**Numerical dataset**

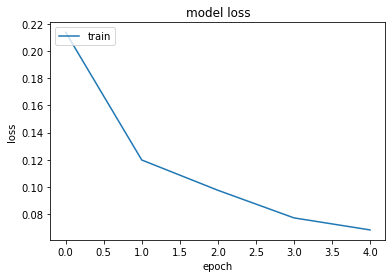
**ANN:**

**Hyperparameters:**

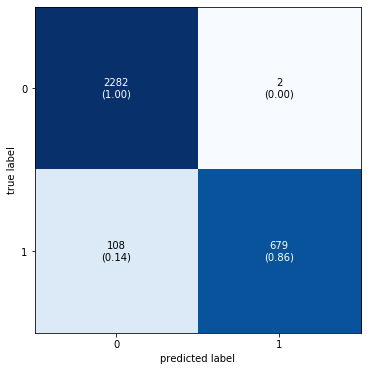
**Before: epoch = 5**

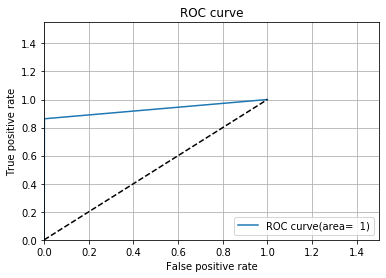
**Accuracy = 96.4 %**

**Loss curve:**

****

**Confusion matrix:**

****

**ROC**

**After: epoch = 10**

**Accuracy : 99.3%**

**Loss curve : Chart, line chart

Description automatically generated**

**confusion matrix**: Chart, treemap chart

Description automatically generated

**ROC curve**:Chart, line chart

Description automatically generated

**SVM:**

**Before:**

**Hyperparameters**

**C = 0.5**

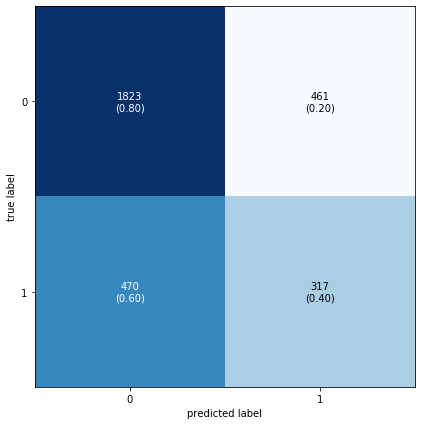
**Kernel = ‘sigmoid’**

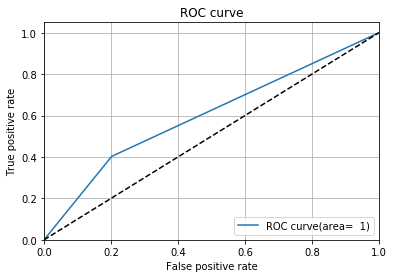
**Degree = 3**

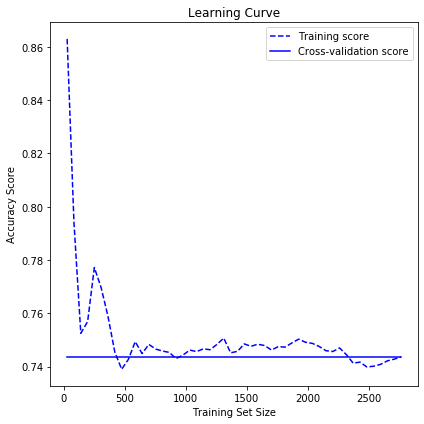
**Gamma = 5**

**Result:**

**Accuracy = 69.6 %**

**Confusion matrix:**

**ROC:**

**Learning curve:**

**After :**

**Hyper-parameters**

**Kernel: sigmoid**

**Gamma: auto**

**Degree: 3**

**C: 0.1**

**Result :**

**learning** **curve**:Graphical user interface

Description automatically generated with medium confidence

**accuracy: 97.3 %**

**confusion matrix:**

**A screenshot of a computer

Description automatically generated with medium confidence**

**ROC curve:Chart, line chart

Description automatically generated**

**Images dataset**

**ANN:**

**Before:**

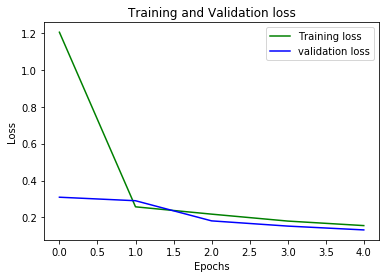
