# Self Organizing Map (Kohonen’ s Map)

Chosen data: <http://archive.ics.uci.edu/ml/datasets/Activity+Recognition+from+Single+Chest-Mounted+Accelerometer>

The data I have choose have got 3 dimensions. I have started my model with initializing 7 neurons with random values. I have used Euclidian distance for finding the closest neuron to input vector. Alpha value is 0.1, because competitive SOM has been used, and it decreases 0.01 for each iteration. Sigma values which is neighborhood value has been chosen half of the neuron number.

Competitive SOM has been used, so the winner neuron will be updated. Sigma and alpha value must be multiplied with learning rate. So the model will converge step by step.

After training, 10% of data have been used for finding labels of neurons. I have counted best matching units. I have assigned the labels to neurons. So sometimes some neurons cannot take its best matching label, because the label was already taken.

For testing, I have used Euclidian norm., and I have counted successful matchings and unsuccessful matchings.

I have realized that if your data are accelerometer values so firstly you must decide which norm will be used because the data contain vectors, also if you want to guess motion type you must consider (kırılım) points for successfully guessing motion type.

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