

# Hybrid Technique for Three–Dimensional Modeling from Close Range Laser Scanner’s Point Clouds

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## SUMMARY

The modelling of the object in three dimensions by using a laser scanner is an attractive research in geomatic survey and computer graphic community. Laser scanner scanned the object by generating the point clouds that approximated the original shape of the object. 3D model of the object can be obtained by computed the surface bounded by these point clouds. The Hybrid technique for generating the 3D model from laser scanner’s point cloud is introduced. First, the multiview point clouds are registered by using the ICP algorithm. Then, represent the point clouds as Adaptive Moving Least squares (AMLS) surface. The surface bounded by AMLS is reconstructed by using Delaunay/ Voronoi based algorithm. The results show the Hybrid technique had successfully reconstructed the smooth surface from point clouds scanned by using Vivid 910, NextEngine and Faro laser scanner. Difference of measurement value between real objects and 3D models from Hybrid technique is around 0.04cm to 0.017cm. The Hybrid technique evaluated the general framework on how to generate the 3D model from point clouds and very useful for designation of new software systems in 3D applications.