

Project 2.02 | Automated 3D Building Reconstruction from Airborne LiDAR

Project Leader Dr Chunsun Zhang, RMIT University, chunsun.zhang@rmit.edu.au

Project Team Yuxiang He, University of Melbourne, yuxiangh@student.unimelb.edu.au

Project Participants University of Melbourne

AAM, Fugro Spatial Solutions, RPS Group, Sinclair Knight Merz, Ergon Energy

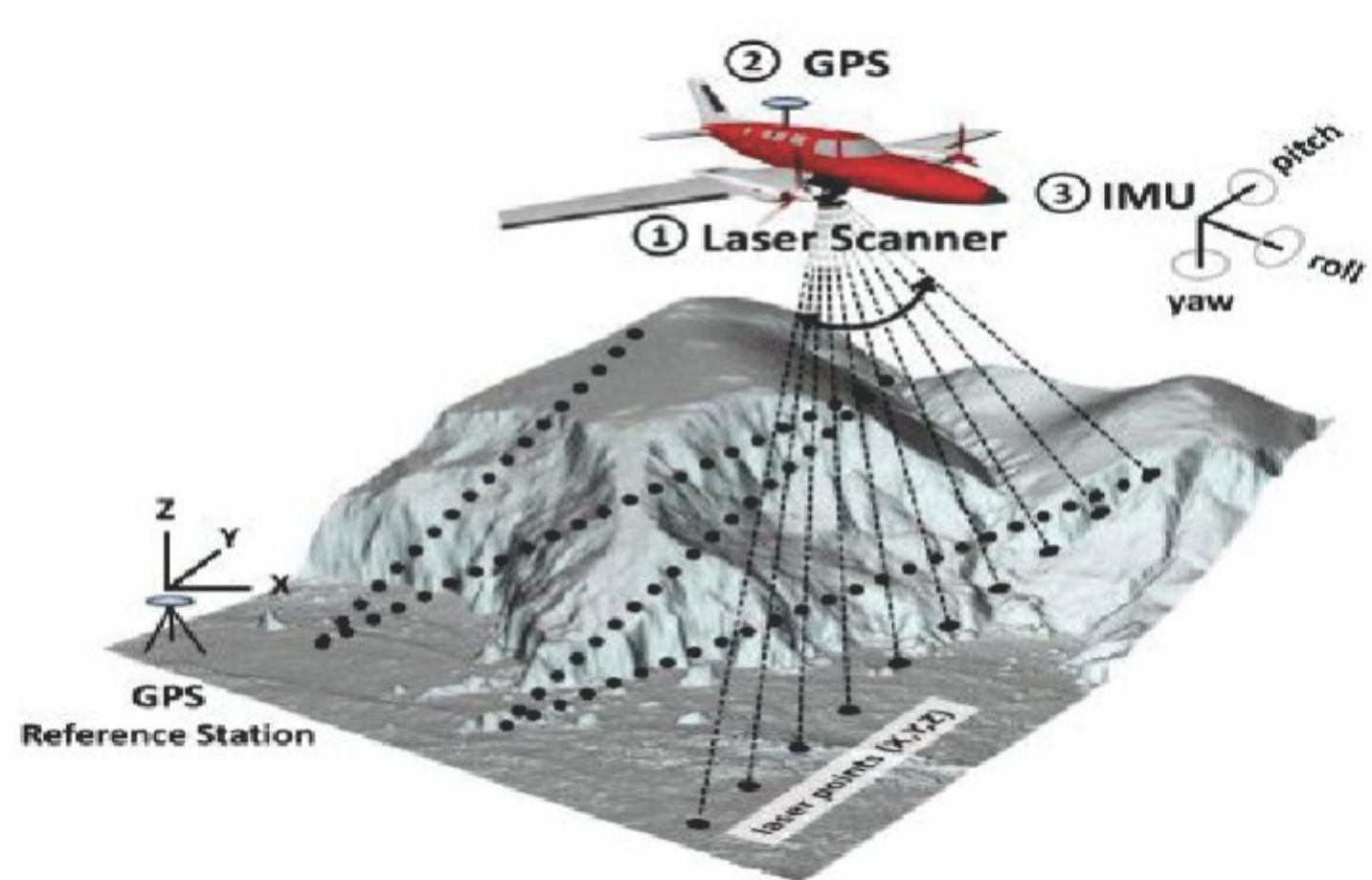
Geoscience Australia, Dept of Environment & Primary Industries (VIC), Dept of Natural Resources & Mines (QLD), Land and Property Information(NSW), Landgate (WA)

Objectives Automated 3D building reconstruction from airborne imagery and LiDAR point clouds for topographic mapping, geo-database updating and change detection