**Hyperparameters:**

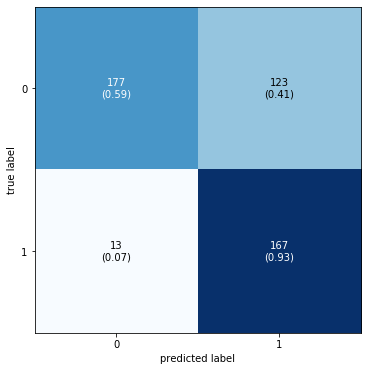
**Optimizer : ‘adam’**

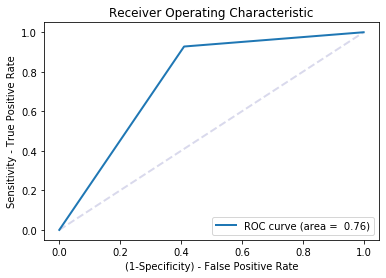
**Epoch = 5**

**Result :**

**Accuracy = 71.67 %**

**Loss curve:**

**Confusion matrix:**

**ROC:**

**After :**

**Hyper-parameters**

**Initial learning :32\*32**

**Optimizer: ‘adam’**

**Epoch :10**

**Result :**

**Loss curve:**

**Chart, line chart

Description automatically generated**

**Accuracy :99.79 %Chart, line chart

Description automatically generated**

**Confusion matrix:Chart

Description automatically generated**

**ROC :A picture containing graphical user interface

Description automatically generated**

**SVM:**

**Before :**

**Hyperparameters:**

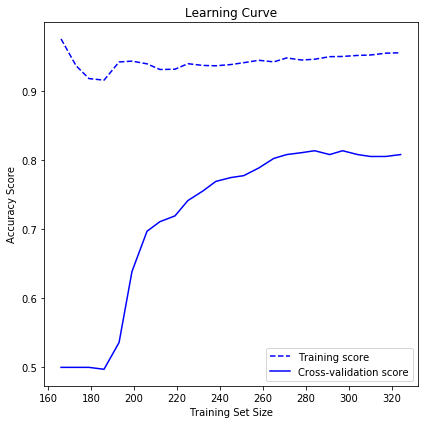
**Optimizer : ‘rbf’**

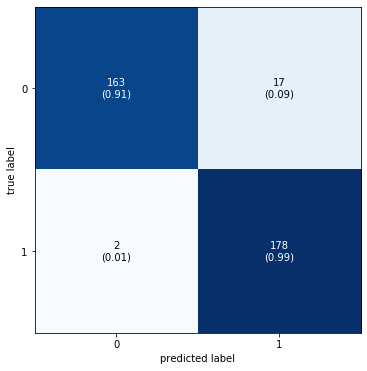
**Max iteration : 950**

**C = 1**

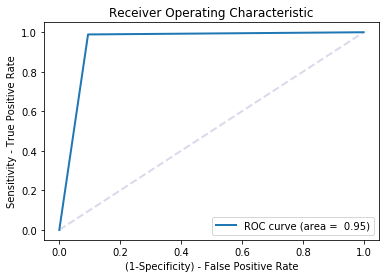
**Result :**

**Accuracy : 94.72%**

**Learning curve:**

**Confusion matrix:**

**ROC:**

****

**After :**

**Hyper-parameters**

**Optimizer : ‘rbf’**

**Max iteration : 950**

**C = 10**

**Result :**

**Learning curve:Chart, line chart

Description automatically generated**

**Accuracy :98.06%**

**Confusion Matrix:Chart, treemap chart

Description automatically generated**

**ROC:A picture containing graphical user interface

Description automatically generated**