# Advanced Computing: Machine Learning:

Game 2

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Do not use your book or the Internet or another student. If you have questions, you can ask Richard.

1. Suppose you are training a single perceptron with one output y. Suppose every data point has 3 features: [x1, x2, x3], and there are 100 data points.  
   What is the dimension of y?

3 dimensional

1. What is a support vector?

A support vector is made up of datapoints within a class that lie closest to the classification line.

1. For SVM, what is hard margin vs soft margin?

A hard margin sets the boundary where no other datapoints must be(“no mans land”)

A soft margin has room for error using large C and little c to minimize the error taken

1. What is w.T = np.transpose(w)

It is used to change the dimensionality of a data set.

1. Give 2 methods for selecting the RBF layer.

Is this the assignment of the node centers? You can use the k-means clustering method or have random datapoints be the centers.

1. Describe what a support vector machine does (you don’t need much detail, but if you have more time, you can add to it)

A support vector machine classifies information by finding the largest margins within datapoints.