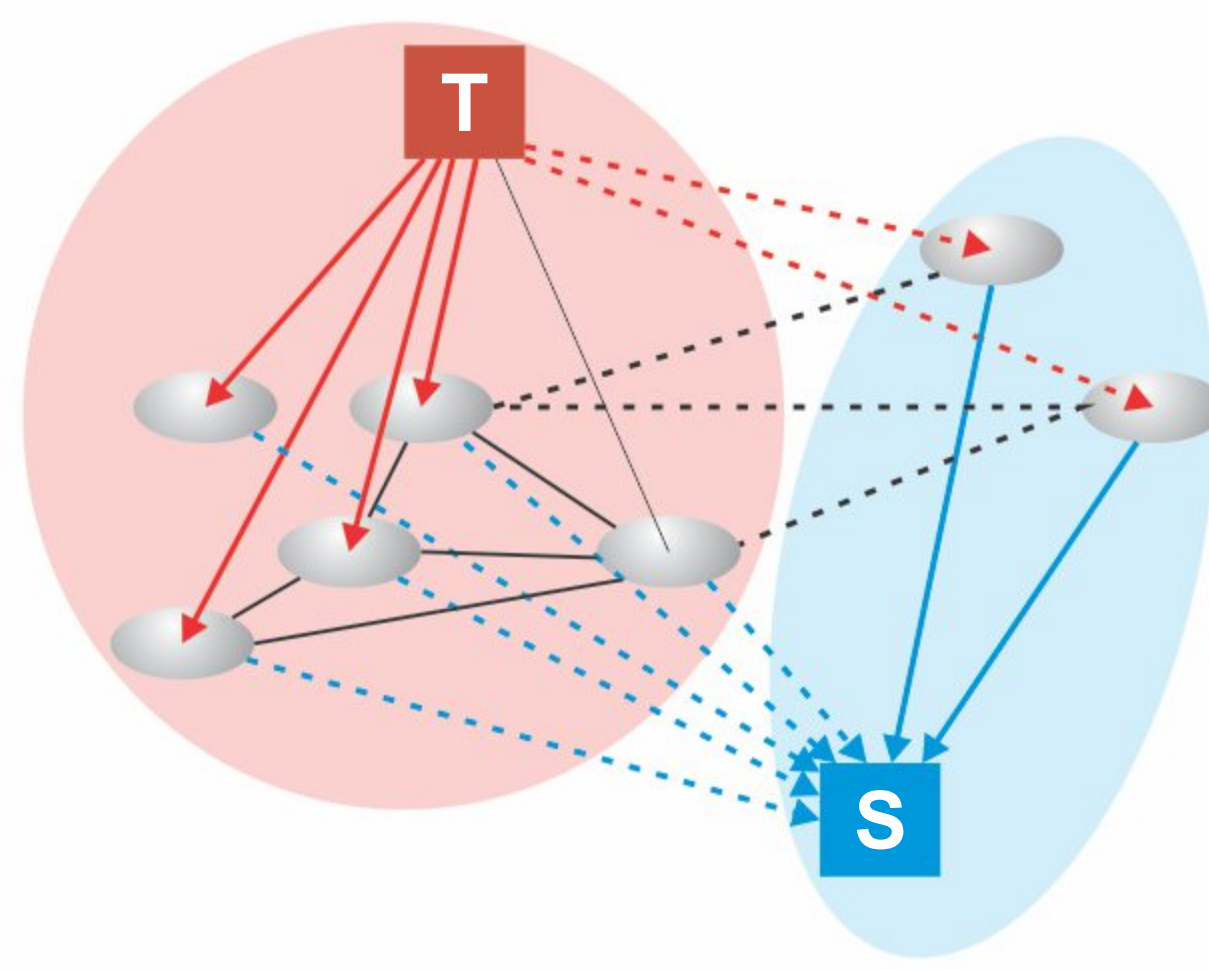
Outcomes New algorithms and software modules for efficient processing of LiDAR point clouds, with a focus on automated reconstruction of

- 3D building footprints (CityGML LOD 1)
- 3D rooftop models (CityGML LOD 2)

