

# MULTI-SCALE TARGET DETECTION BASED ON THE MORPHOLOGICAL SHARED-WEIGHT NEURAL NETWORK

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## ABSTRACT

Convolutional Neural Networks (CNN) are a popular neural network structure for image based applications. This thesis discusses an alternative network, the morphological shared-weight neural network (MSNN) for object detection. In this thesis, three combined network structures are developed for multi-scale object detection. The dataset used for the experiments presented here were created by the author for this thesis study. The convolutional neural network is used as the baseline for judging the performance of the MSNN. Experiments suggest that when training data is limited, the MSNN has a more robust and precise performance as compared with the CNN.