

# Introduction

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## Jet V tagging classification using ML techniques

### Input Data

- ❑ Jet images in different bins of PT
- ❑ Raw image contains 625 pixels

### Principal Components Analysis

- ❑ Reduces number of features: 625 → 60

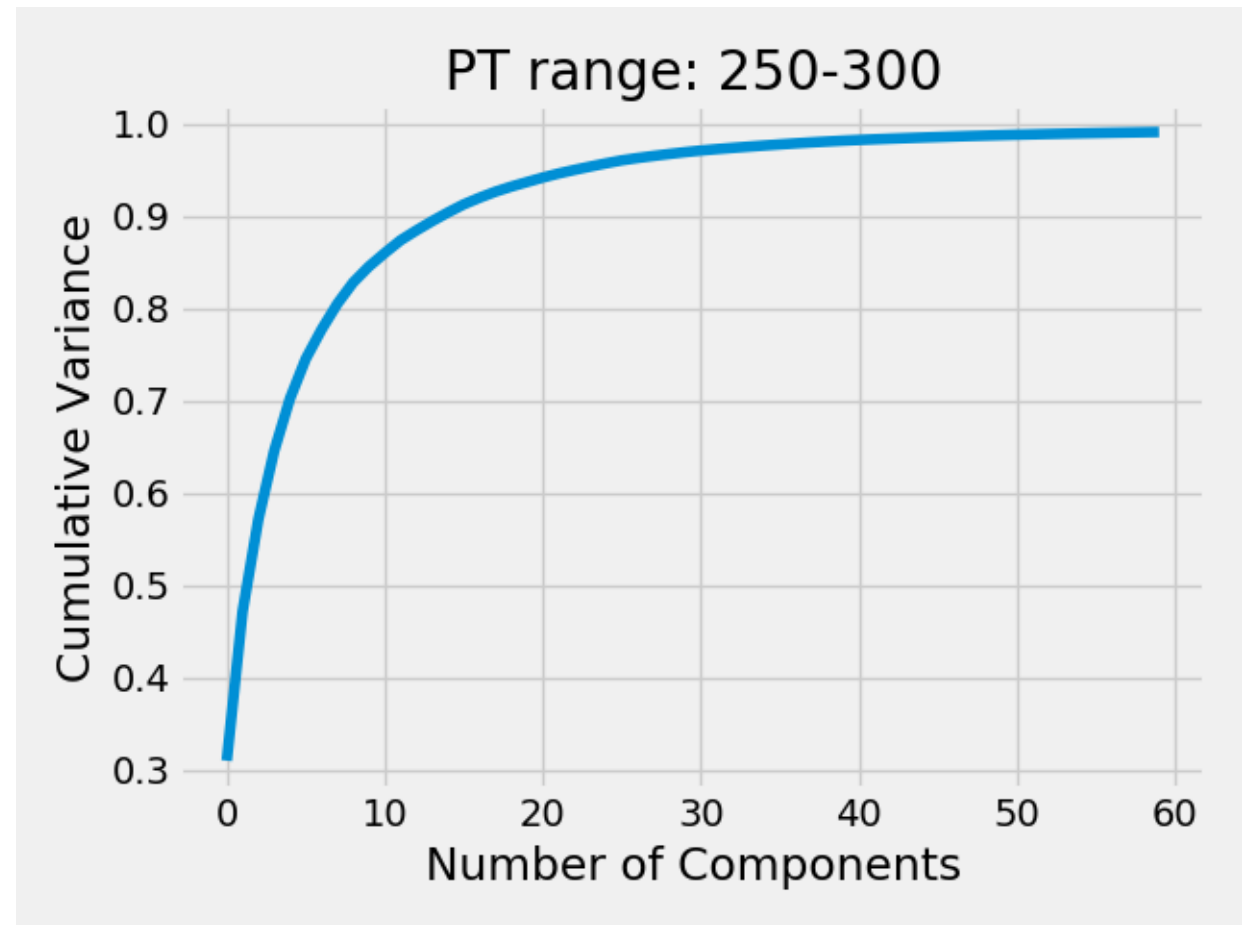
### Classifier

- ❑ Random Forest (last week)
- ❑ Perceptron (Today)

