Contributing 360 images to Mapillary

By Jacopo Farina, for Walkabout Milano, 2024-11-05 @ Meta

Who am I?

- Contributor to OSM since many years
- Contributed to Mapillary also for years, from a phone camera
- GIS/cartography "enthusiast"
- Work as a developer but in a completely different field, and as a teacher

Github: jacopofar

Tech blog: jacopofarina.eu

Website about Milan (very much WIP)c: Milanorama

Why Mapillary

Mapillary gives you an **historical** archive of geolocated images, that can be used **freely**.

Perfect as a reference for OSM data, machine learning or artistic projects.

For micromapping, you can see details not visible from satellite pictures or hard to add on the fly using mobile apps. It is directly integrated in the *Id* editor.

Mapillary/Meta does blur faces and plates, extract common features and generates point clouds.

Machine Learning based on Mapillary data

Bike Map - Using Computer Vision for Bike Routing: an ML project by Campbell, Monika and Edith

Using a GoPro Max 360

I was contacted a few months ago by Meta's Reality Lab. They saw my contributions in Milan and offered me to borrow their GoPro MAX 360 which was not used anymore by another Mapillary contributor.

The camera is mounted on the bike helmet.

An unprocessed frame:

Going by bike

I decided to use the camera on the bike since:

- Mapillary has probably less coverage in Milan on parks and bike lanes
- A bike can be very fast and efficient compared to walking
- It’s fun!

As it turns out, a 360 camera is **way** more effective than a phone. On a bike, even better.

Where to go?

Initially at will, later planning and trying to cover new areas each time.

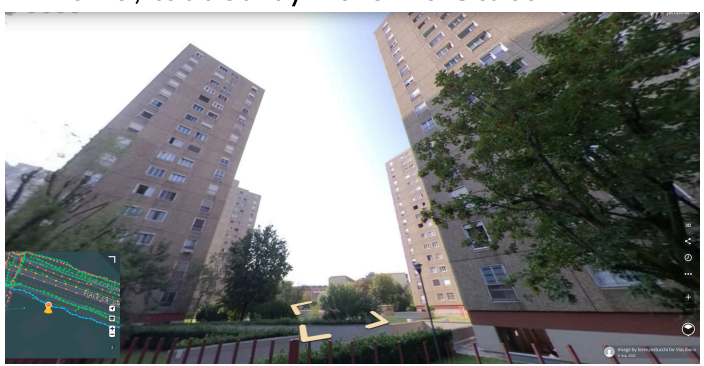
- Personal favorites: my high school, where I usually go running, the area near my home
- Parks, like Parco Nord

"Historical" footage

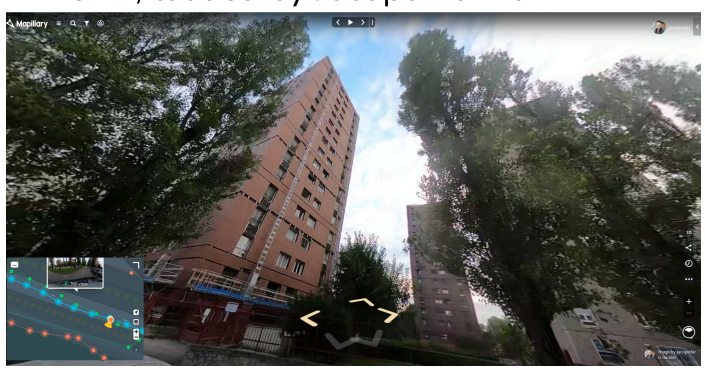
Passing in Ca Granda, where 360 pictures where made in 2020, we can see the effect of the energy efficiency intervention (thermal coat).

This particular intervention is a case study for BPIE (Building Performance Institute Europe).

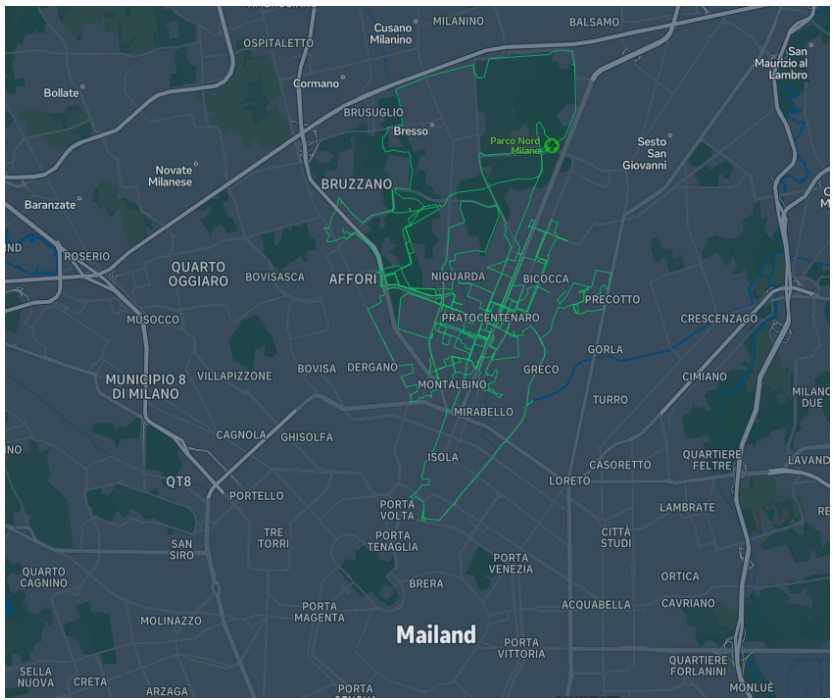
In 2020, loaded by Lorenzo Stucchi:



