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The Influence of Noise on Aerial Image Semantic Segmentation

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Abstract : Noise is ubiquitous in this world. Denoising is an essential technology, especially in image semantic segmentation, where noises are generally categorized into two main types i.e. feature noise and label noise. The main focus of this paper is aiming at modeling label noise, investigating the behaviors of different types of label noise on image semantic segmentation tasks using K-Nearest-Neighbor and Convolutional Neural Network classifier. The performance without label noise and with is evaluated and illustrated in this paper. In addition to that, the influence of feature noise on the image semantic segmentation task is researched as well and a feature noise reduction method is applied to mitigate its influence in the learning procedure.

Keywords : convolutional neural network, denoising, feature noise, image semantic segmentation, k-nearest-neighbor, label noise
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