# Cumulative Variance

Principal Components Analysis

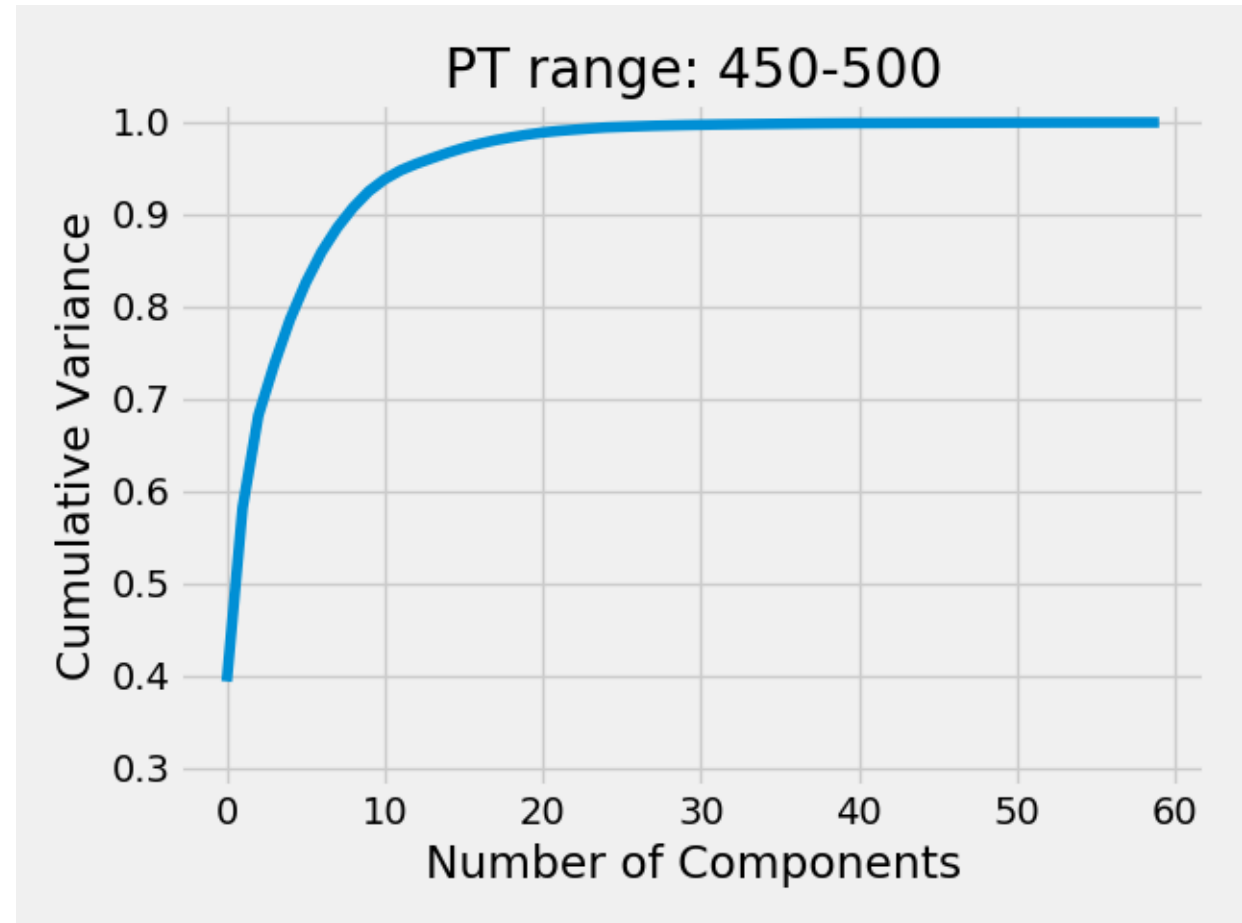
- 60 components



# Cumulative Variance

Principal Components Analysis

