

From pointcloud to 3D urban model

Florent GENIET

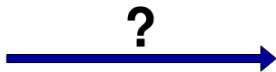
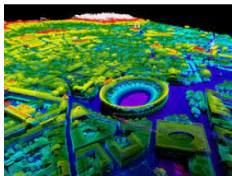
LASTIG

January 27, 2023

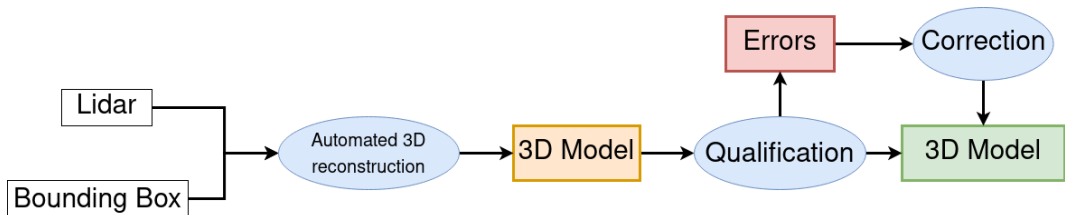


Context

IGN Project : Digital twin



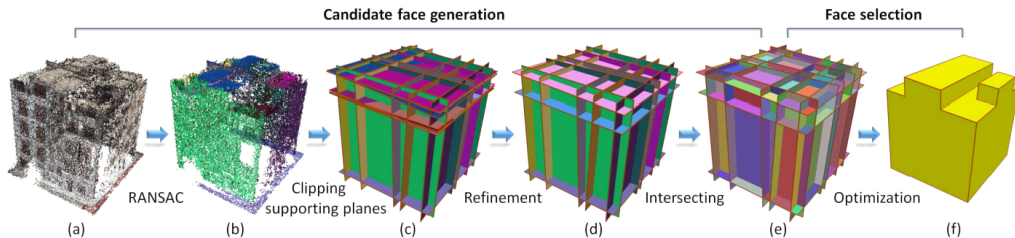
Pipeline



Automated 3D reconstruction

Several methods :

- *Polyfit* : Creation of all potential faces → choice among the faces

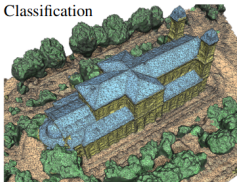


Automated 3D reconstruction

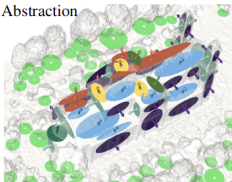
Several methods :

- *Polyfit* : Creation of all potential faces → choice among the faces
- *LOD Generation* : Classification, abstraction and merge

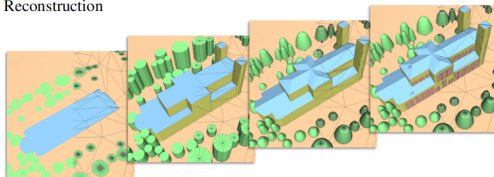
Classification



Abstraction



Reconstruction



Automated 3D reconstruction

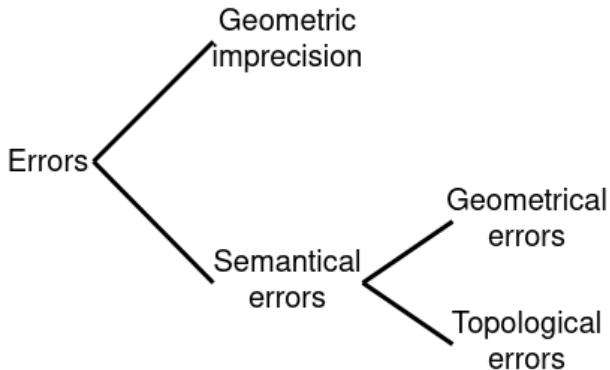
Several methods :

- *Polyfit* : Creation of all potential faces → choice among the faces
- *LOD Generation* : Classification, abstraction and merge
- *WaSuRe* : Surface reconstruction with energy minimisation



Qualification

Several types of errors :



Qualification

Error detection with supervised classification

Attributes used :

- geometrical attributes : **statistics**
- Altimetric attribute : **histogram** of model - MNS
- **Comparison** model/photo

Qualification

Thank you for your attention !!