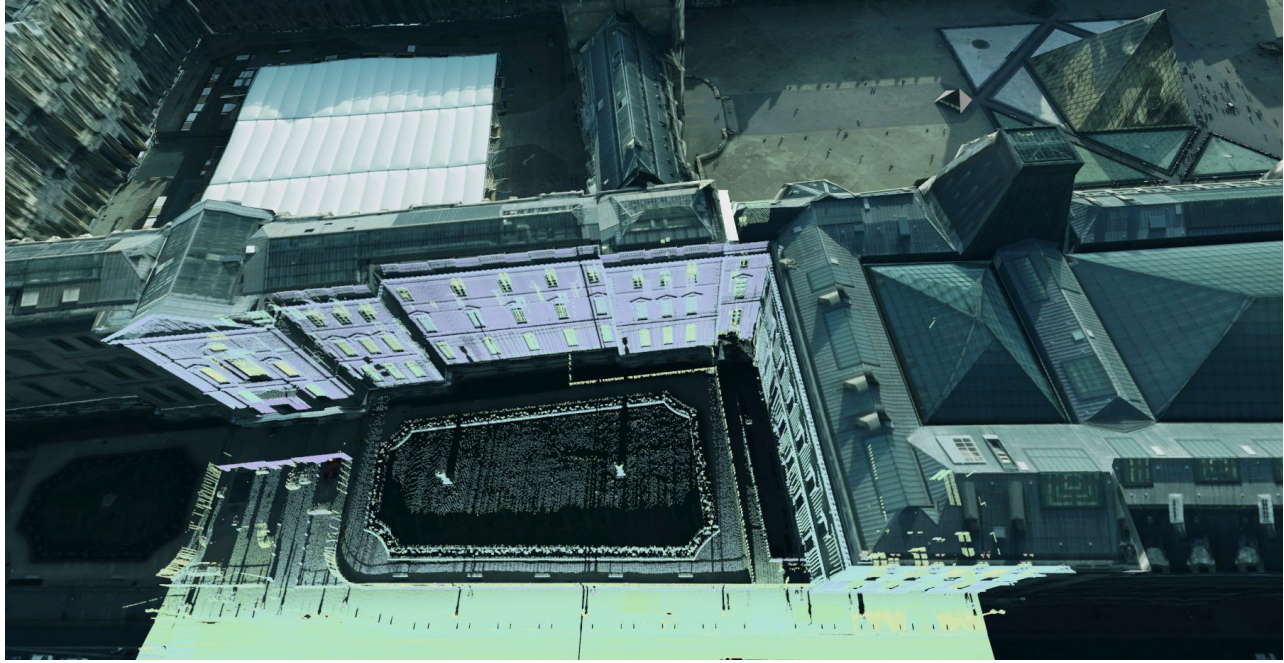

# iTowns

## WebGL 3D visualization framework

**Vincent Picavet**
**Oslandia**

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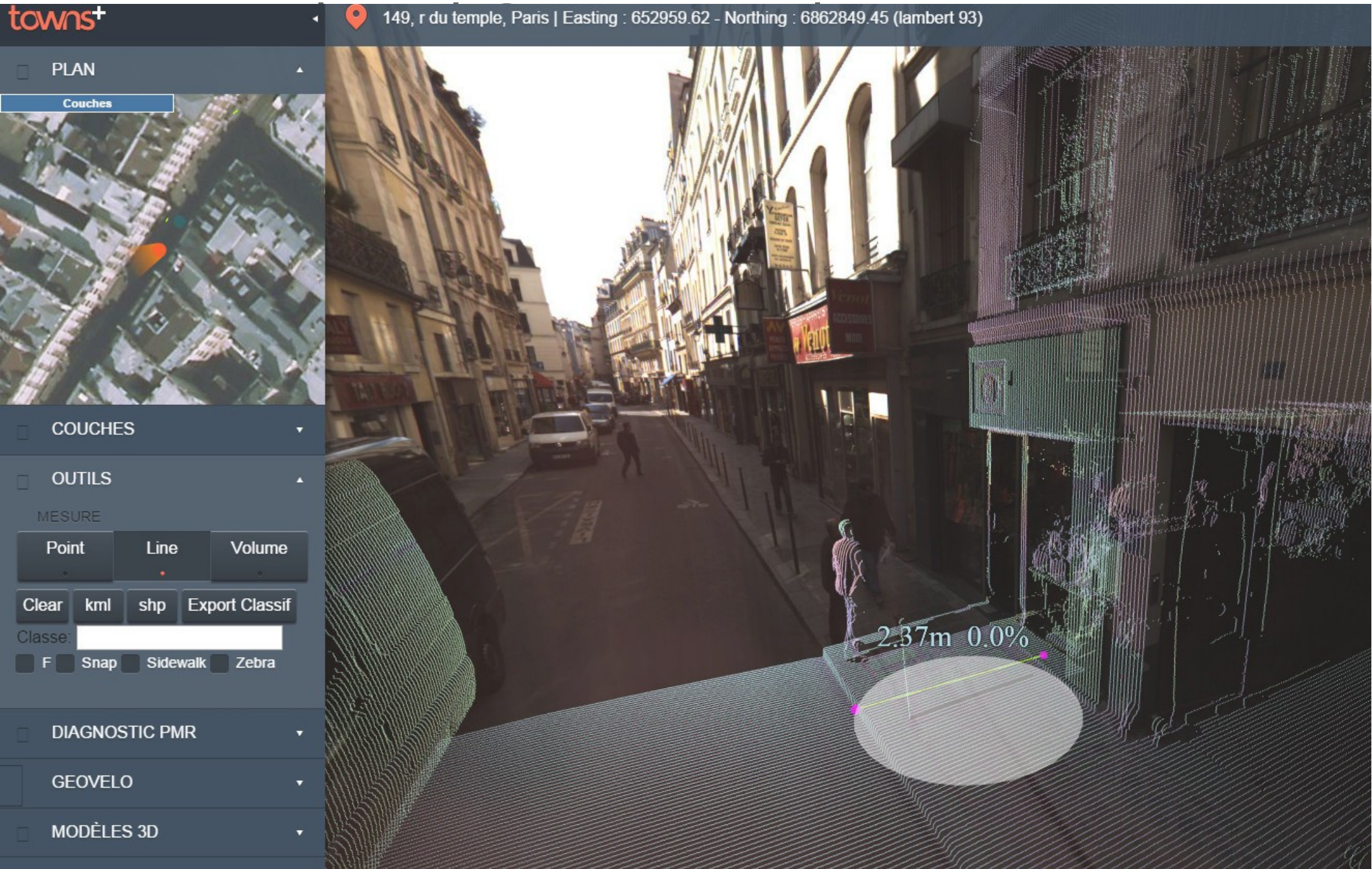
# *Oslandia*


