Keypoint Detection Method Based on Multi-Scale Feature Fusion of Attention Mechanism

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Abstract : Keypoint detection has always been a challenge in the field of image recognition. This paper proposes a novelty keypoint detection method which is called Multi-Scale Feature Fusion Convolutional Network with Attention (MFFCNA). We verified that the multi-scale features with the attention mechanism module have better feature expression capability. The feature fusion between different scales makes the information that the network model can express more abundant, and the network is easier to converge. On our self-made street sign corner dataset, we validate the MFFCNA model with an accuracy of 97.8% and a recall of 81%, which are 5 and 8 percentage points higher than the HRNet network, respectively. On the COCO dataset, the AP is 71.9%, and the AR is 75.3%, which are 3 points and 2 points higher than HRNet, respectively. Extensive experiments show that our method has a remarkable improvement in the keypoint recognition tasks, and the recognition effect is better than the existing methods. Moreover, our method can be applied not only to keypoint detection but also to image classification and semantic segmentation with good generality.

Keywords : keypoint detection, feature fusion, attention, semantic segmentation
Conference Title : ICCV 2022 : International Conference on Computer Vision
Conference Location : Dubai, United Arab Emirates
Conference Dates : September 27-28, 2022