

# OL3-CESIUM

## 3D for OpenLayers



<https://github.com/openlayers/ol3-cesium>

OL3-Cesium, Guillaume Beraudo

# Adding 3D to an OL3 map



# Adding 3D to an OL3 map



```
var ol3d = new olcs.OLCesium({map: map, target: id});  
ol3d.setEnabled(true);
```

# Adding 3D to an OL3 map



```
var ol3d = new olcs.OLCesium({map: map, target: id});  
ol3d.setEnabled(true);
```

- A Cesium globe is created

# Adding 3D to an OL3 map



```
var ol3d = new olcs.OLCesium({map: map, target: id});  
ol3d.setEnabled(true);
```

- A Cesium globe is created
- Existing layers and view are synchronized

# Adding 3D to an OL3 map

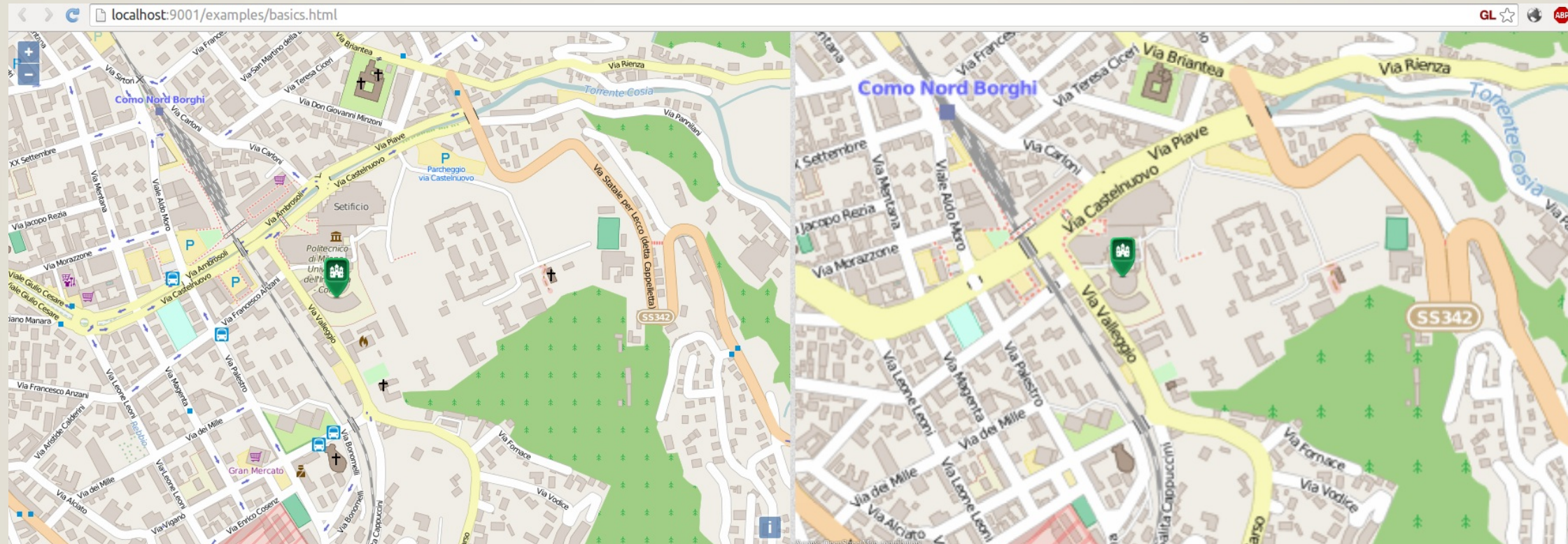


```
var ol3d = new olcs.OLCesium({map: map, target: id});  
ol3d.setEnabled(true);
```

- A Cesium globe is created
- Existing layers and view are synchronized
- Some listeners are registered