- «Pure player» OpenSource
- Since 2009 ( O. Courtin + V. Picavet )
- 11 collaborators ( >+30% / year )
- French company
- FOSS4G contributions :
  PostGIS, SFCGAL, QGIS, Tempus,
  TinyOWS, GDAL/OGR, PgPointCloud,
  iTowns...

# iTowns ?


towns+
149, r du temple, Paris | Easting : 652959.62 - Northing : 6862849.45 (lambert 93)
PLAN
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COUCHES
OUTILS
MESURE
Point
Line
Volume
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shp
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Snap
Sidewalk
Zebra
DIAGNOSTIC PMR
GEOVELO
MODÈLES 3D
2.37m 0.0%

# *iTowns ?*

WebGL / Javascript Framework
3D Visualization
Immersive navigation
All types of GIS data
OpenSource ( Cecill-B & MIT )

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KHRONOS GROUP

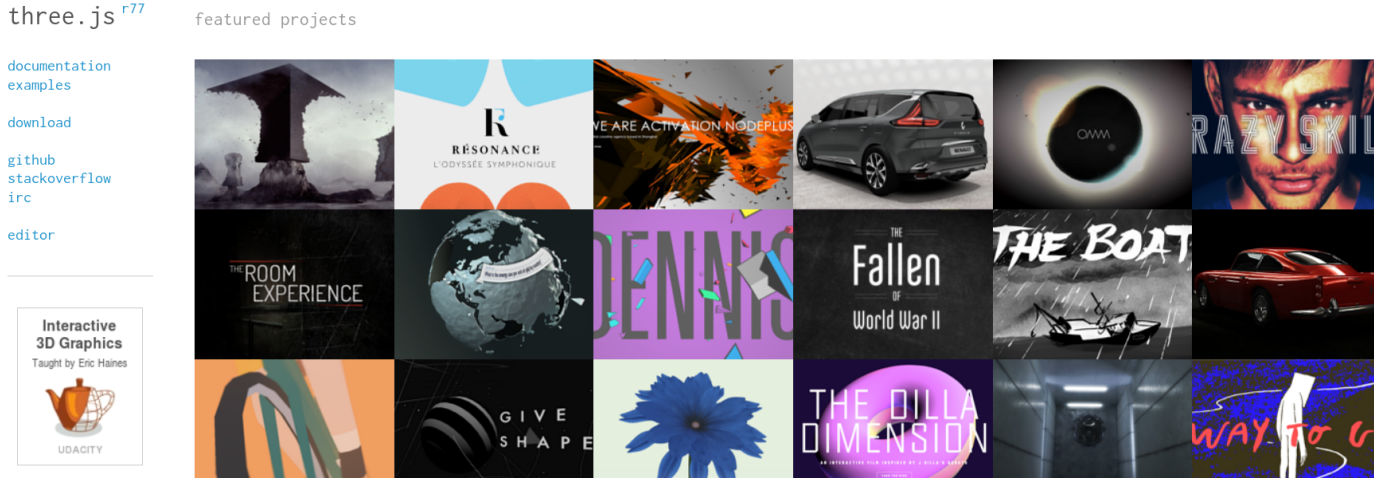
CONNECTING SOFTWARE TO SILICON

# *Technical basis*

***( iTowns 1.0 & 2.0 )***

JavaScript
WebGL
THREE.JS
Shaders

iTowns : client-side only

# *iTowns project – step 1/4*

IGN 2008
MATIS Research laboratory (IGN)
Flash application

- Panoramic images visualization
- Object annotations
- LIDAR PointClouds

# *iTowns project – step 2/4*

2011 : new foundation
→ WebGL, GPU

- LIDAR / big volumes
- Mesh support

→ Stereopolis vehicle



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# *Stereopolis (IGN)*

«Mobile Mapping»

