

# Modified learning technique in Recurrent Neural Network

Sunyoung Bu(agathaboo@gmail.com)

Hongik University, sejong campus

## Abstract

In this work, we propose a modified learning technique for vanilla recurrent neural network. Recurrent neural networks (RNNs) are used to predict future values for sequential and time series data by learning features and long term dependencies of the time series. However, RNNs have lots of difficulties in learning processes such as slow inference, vanishing gradients and difficulty in capturing long term dependencies. To overcome these difficulties, we introduce a new learning technique by updating the weight set as we change the input sequence which is shifted by certain amount of time in training process, instead of using a traditional way to calculate one set of the weights and biases in training time series with sequences shifted by certain amount of time series. Several numerical experiments demonstrate the efficiency of the proposed techniques.

**Keywords:** *Machine learning, Recurrent Neural network, learning process*