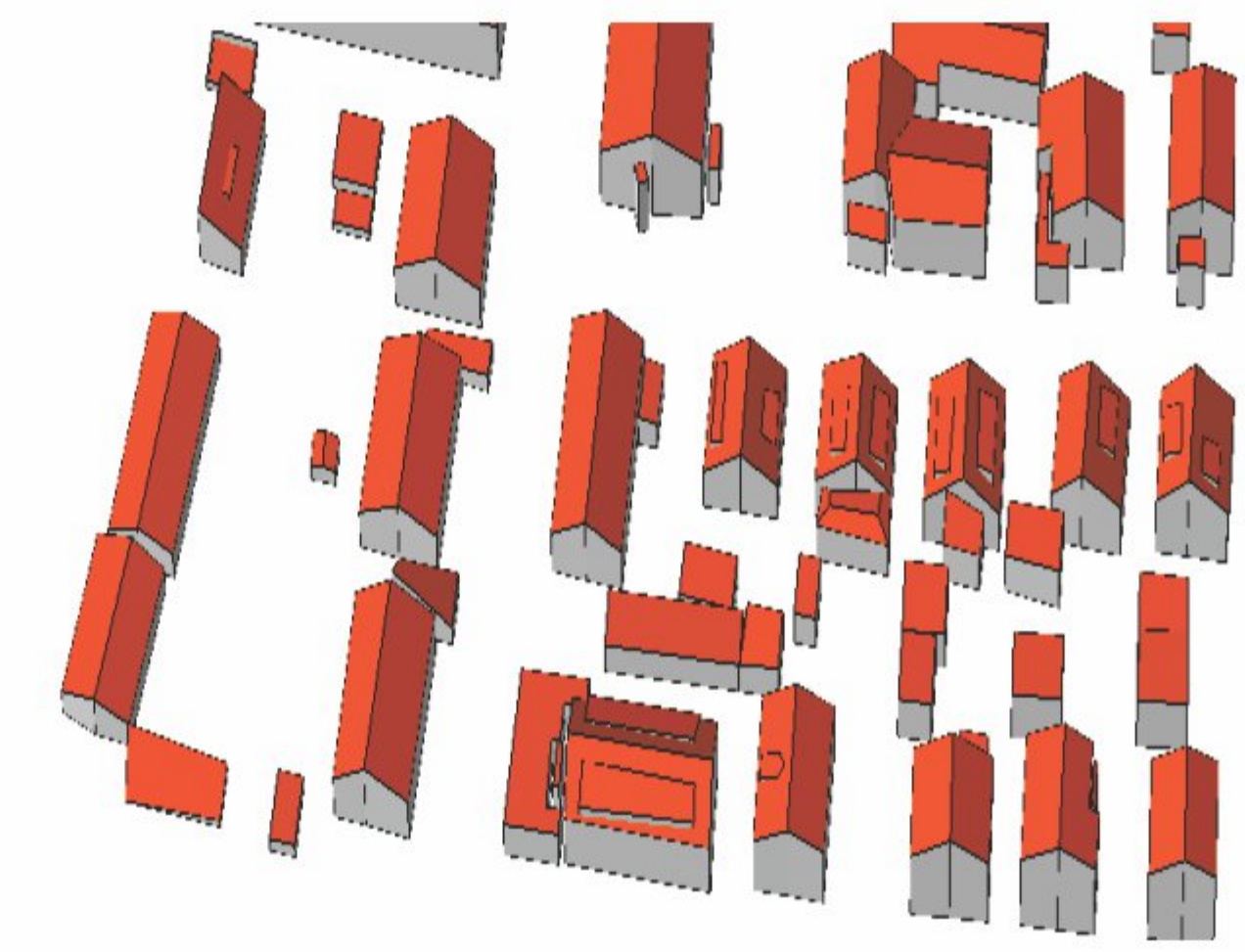
Project Achievements: An innovative approach for automated LiDAR point cloud processing and 3D building model generation