Sensors :
- Images
- LIDAR
- IMU
- GPS
- Speed


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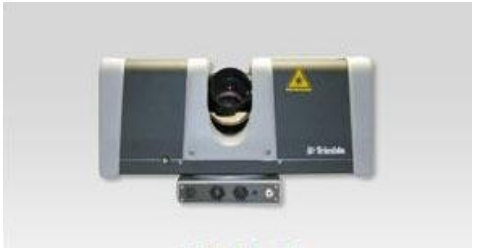
# Sensors

images


LiDAR


Platform / vehicle



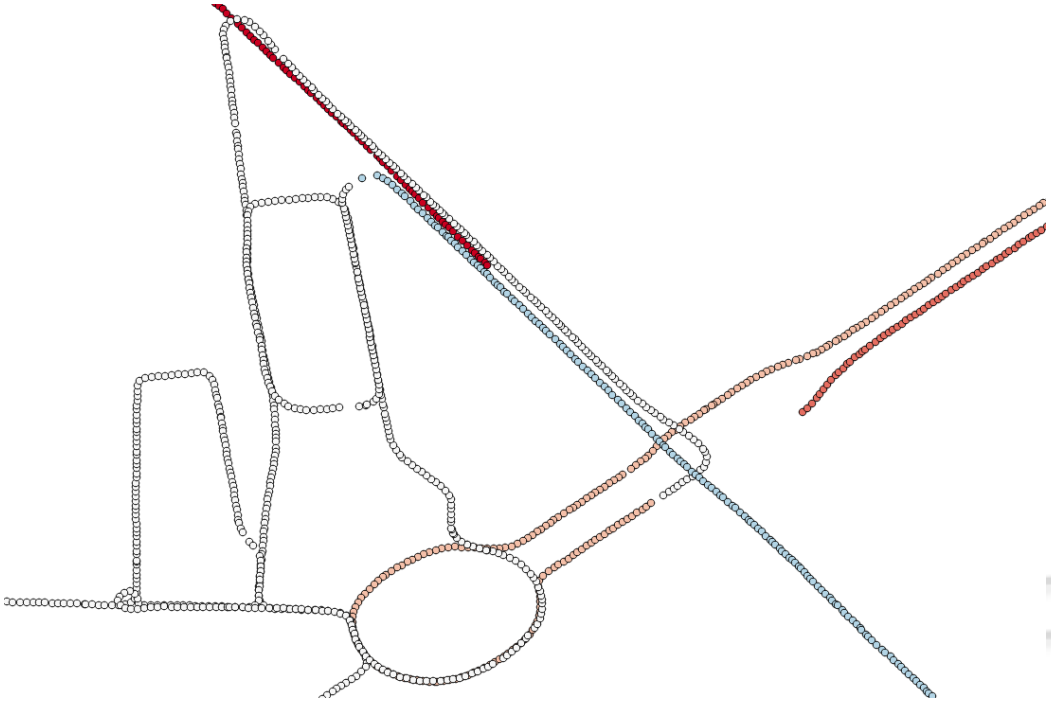
IMU / GPS

# *Sensors*

Trajectory (IMU) + GPS + odometer
→ position + orientation @ 200Hz

Images
→ 9 Images / 2m

Laser
→ 300K points / s



iTowns goal :
Visualize these data !

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# *iTowns OpenSource – step 3/4*

08/2015 : decision to go opensource
... : 1.0 source code cleaning
: first 2.x commits
02/2016 : Version 1.0 release
: PSC

1.0 → operational & «Technology preview»
2.x → under (heavy) development

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This repository Search Pull requests Issues Gist

iTowns / itowns

Unwatch 21 Unstar 25 Fork 11

Code Issues 8 Pull requests 0 Wiki Pulse Graphs Settings

iTowns is a JS/WebGL framework for 3D geospatial data visualization — Edit

83 commits 3 branches 1 release 6 contributors

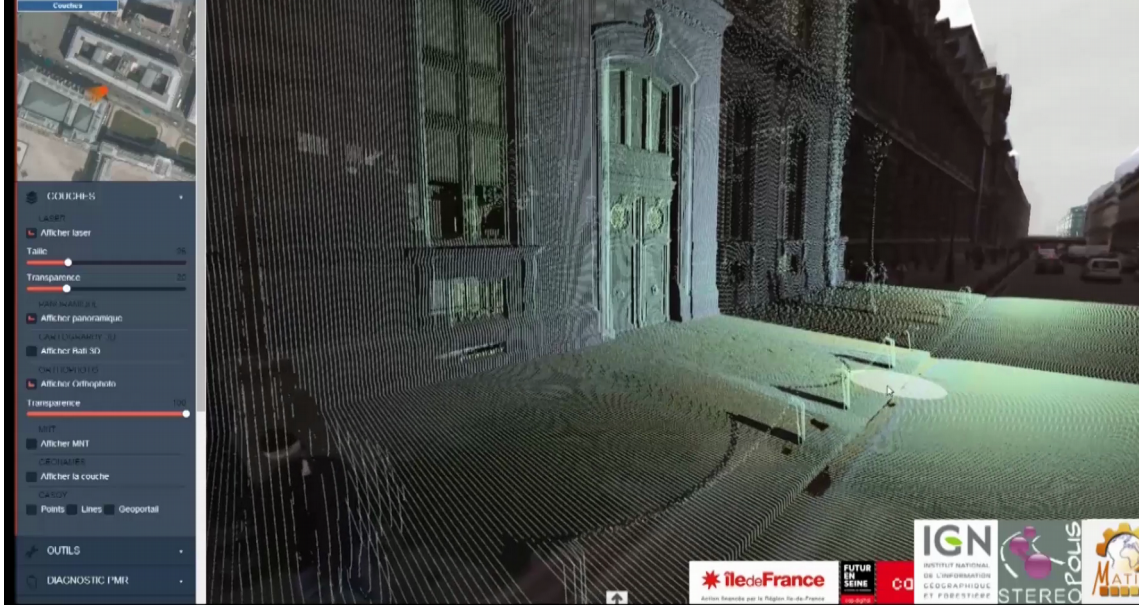
Branch: master New pull request New file Upload files Find file SSH git@github.com:iTowns/it Download ZIP