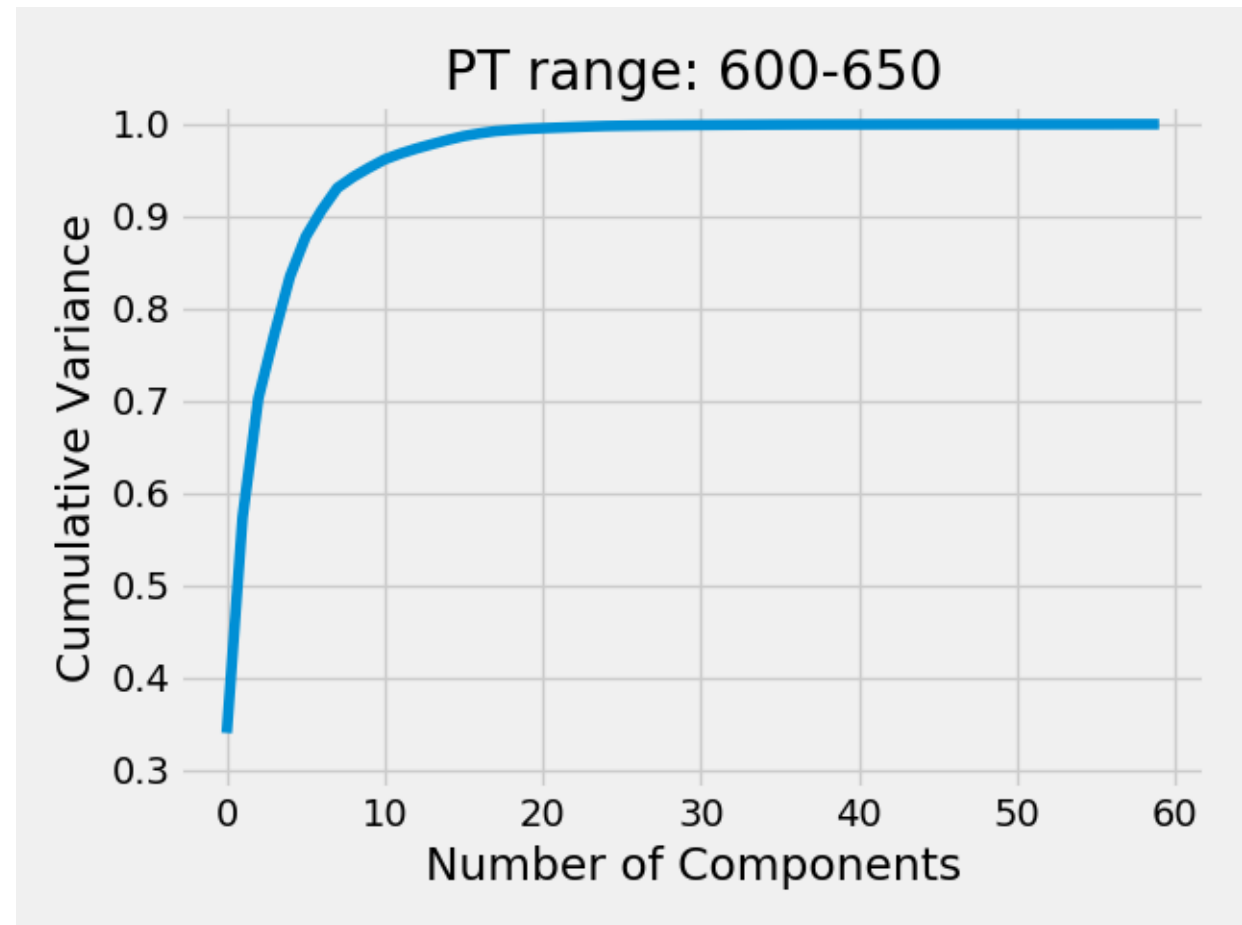
- 60 components



# Cumulative Variance

Principal Components Analysis

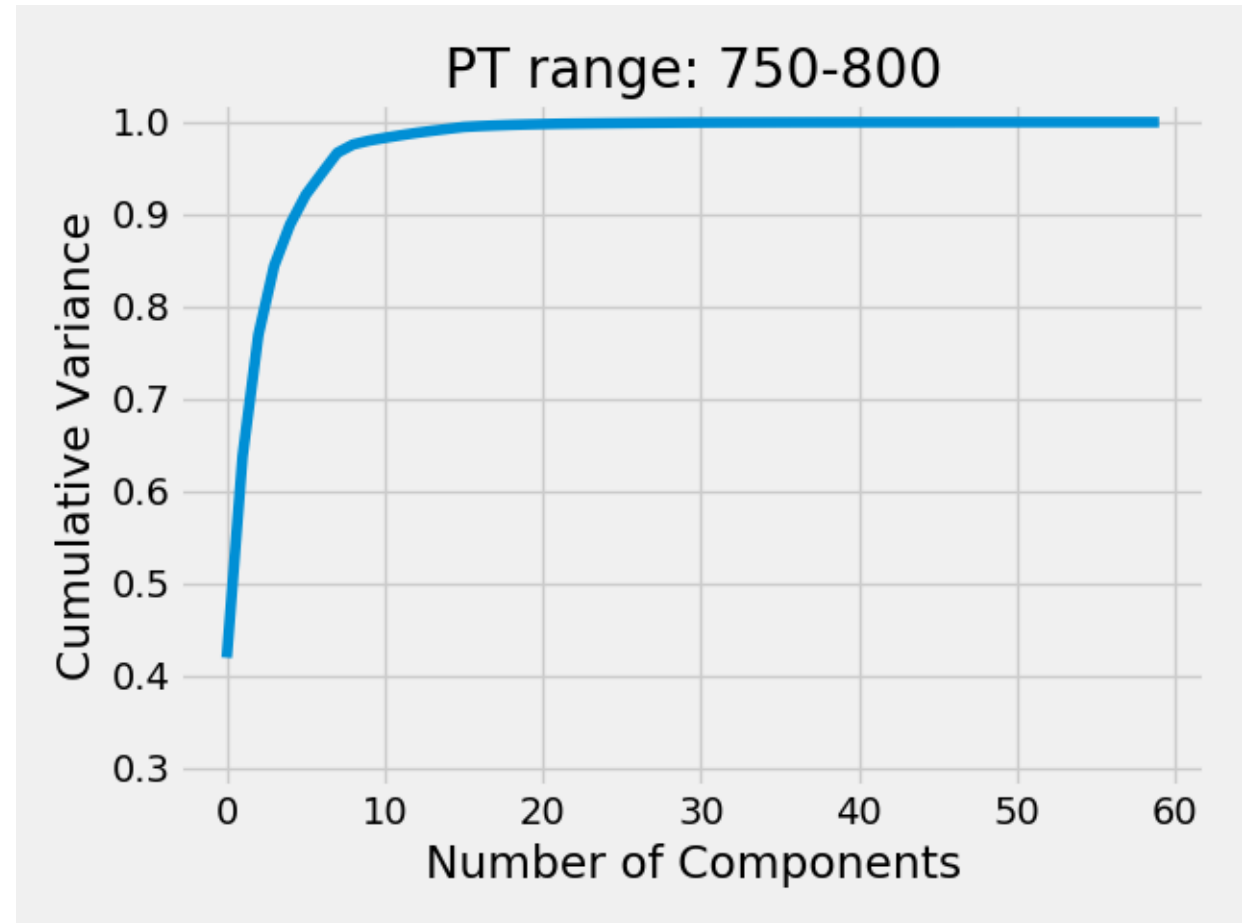
