

INT301 Bio-Computation Week 11 Lab

Elman networks and time series modelling

In Matlab an Elman network can be created using function *newelm* as follows (type “*help newelm*” in command window for help in detail):

`newelm(input, target, [N1, ..., N(K-1)])`

where input and output represent the input and target of training set, [N1, ..., N(K-1)] denote the number of units of each hidden layer (as the number of units of output layer is determined by target).

The demo code models the series $x_n = 0.75x_{n-1}^2 + 0.2x_{n-2}$ ($x_1 = x_2 = 1$) using Elman network, with one hidden layer of 15 units ($K = 15$) and 300 epochs in training. Understand the demo code and try different number of training/testing data size, different number of hidden layers and units of each layer, and different number of epochs.