nosy-b nothingefe Latest commit 9539180 on 30 Mar

| | | |
|---|---|---|
| examples | Add all sources | 3 months ago |
| fonts | Add all sources | 3 months ago |
| icons | Add all sources | 3 months ago |
| images | Image mask support (single panoramic for now) | 3 months ago |
| nbproject | nothingefe | a month ago |
| scripts | git push fix without ssh key setup in deploy script | 3 months ago |
| shaders | Add all sources | 3 months ago |
| src | correct bugs positionInit | a month ago |
| .gitignore | Use webpack instead of RequireJS | 3 months ago |
| .npmignore | Use webpack instead of RequireJS | 3 months ago |
| LICENSE.md | Add all sources | 3 months ago |
| README.md | Update README following move of the demo to the sample-data repos | 3 months ago |
| package.json | adding string_format dependency for more powerfull url templates | 3 months ago |
| webpack.config.js | setting three r74 as a npm dependency. Textured buildings is still a … | 3 months ago |

README.md

# *Data types*




- Oriented images
- PointClouds
- Extruded buildings ( 2D → 3D )
- Meshes ( 3D buildings with textures )

- Webservices
  WMTS ( terrain, aerial imagery...)

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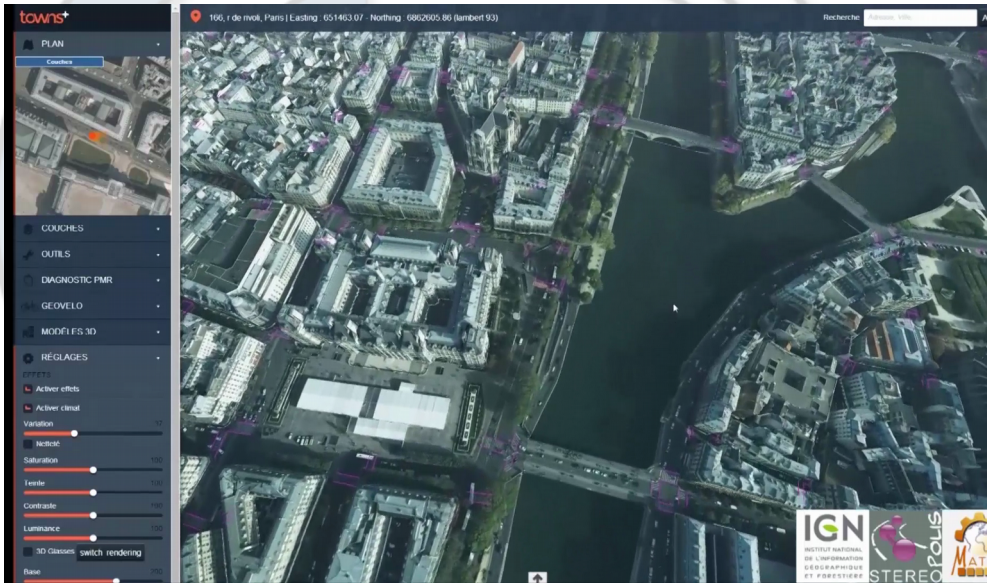
# *Data samples*

Data subset
One neighborhood of Paris
Quality : high (600MB) & low (60MB)
CC-By-NC-ND-3.0

3D textured mesh ( buildings )
Oriented images
LIDAR ( mobile mapping)
Vector data
    elevation,
    2D building footprints