- 60 components



# Cumulative Variance

Principal Components Analysis

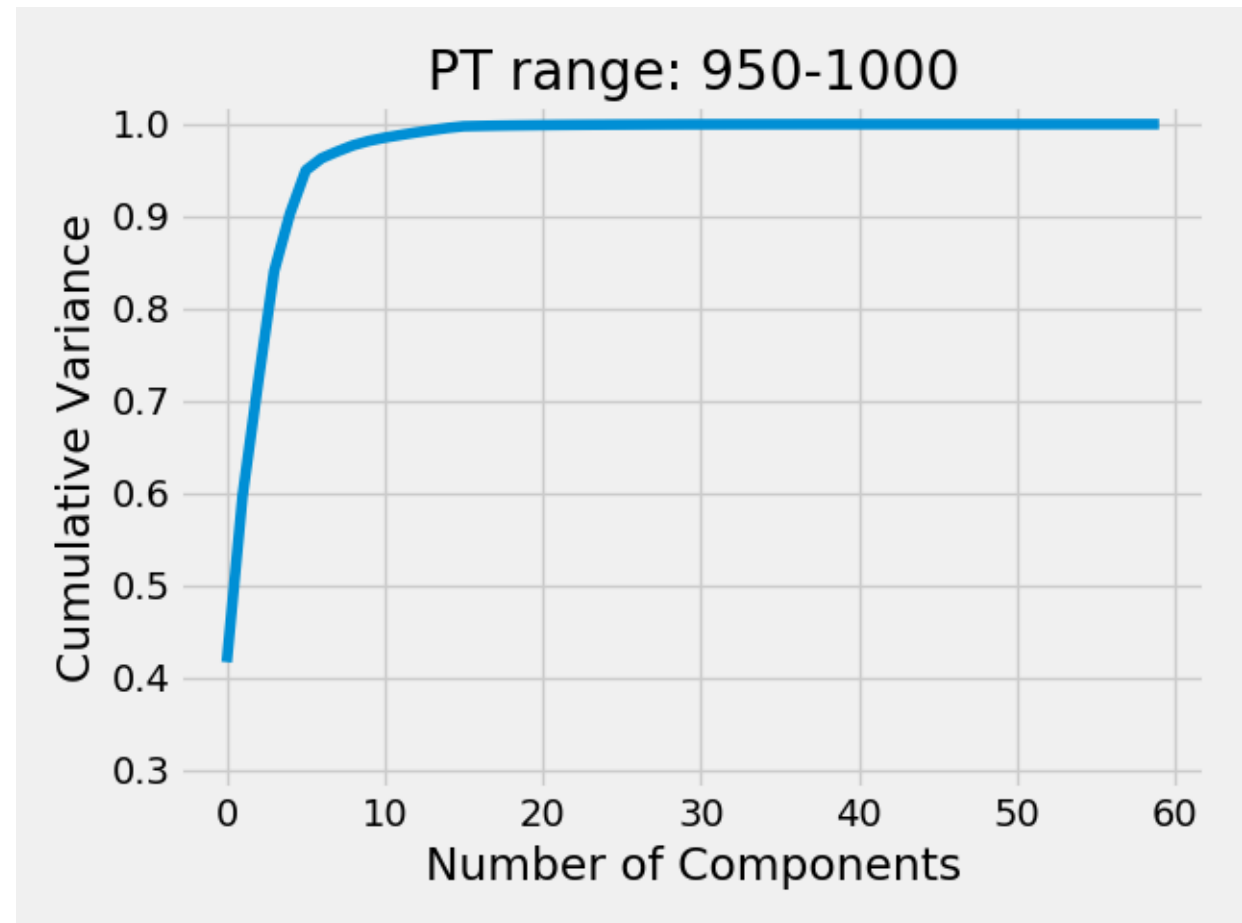
- 60 components



