil' during user surveys

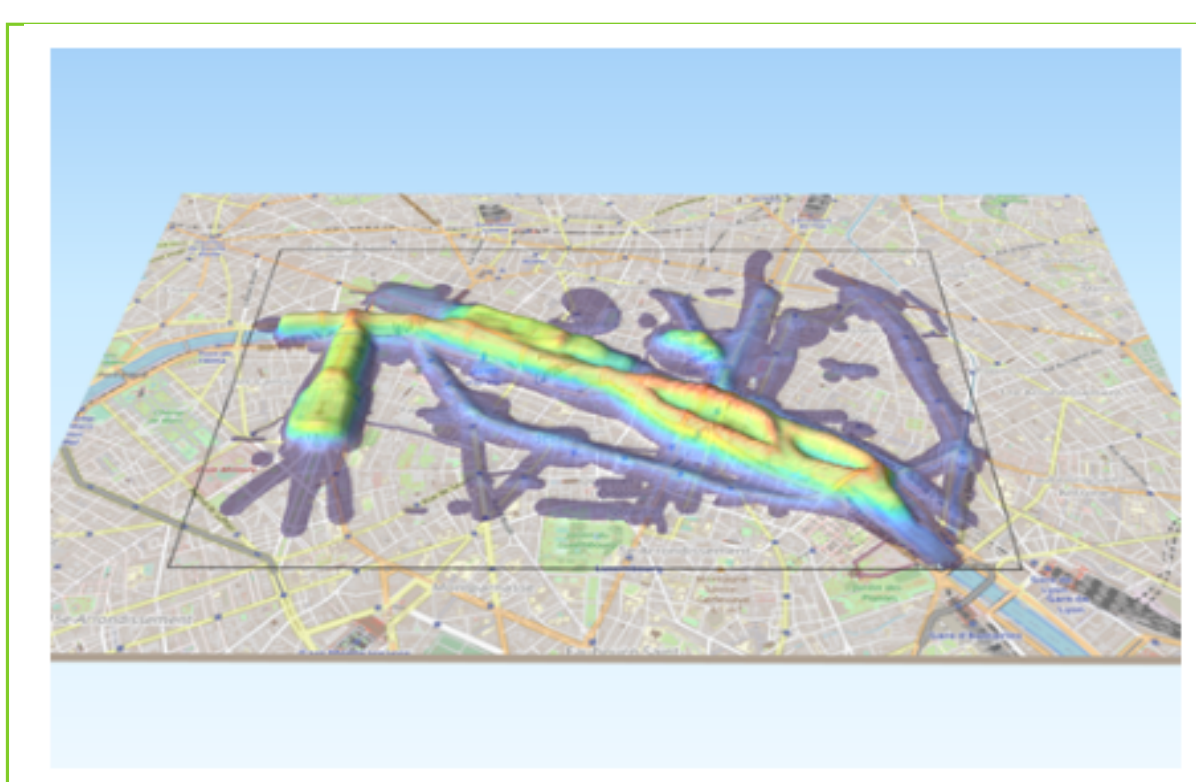
It is usual to ask people to draw on a map during user surveys (e.g. Montello et al. 2014, illustrated with MapDraw on the left). MapDraw provides to easily enable such surveys, and most of all, the output drawings are exported as GIS data to be analysed while paper-and-pencil drawings are much more complex to process automatically.



### Drawing georeferenced sketch maps

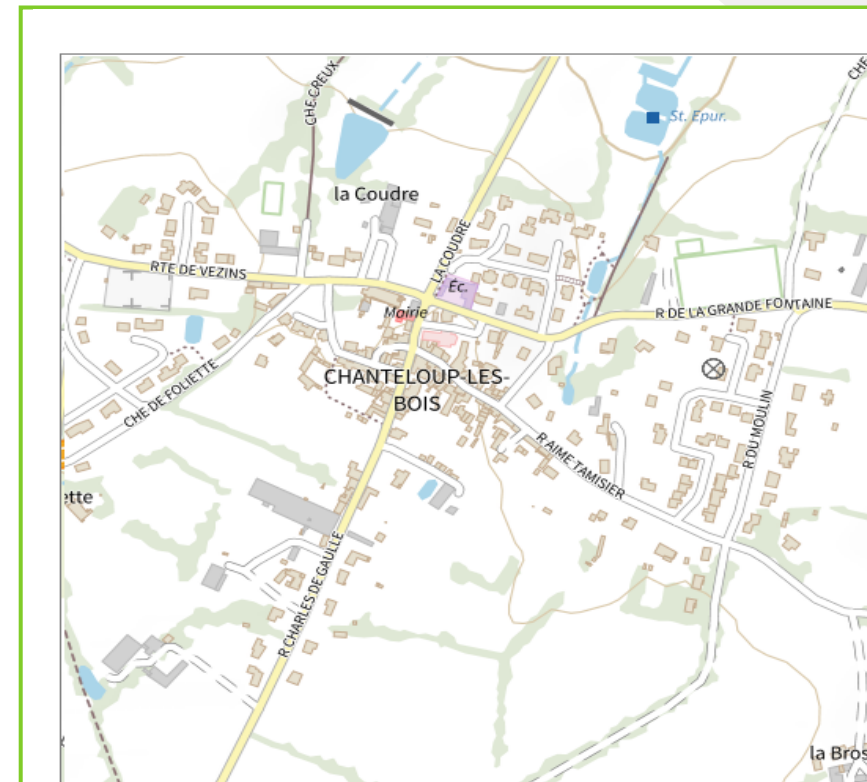
Sketch maps are often used to study spatial cognition or to capture a mental map from people. If you use an empty background map, you can center on real coordinates and ask users to draw a sketch map of the place (a sketch map of Nantes, France is drawn on the left). The sketch map can then be used in a GIS.

## 3. How to Use MapDraw Data?



### Raster analysis for multiple drawings

During a user survey, multiple drawings can be made for the same maps, and we developed QGIS workflows to convert the multiple drawings into raster. The raster can be analysed in 3D, to find hotspots and other common trends in the different drawings (see image on the left).



### Generating tiles from the drawings

As MapDraw can be used to annotate maps in order to train machine learning models, we developed scripts to generate pairs of tiles, one with the map, and one with the drawings, separated in layers or not.

## Contact



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Personal Website



## References

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