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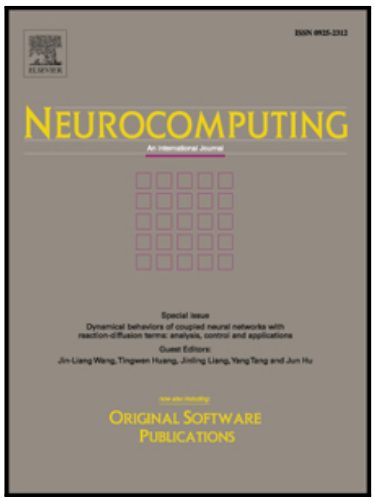

Object Localization via Evaluation Multi-task Learning

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Object Localization via Evaluation Multi-task Learning

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Abstract

Research on Region Convolution Neural Network (RCNN) based object localization has recently witnessed rapid progress, but constrained by the size of the output convolution map, this method is unable to obtain exact object positions. In this paper, we present a multi-task learning approach on convolution neural network for object localization. Our model consists of 3 modules, respectively extracting shared features, generating low-level features, and fusing different levels information. We developed an algorithm for the nontrivial end-to-end training of this causal, cascaded structure. Finally, we demonstrated performance of the algorithm on the PASCAL VOC 2007 dataset and traffic scene dataset. Experiments show that our algorithm effectively and efficiently improved performance.

Keywords: `Object Localization`, `Edge Information`, `Multi-task Network`, `Deep Learning`, `Information Fusion`

1. Introduction

Object localization, not only determines the category of an image object, but also determines object location. Object localization is an important and basic problem in computer vision, and has close relationships with object recognition, object tracking, image retrieval, and other issues [1, 2, 3, 4].

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