Reinforcement Learning
Weekly Written Assignment #1

Author:
CS17S011 Ajay Kumar Pandey

Submitted to-
Assoc. Professor: B.Ravindran

January 23, 2018

1 Solution:

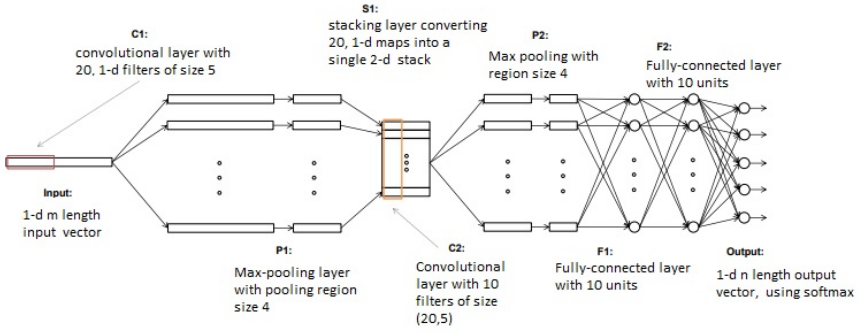

Figure 1: CNN architecture

Here there are total 9 layers including input and output layers, architecture is divided into two parts 1 Feature learning and classification. Layers (Input, C1, P1, S1, C2, P2) are for feature learning part and Layers (F1, F2, output) are for classification part.

Layer description-

1. Input layer: m dimensional input layer which will take input a 1-dimension vector of length of m.
2. Convolution layer(C1): It will traverse the input map with 20 filters each of size 5 and generate 20 1-dimensional maps each of size (m-4).
3. Pooling layer(P1): It will do Max-pool in region size of 4, so it will generate 20 1-dimensional maps each of size (m-4)/4.
4. Stacking layer(S1): It combine all 20 1-dimensional maps and stack them into one 2-dimensional map of size [20,(m-4)/4].
5. Convolutional layer(C2): It will traverse the 2-d map with 10 filters each of size (20,5) and generate 10 maps each of size (m-20)/4.
6. Pooling layer(P2): It will do Max-pool in region size of 4, so it will generate 10 1-dimensional maps each of size (m-20)/4.
7. Layer(F1): Fully connected layer with 10 neurons.
8. Layer(F2): Fully Connected layer with 10 neurons.
9. Output layer: n dimensional output layer which uses softmax function to output the classification percentage.