

## Attention-based Adaptive Convolution with Progressive Learning in Speech Enhancement

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**Abstract :** The monaural speech enhancement task in the time-frequency domain has a myriad of approaches, with the stacked convolutional neural network (CNN) demonstrating superior ability in feature extraction and selection. However, using stacked single convolutions method limits feature representation capability and generalization ability. In order to solve the aforementioned problem, we propose an attention-based adaptive convolutional network that integrates the multi-scale convolutional operations into a operation-specific block via input dependent attention to adapt to complex auditory scenes. In addition, we introduce a two-stage progressive learning method to enlarge the receptive field without a dramatic increase in computation burden. We conduct a series of experiments based on the TIMIT corpus, and the experimental results prove that our proposed model is better than the state-of-art models on all metrics.

**Keywords :** speech enhancement, adaptive convolution, progressive learning, time-frequency domain

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