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# *Oriented images*

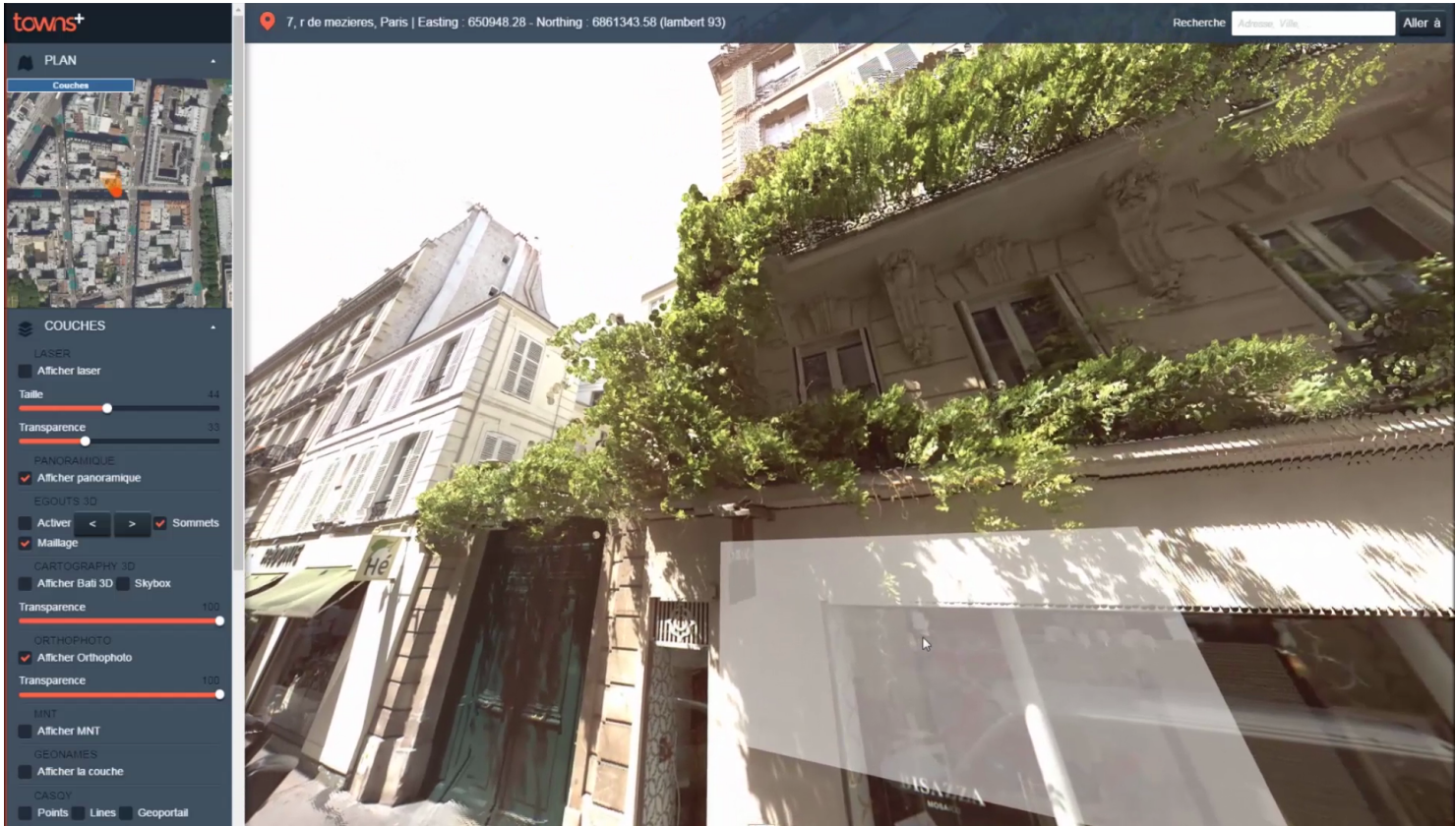
Images with position & orientation

Projection on :