In 2024, loaded by Jacopo Farina:



Areas covered so far



- Parco Nord
- Niguarda
- Bicocca
- Villaggio dei giornalisti
- Maciachini

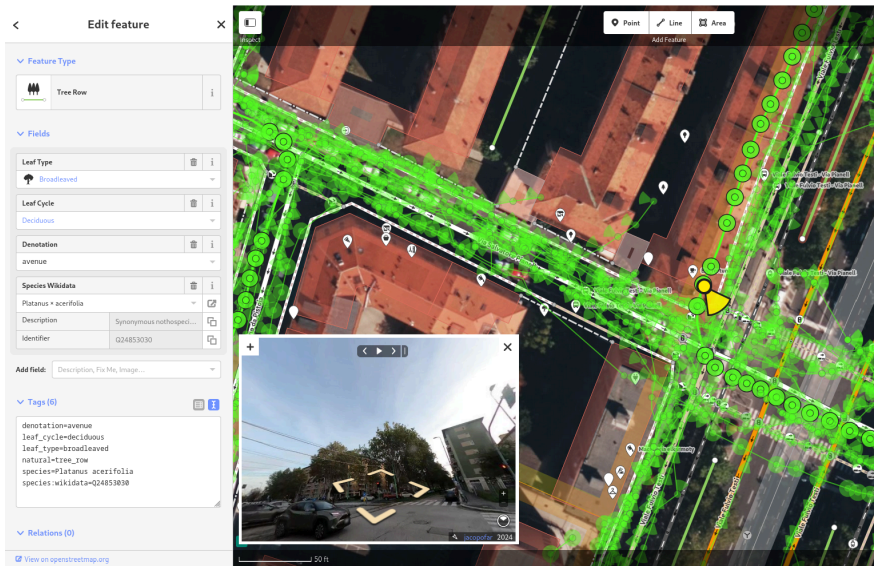
Plan to go further in Bovisa / Affori, hopefully also the city center.

Rain and lack of sunlight are a problem.

Some sparse notes

- It’s better to go during the day, with full light, ideally a bit cloudy to avoid direct sunlight (still ok)
- Vibrations and speed are not a problem
- The camera is very conspicuous, a group of kids asked me whether I was a "youtuber" :)
- Check to use the correct mode, timelapse and not video. With it you can record more than 2 hours and the file is going to be around 4 GB. Quality also improves.
- I prefer to also use a fitness tracker to track my movements, but is not necessary

Micromapping



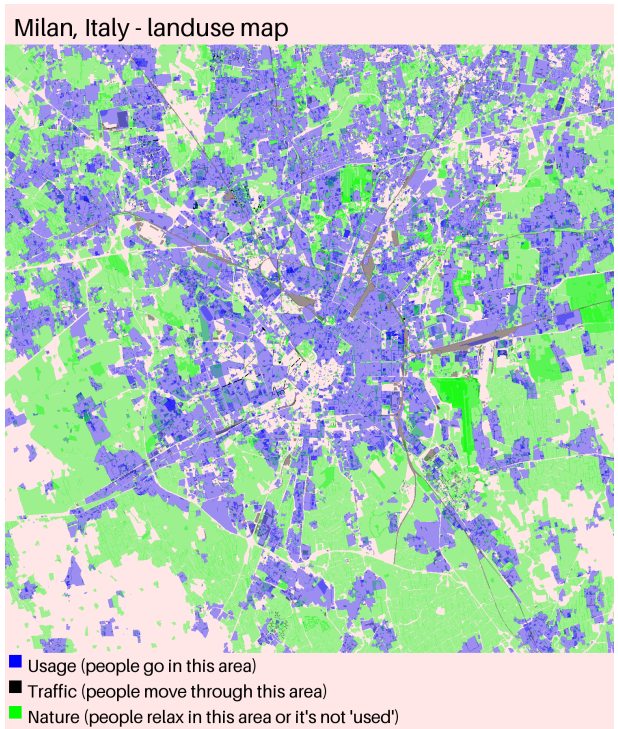
These images can be used to extract a lot of details very hard to get otherwise.

Unusual examples: street name etimology and tree species.

Using the data from OSM

Have you heard of `#30DayMapChallenge`?

For each day of November you try to create a map. OSM data is of course an excellent starting point



Data from OSM can be queried with Overpass, or loaded into a PostGIS instance.

Now with QuackOSM and DuckDB it's even easier to query this data.

Something silly

You can use OSM data to procedurally generate game levels. Here an example from an old demo, built with Godot. Trees and roads are from the map data, and NPCs know the name of the street where they are. The code is on Github. Imagine what could be done with Mapillary (and VR?).

Questions?

Happy mapping!