## DCDNet: Lightweight Document Corner Detection Network Based on Attention Mechanism

Authors : Kun Xu, Yuan Xu, Jia Qiao

**Abstract :** The document detection plays an important role in optical character recognition and text analysis. Because the traditional detection methods have weak generalization ability, and deep neural network has complex structure and large number of parameters, which cannot be well applied in mobile devices, this paper proposes a lightweight Document Corner Detection Network (DCDNet). DCDNet is a two-stage architecture. The first stage with Encoder-Decoder structure adopts depthwise separable convolution to greatly reduce the network parameters. After introducing the Feature Attention Union (FAU) module, the second stage enhances the feature information of spatial and channel dim and adaptively adjusts the size of receptive field to enhance the feature expression ability of the model. Aiming at solving the problem of the large difference in the number of pixel distribution between corner and non-corner, Weighted Binary Cross Entropy Loss (WBCE Loss) is proposed to define corner detection problem as a classification problem to make the training process more efficient. In order to make up for the lack of Dataset of document corner detection, a Dataset containing 6620 images named Document Corner Detection Dataset (DCDD) is made. Experimental results show that the proposed method can obtain fast, stable and accurate detection results on DCDD.

Keywords : document detection, corner detection, attention mechanism, lightweight

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