- Extruded 2D buildings
- meshes

Free navigation

More precision

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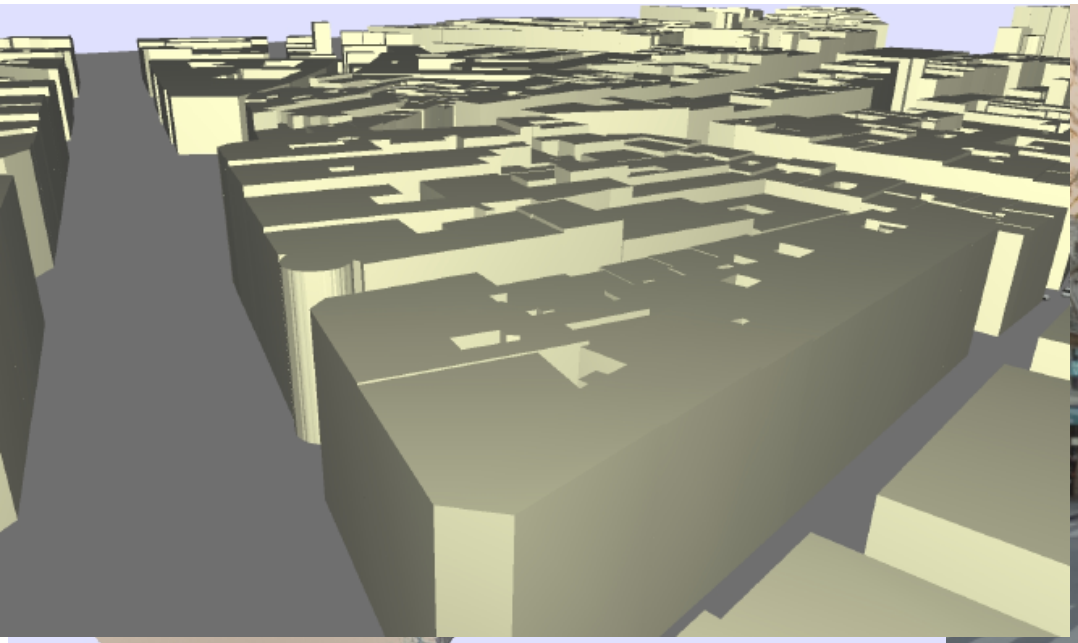
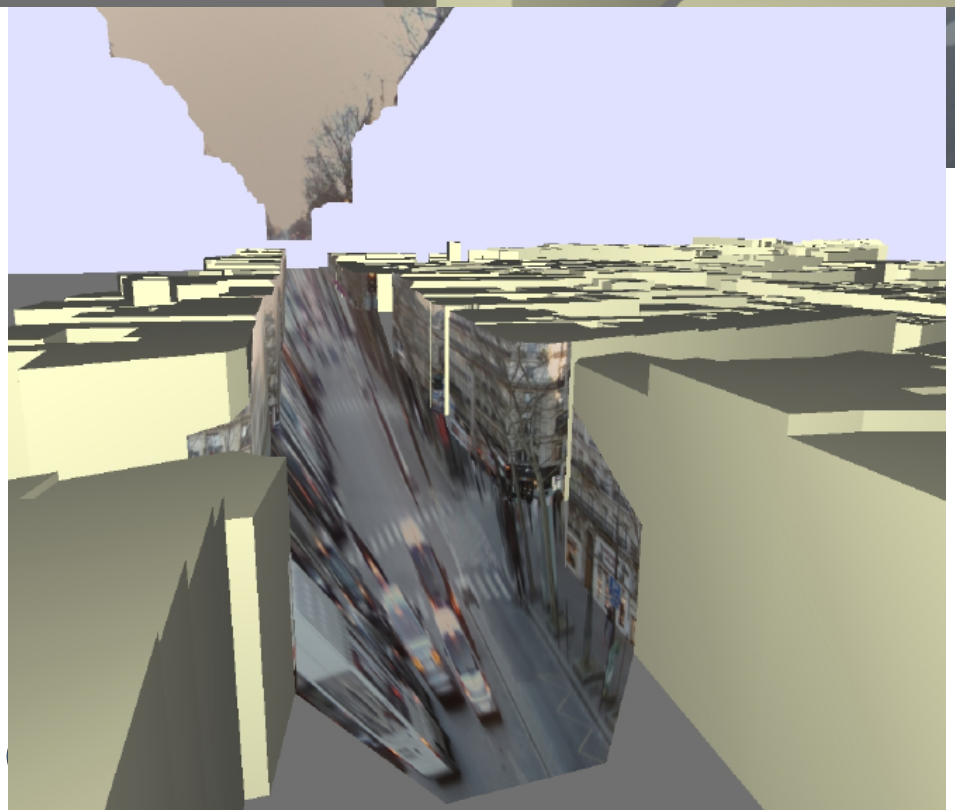
# Oriented images





# *iTowns v2.x – step 4/4*

Full refactoring
Globe
High level API
Webservices : WMTS, WMS, WFS
Documentation & exemples
3D Meshes ( KML, glTF...)

Roadmap
- Alpha : automn 2016
- 2.0 : late 2016

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# *Video*