# One point demo



- Try it

OL3-Cesium, Guillaume Beraudo

# Real life example

Suisse**Mobile** 3d



# Real life example

**Suisse***Mobile* 3d

- Swiss projection

# Real life example

**Suisse***Mobile* 3d

- Swiss projection
- Clustering

# Real life example

**SuisseMobile** 3d

- Swiss projection
- Clustering
- Points of Interest picking

# Real life example

**SuisseMobile** 3d

- Swiss projection
- Clustering
- Points of Interest picking
- Terrain

# Real life example

**SuisseMobile** 3d

- Swiss projection
- Clustering
- Points of Interest picking
- Terrain
- 3D features

# Real life example

**SuisseMobile** 3d

- Swiss projection
- Clustering
- Points of Interest picking
- Terrain
- 3D features
- Try



# Heterogeneous projections

# Heterogeneous projections

- Cesium only supports EPSG:4326 and EPSG:3857

# Heterogeneous projections

- Cesium only supports EPSG:4326 and EPSG:3857
- Vectors reprojected automatically

# Heterogeneous projections

- Cesium only supports EPSG:4326 and EPSG:3857
- Vectors reprojected automatically
- Rasters handled by application

# Vector clustering



# Vector clustering



- 30'000 points instead of reprojected rasters



# Vector clustering



- 30'000 points instead of reprojected rasters
- Pregenerated using a custom OpenLayers3 tool

# Vector clustering



- 30'000 points instead of reprojected rasters
- Pregenerated using a [custom OpenLayers3 tool](#)
- Picking: id, children and resolution per feature

# Vector clustering



- 30'000 points instead of reprojected rasters
- Pregenerated using a [custom OpenLayers3 tool](#)
- Picking: id, children and resolution per feature
- Data only sent once to the GPU, decimation in the shader

# 3D geometries



# 3D geometries



- Absolute positioning (x, y, z) for all geometries

# 3D geometries



- Absolute positioning (x, y, z) for all geometries
- ...but incompatible with terrain LOD



# 3D geometries



- Absolute positioning (x, y, z) for all geometries
- ...but incompatible with terrain LOD
- Dynamic positioning (altitudeMode = clampToTerrain)

# 3D geometries



- Absolute positioning (x, y, z) for all geometries
- ...but incompatible with terrain LOD
- Dynamic positioning (altitudeMode = clampToTerrain)
- ...only points supported, polygon and lines are WIP

# Streaming buildings and vectors

# Streaming buildings and vectors

- 2.5D extruded polygons of a single "tile" POC

# Streaming buildings and vectors

- 2.5D extruded polygons of a single "tile" POC
- TODO:
  - tiling
  - loading/unloading strategy
  - Levels Of Details
  - 3D models

# Other ideas for future



# Other ideas for future

- EcmaScript 6

# Other ideas for future

- EcmaScript 6
- WebGL point based primitive

# Other ideas for future

- EcmaScript 6
- WebGL point based primitive
- Client side raster reprojection

# Other ideas for future

- Ecmascript 6
- Webgl point based primitive
- Client side raster reprojection
- ...

# Thanks

The screenshot shows the GitHub interface for the `openlayers/ol3-cesium` repository. At the top, the GitHub logo is on the left, followed by a search bar labeled "This repository" and "Search". Navigation links for "Explore", "Features", "Enterprise", and "Blog" are in the center, and "Sign up" and "Sign in" buttons are on the right. Below the navigation bar, the repository name `openlayers / ol3-cesium` is displayed with a bookmark icon. To the right of the name are buttons for "Watch" (27), "Star" (59), and "Fork" (23). The main content area shows the repository description: "OpenLayers - Cesium integration" with a link to `http://openlayers.org/ol3-cesium/`. Below this is a progress bar and statistics: "493 commits", "4 branches", "7 releases", and "8 contributors". A green "Clone" button is on the left, followed by a dropdown menu showing "branch: master" and the repository name `ol3-cesium` with a plus icon. Below this is a merge pull request section for pull request #210 from `openlayers/fredj-patch-1`, authored by `gberaudo` 10 days ago. The latest commit is `7feea2ac40`. A file named `build` is listed with the description "Serve from port 4000 instead of 3000" and a date of "22 days ago". On the right side, there is a sidebar with links to "Code", "Issues" (37), "Pull requests" (2), "Wiki", and "Pulse".

OL3-Cesium, Guillaume Beraudo