WEA150022 Tutorial 10

1. Describe the Kohonen’s SOM algorithm.[5 marks]

Select random input → Selecting a random input from all of the possible input.

Compute winner neuron → Find the nearest neuron to the selected input in the map.

Update neurons → Update the neurons base on the relative distance of the the neuron and the winner neuron

Repeat for all input data → Repeat the 3 steps for all input data

Classify input data → Classify the input data into groups so that a neuron represent a group

2. The Malaysian national flag consists of 4 colors and many shapes. Each region of a specific color can be considered as a segment. Is SOM suitable for identification of each segments in the flag? How should we format the input data for SOM processing? Provide your assumptions. [5 marks]

SOM can be used.

SOM can learn to find pattern on its own based on input.

Format the input data into pixel by pixel.

Each pixel has a specific value that represent color.

By feeding SOM the input that way, SOM will be able to mimic the input data.