

# NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA

## EC447 PATTERN RECOGNITION AND MACHINE LEARNING

### REPORT

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# Neural Networks

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# 1 Description of the data

## 1.1 Features and dimension

The features were extracted from the audio files using opensmile tool and emobase configuration. The original feature dimension of 989 was reduced to 1 using Linear Discriminant Analysis

## 1.2 Training and test samples

	Genuine	Spoofed
Train data	1708	1708
Test data	760	950

# 2 Description of the Neural Network

- Number of hidden layers - 1
- Number of neurons in the hidden layer - 3
- Activation function used for each neuron - sigmoid
- Number of epochs - 200

# 3 Results

## 3.1 Confusion Matrix

- Train data

1507	0
1	1508

Accuracy - 0.999668435013

Precision - 0.999336870027

Recall - 1.0

- Test data

873	76
73	688

Accuracy - 0.911695906433

Precision - 0.923566878981

Recall - 0.916754478398