iTowns v1.0 + iTowns v2.0

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# *Future - features*

Potree integration → almost done
Projected images on PointClouds → POC
Build system & CI → under work
End-user interface

# *Future - features*

External API integration
- HERE
- Mapillary, others ?

Vector tiles support

3D services connection
- 3D Tiles support
- Greyhound / Entwine



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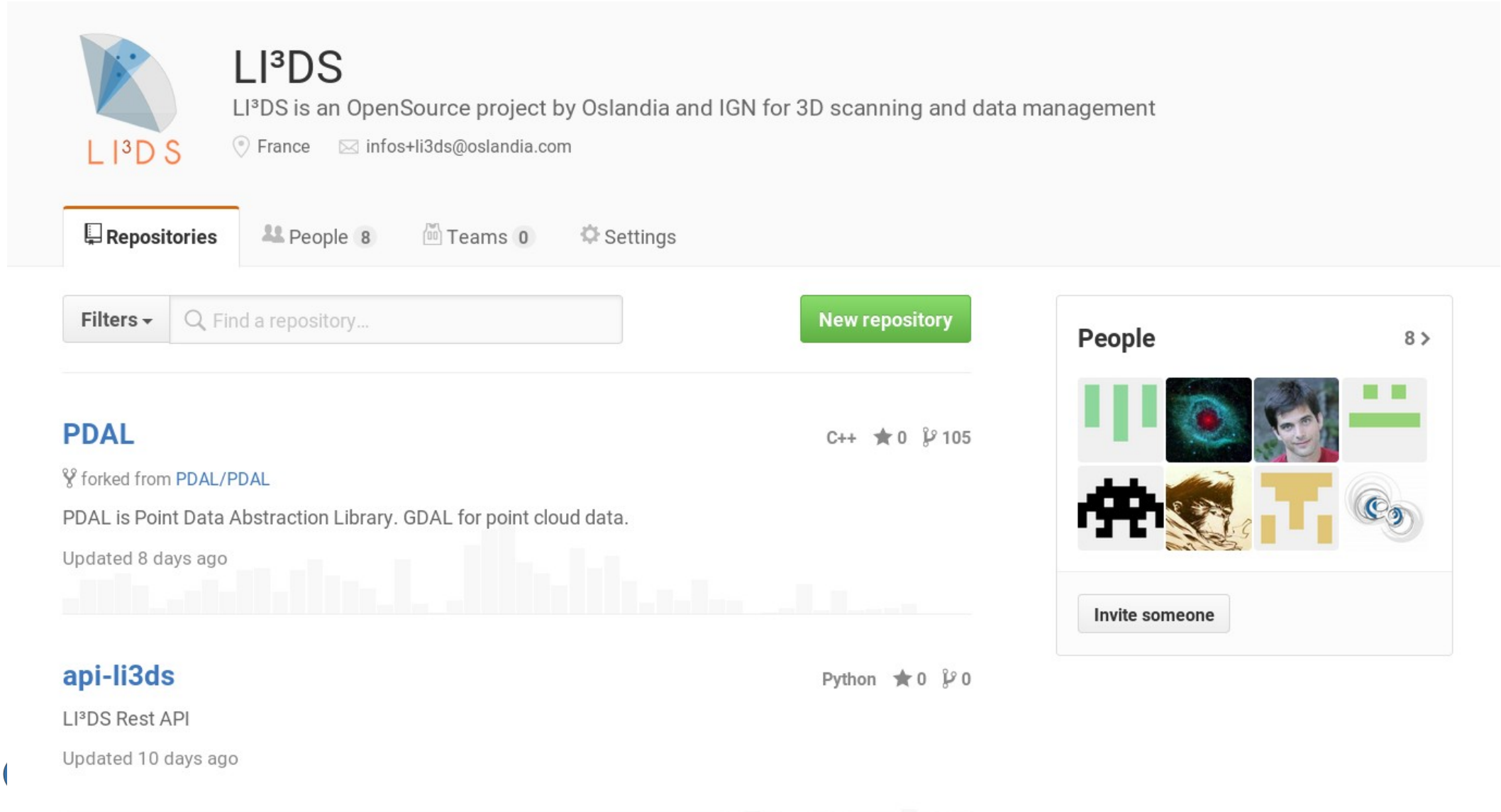
# Future - Server side

