

# Classifying Airborne LiDAR Point Clouds via Deep Features Learned by a Multi-scale Convolutional Neural Network

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## Methodology

- (1) Generate a set of multi-scale contextual images for each LiDAR point according to the height and intensity attributes of LiDAR data.
- (2) Learn deep features from the contextual images across multiple scales using a designed and trained multi-scale convolutional neural network (MCNN).
- (3) Combine the learned deep features and attributes (RGB, height, intensity) of the points to classify each LiDAR point into one of 7 types, including powerline (0) □ low vegetation (1) □ impervious surfaces (2), car (3) □ roof (5) □ facade(6) and tree (8), using a softmax regression classifier.