







dynamic coordinate system

Figure 10 shows the clustering result of facades, and figure 11 is the automatically generated the main body model of the bridge.

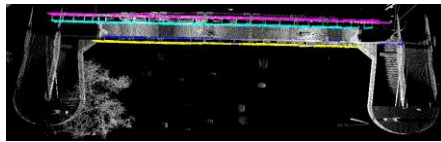
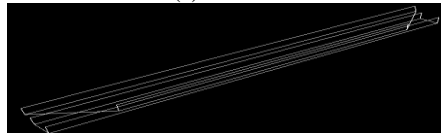


Figure 10. Facades clustering result



(a) Filled model



(b) Wire frame model

Figure 11. Automatic models of the main planes

#### 4. CONCLUSIONS

The paper puts forward the method of establishing the dynamic coordinate system of virtual path, and presents the feature extraction method based on dynamic coordinate system, and gives the feature line clustering method. Based on the above steps, the paper explores the automatic modelling of the main body of over-crossing bridge. The future research will model all the components of the bridge.

#### References

- Yang Yang, Zhang Yongsheng, Ma Yiwei, Yang Jingyu. 2010. A Point Cloud Filtering Method of Vehicle-Borne LIDAR Based on Scanning Beam. In: *Journal of Geomatics Science and Technology*, Beijing, China, Vol. 27, No. 3, pp. 209-212.
- Fang lina, Yang Bisheng. 2013. Automated Extracting Structural Roads from Mobile Laser Scanning Point Clouds. In: *Acta Geodaetica et Cartographica Sinica*, Beijing, China, Vol. 42, No. 2, pp. 260-267.
- Xu YeZhang, Wang Xinsen, Zheng Dehua, Xie Bo, Wang Chunlin. 2015. An Improved Algorithm of RANSAC to Extract Feature Point Cloud of Multi Model Arc. In: *Engineering of Surveying and Mapping*, Beijing, China. Vol. 24, No. 1, pp. 28-32.
- Pan Guorong, Qin Shiwei, Cai Runbin, Gu Chuan. 2009. Fitted Plane Automatic Extraction Algorithm of 3-D Laser Scanning. In: *Journal of Tongji University(Natural Science)*. Shanghai, China. Vol. 37, No. 9, pp. 1250-1255.
- Ma Zhenguo. 2010. A Point Cloud Simplification Algorithm based on KD-Tree and Curvature Sampling. In: *Science of Surveying and Mapping*. Beijing, China. Vol. 35, No. 6, pp. 67-69.
- Li Yongqiang, Sheng Yehua, Liu Huiyun, Zhang Ka, Dai Huayang. 2008. 3D Road Information Extraction based on

Vehicle Laser Scanning. In: *Science of Surveying and Mapping*, Beijing, China. Vol. 33, No. 4, pp. 23-25.

Axelsson, P. 2000. DEM Generation from Laser Scanner Data Using Adaptive TIN Models. In: *International Archives of Photogrammetry and Remote Sensing*. Amsterdam, Netherlands. 33, B4/1, pp. 111-118.