# → Streaming



# *Future – Server side*


## *→ Streaming*

3D web services
- 3D objects ( buildings... )
- Mesh ( & quantized mesh)
- PointClouds
  - Greyhound / Entwine
  - LOPoCS ( https://github.com/LI3DS/lopocs )
- Oriented images → Server-side API coming
- 360° images
- 3D Tiles support

# *Future - project*

Version 2.0
Code quality
More contributors
Better collaboration
First industrial projects
Funding
Communication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# Thanks,
# Danke Schön,
# Merci,
# Any question ?

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@vpicavet
@Oslandia_en
@Oslandia_Team

http://github.com/iTowns/itowns2
http://www.itowns-project.org
http://www.oslandia.com

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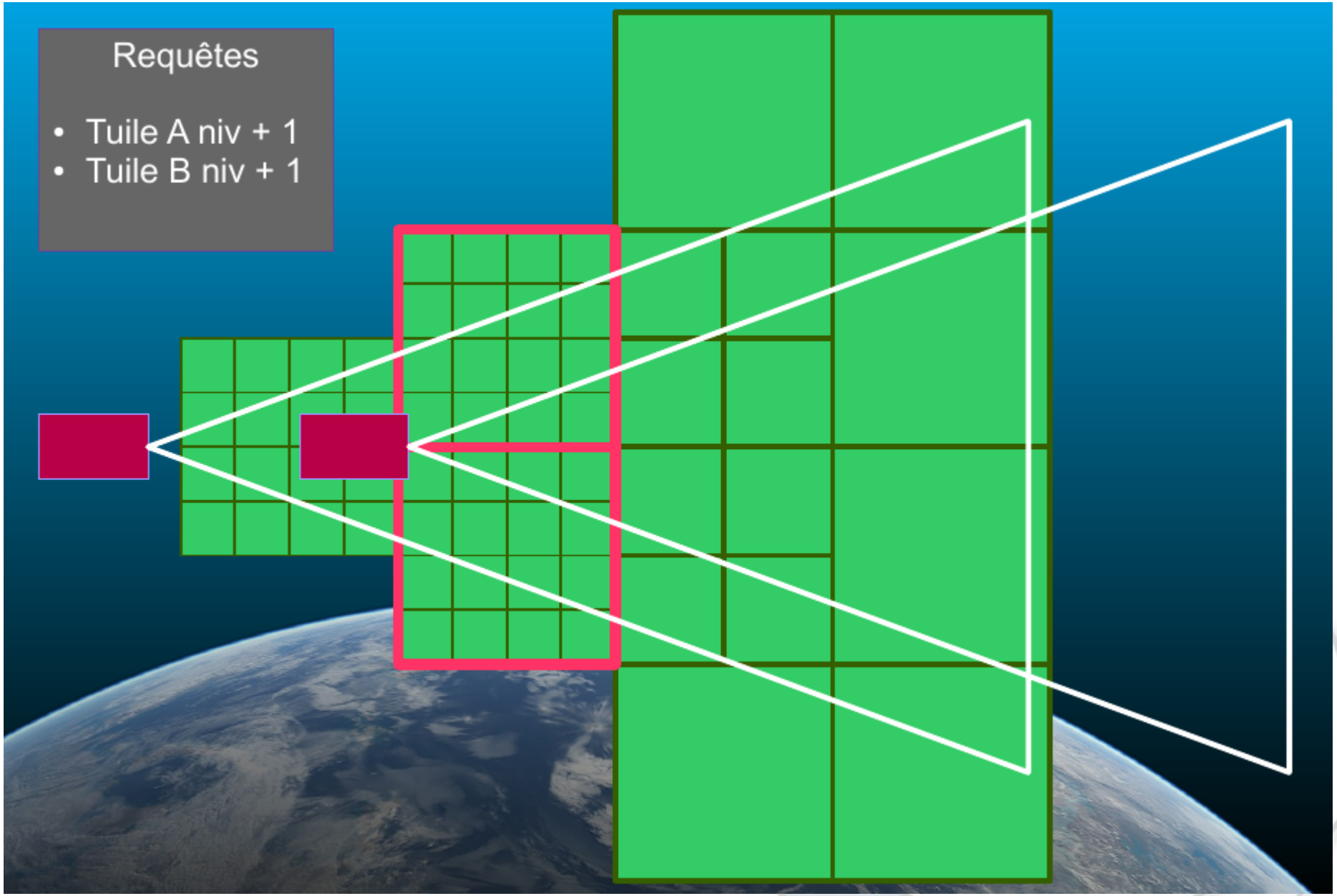
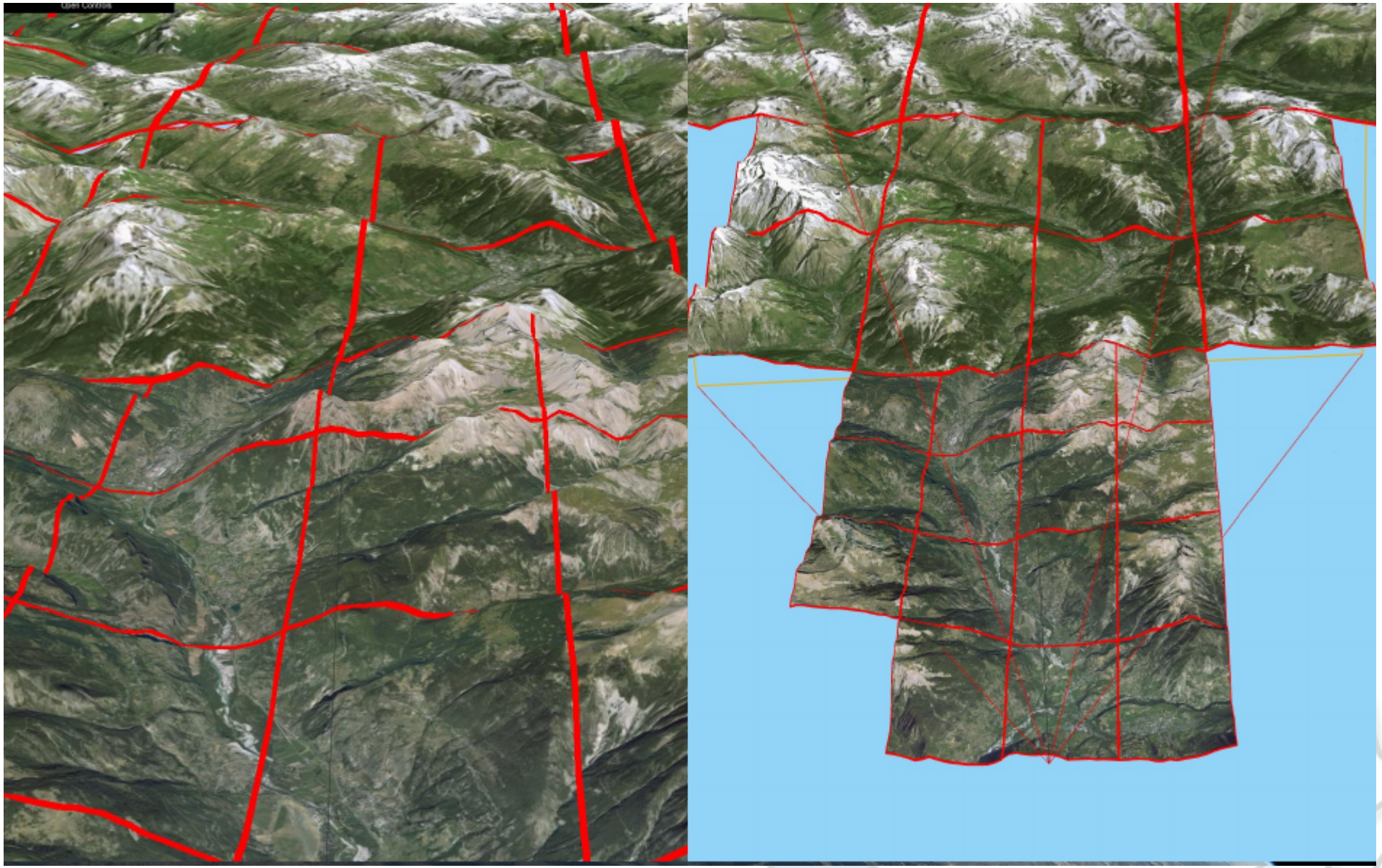
# *iTowns vs Cesium ?*

- Space to street / street to space
- Maturity level
- Immersive visualization in iTowns
- Pure WebGL / THREE.JS


Requêtes
• Tuile A niv + 1
• Tuile B niv + 1



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