LiDAR data

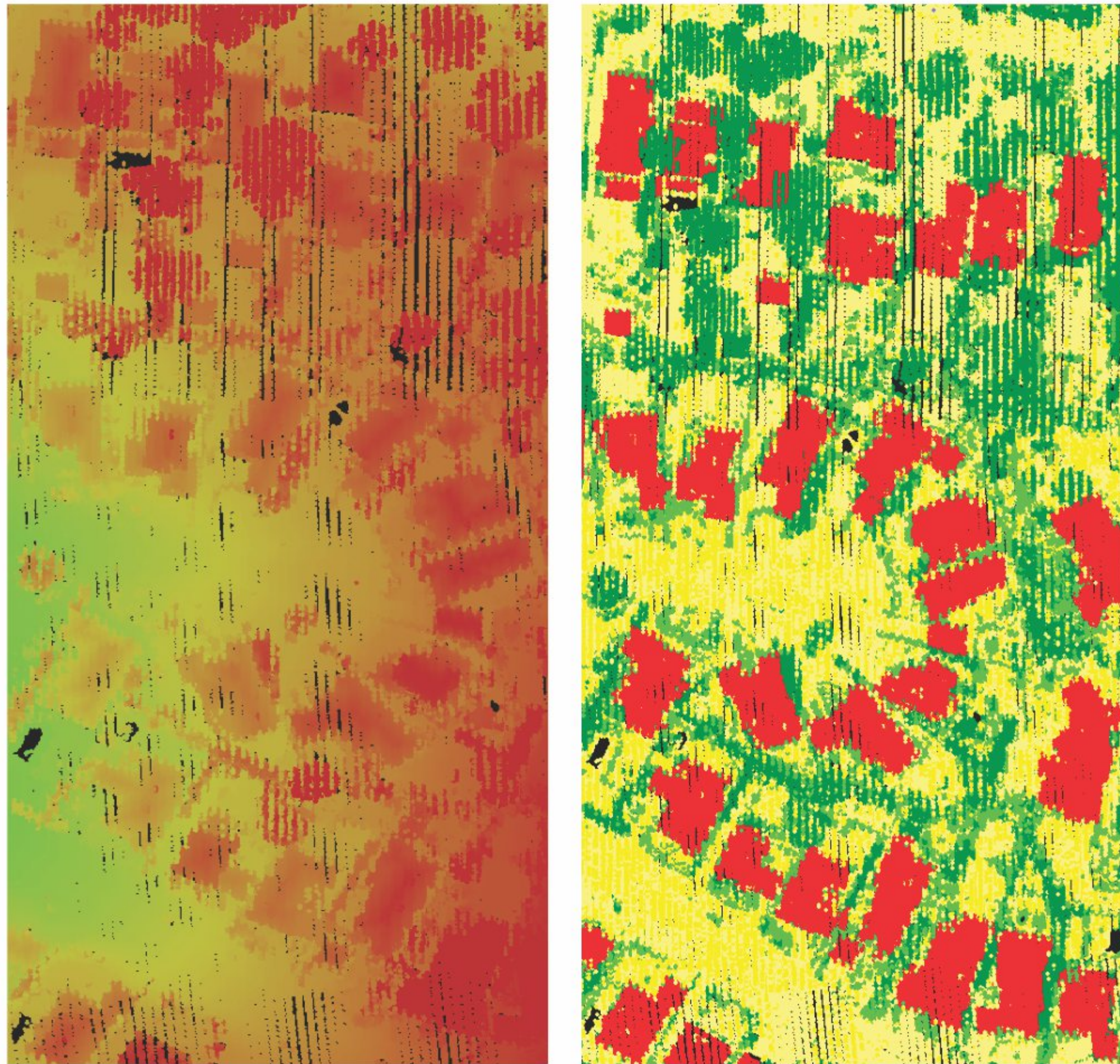


Energy minimization

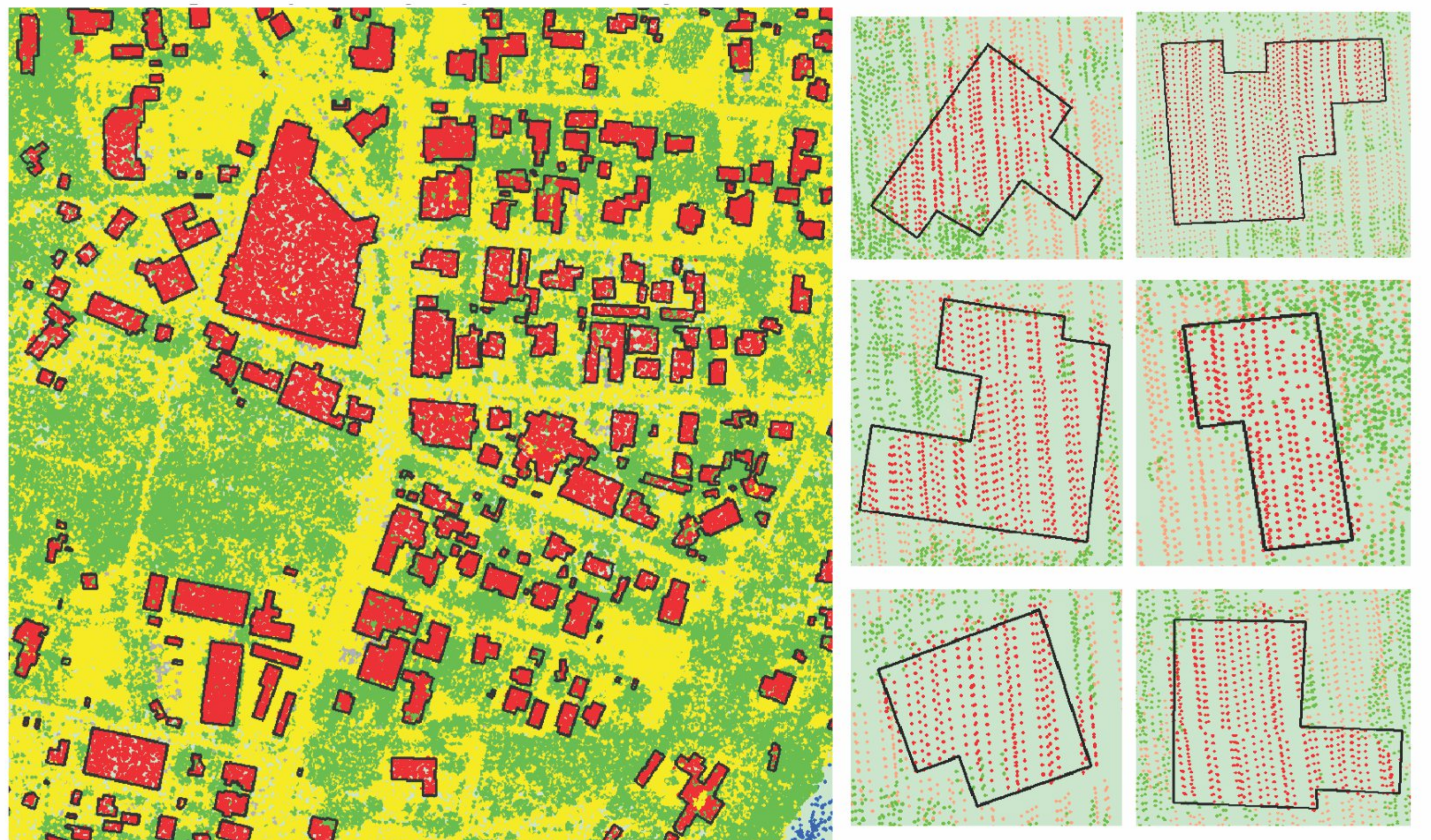


Building models

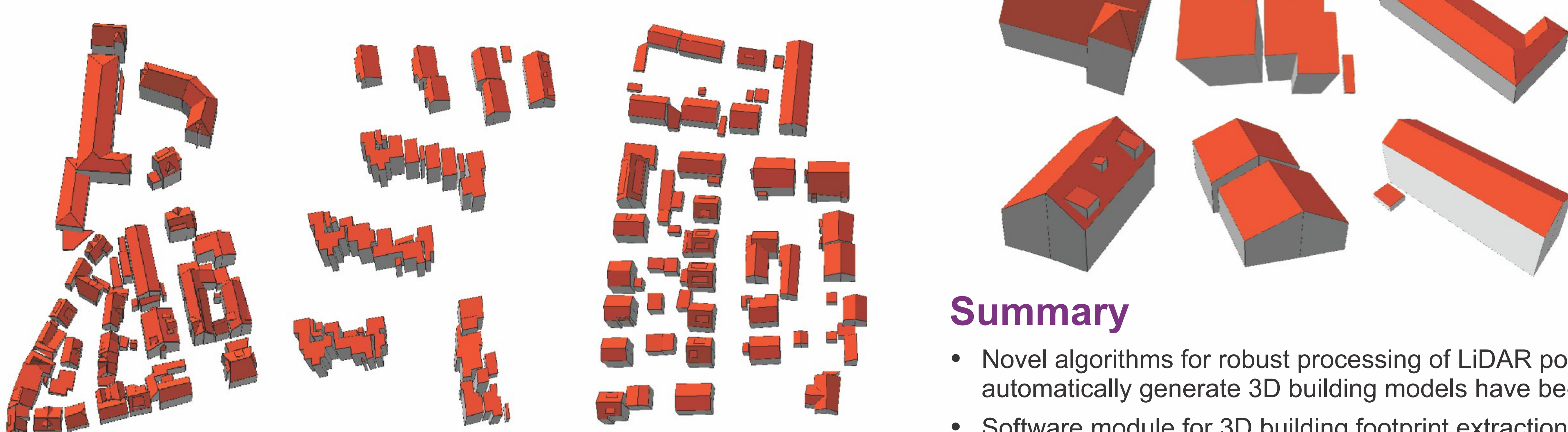
LiDAR point cloud classification



3D building footprints (CityGML LOD1)



3D rooftop modelling (CityGML LOD2)



Summary

- Novel algorithms for robust processing of LiDAR point clouds to automatically generate 3D building models have been developed.
- Software module for 3D building footprint extraction is ready for industrial evaluation and adoption has been implemented.