# Cumulative Variance

Principal Components Analysis

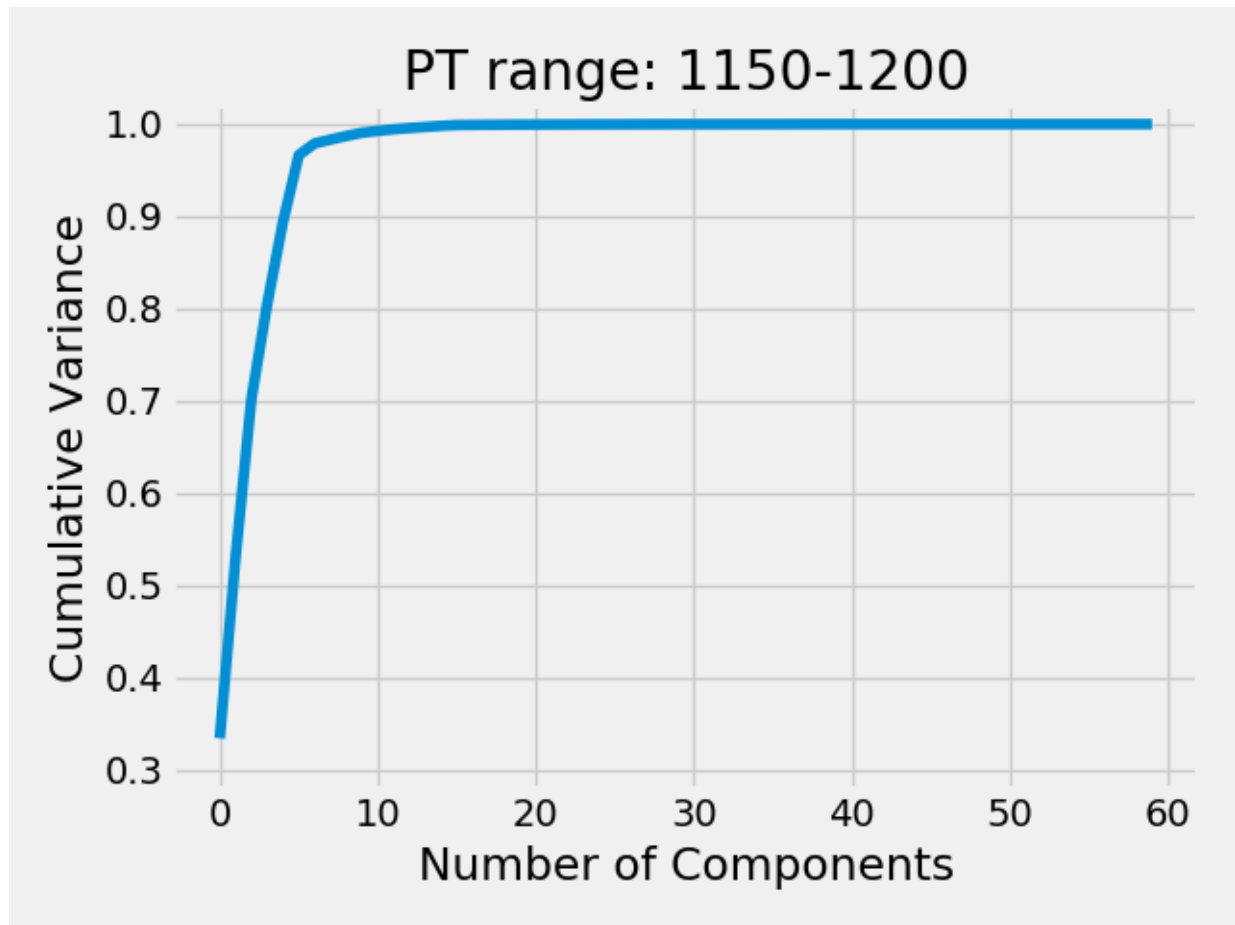
- 60 components



# Cumulative Variance

Principal Components Analysis

