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CLASSIFICATION BY USING MULTISPECTRAL POINT CLOUD DATA

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Abstract. Remote sensing images are generally recorded in two-dimensional format containing multispectral information. Also, the semantic information is clearly visualized, which ground features can be better recognized and classified via supervised or unsupervised classification methods easily. Nevertheless, the shortcomings of multispectral images are highly depending on light conditions, and classification results lack of three-dimensional semantic information. On the other hand, LiDAR has become a main technology for acquiring high accuracy point cloud data. The advantages of LiDAR are high data acquisition rate, independent of light conditions and can directly produce three-dimensional coordinates. However, comparing with multispectral images, the disadvantage is multispectral information shortage, which remains a challenge in ground feature classification through massive point cloud data. Consequently, by combining the advantages of both LiDAR and multispectral images, point cloud data with three-dimensional coordinates and multispectral information can produce a integrate solution for point cloud classification. Therefore, this research acquires visible light and near infrared images, via close range photogrammetry, by matching images automatically through free online service for multispectral point cloud generation. Then, one can use three-dimensional affine coordinate transformation to compare the data increment. At last, the given threshold of height and color information is set as threshold in classification.

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