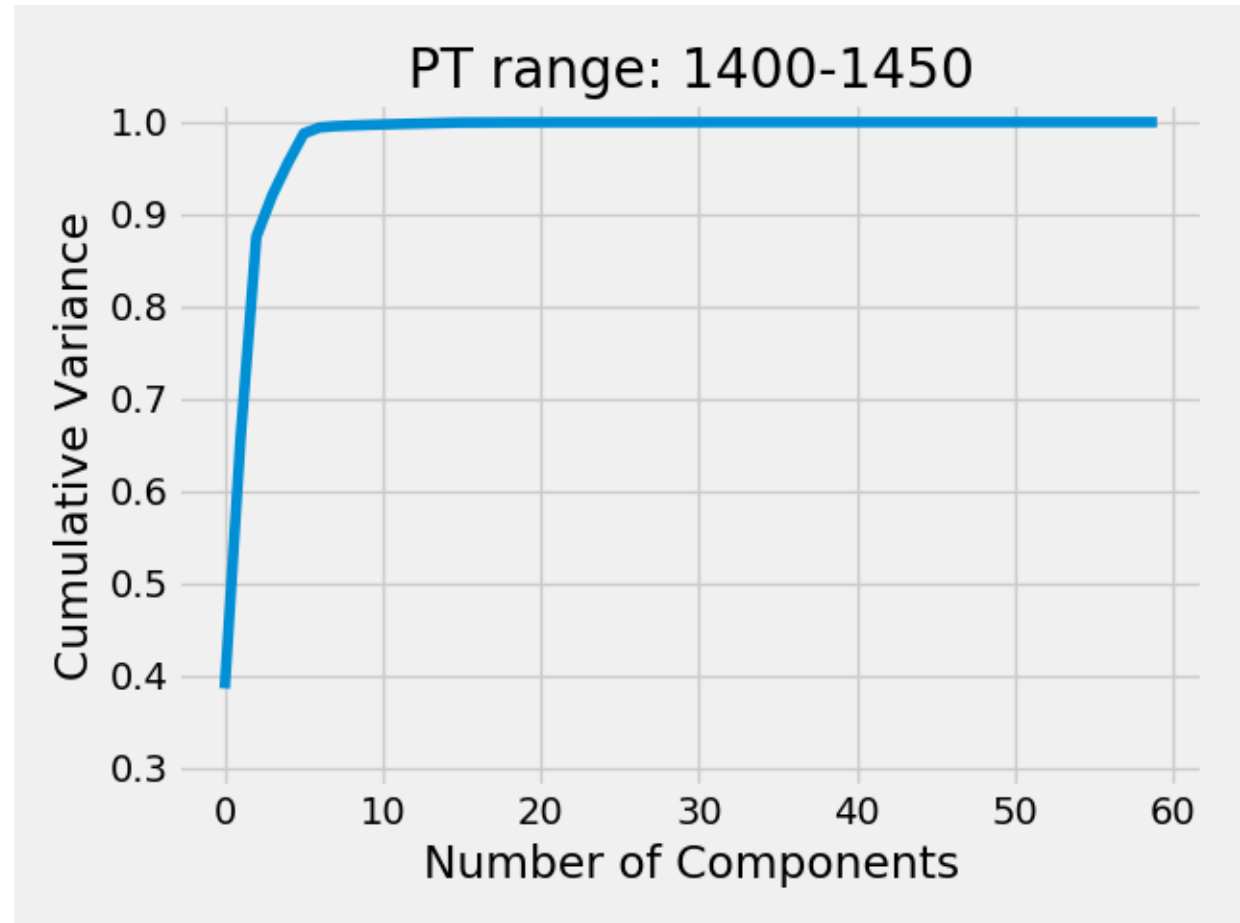
- 60 components



# Cumulative Variance

Principal Components Analysis

- 60 components

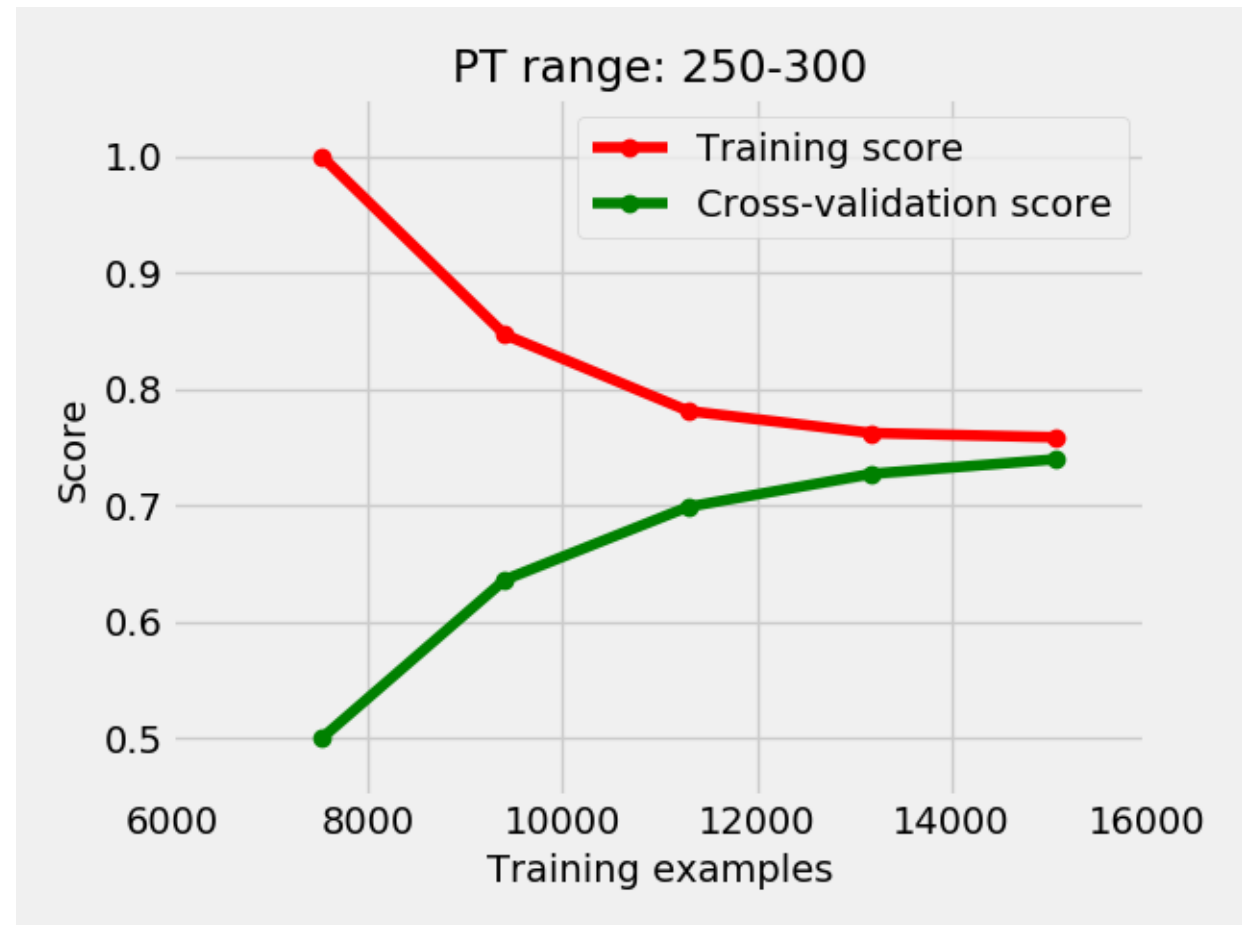




# Learning Curve

## Classifier

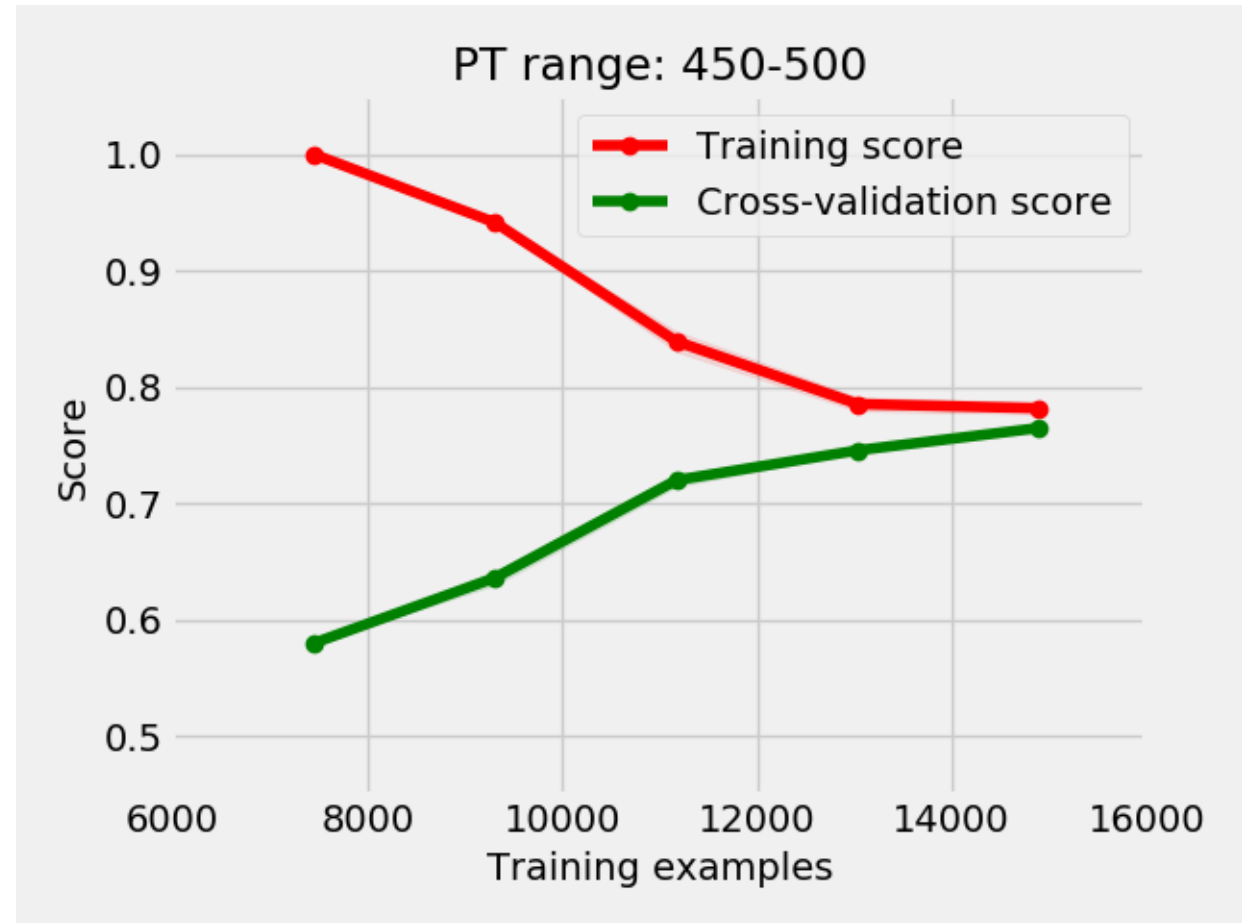
- Multilayer perceptron
- 1 hidden layer
- 5 neurons



# Learning Curve

## Classifier

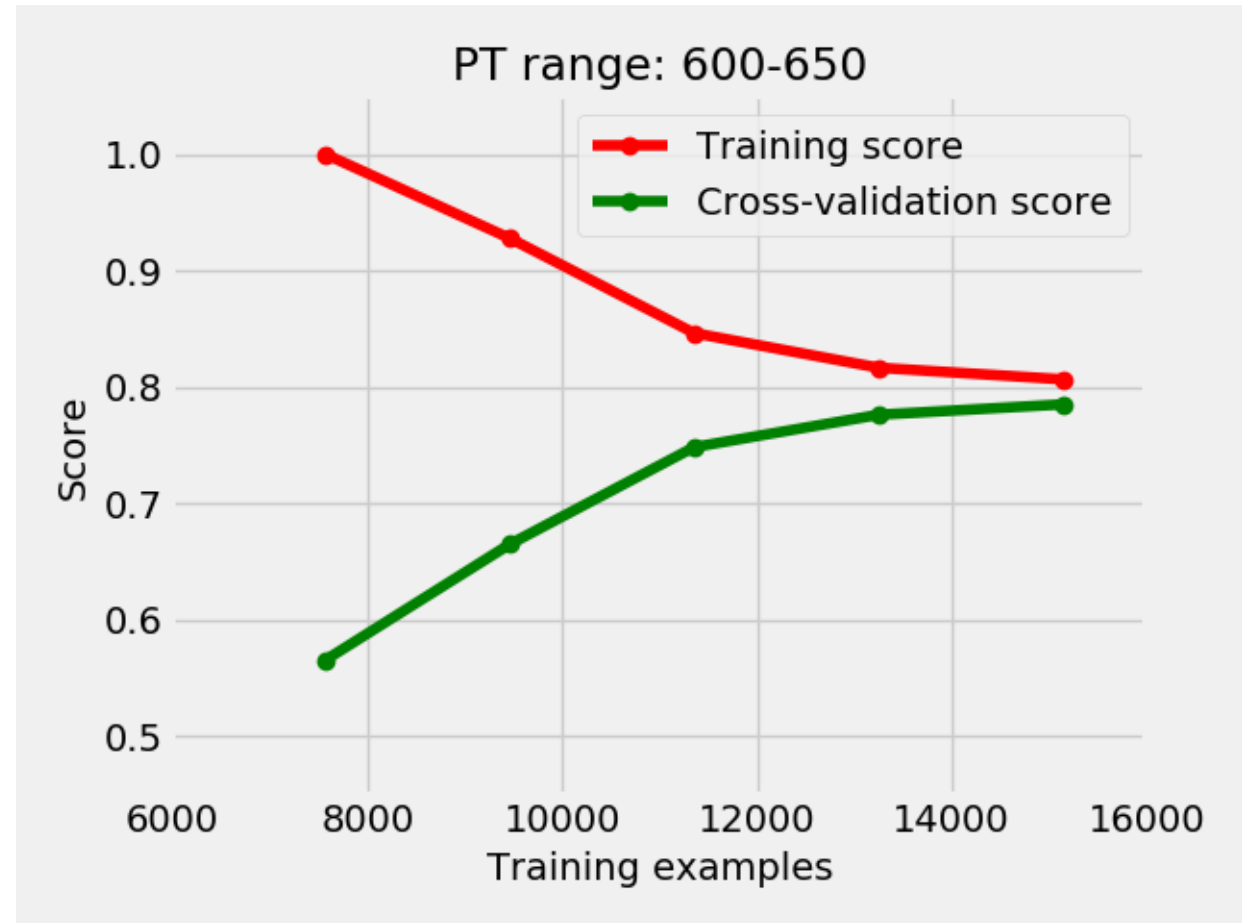
- Multilayer perceptron
- 1 hidden layer
- 5 neurons



# Learning Curve

## Classifier

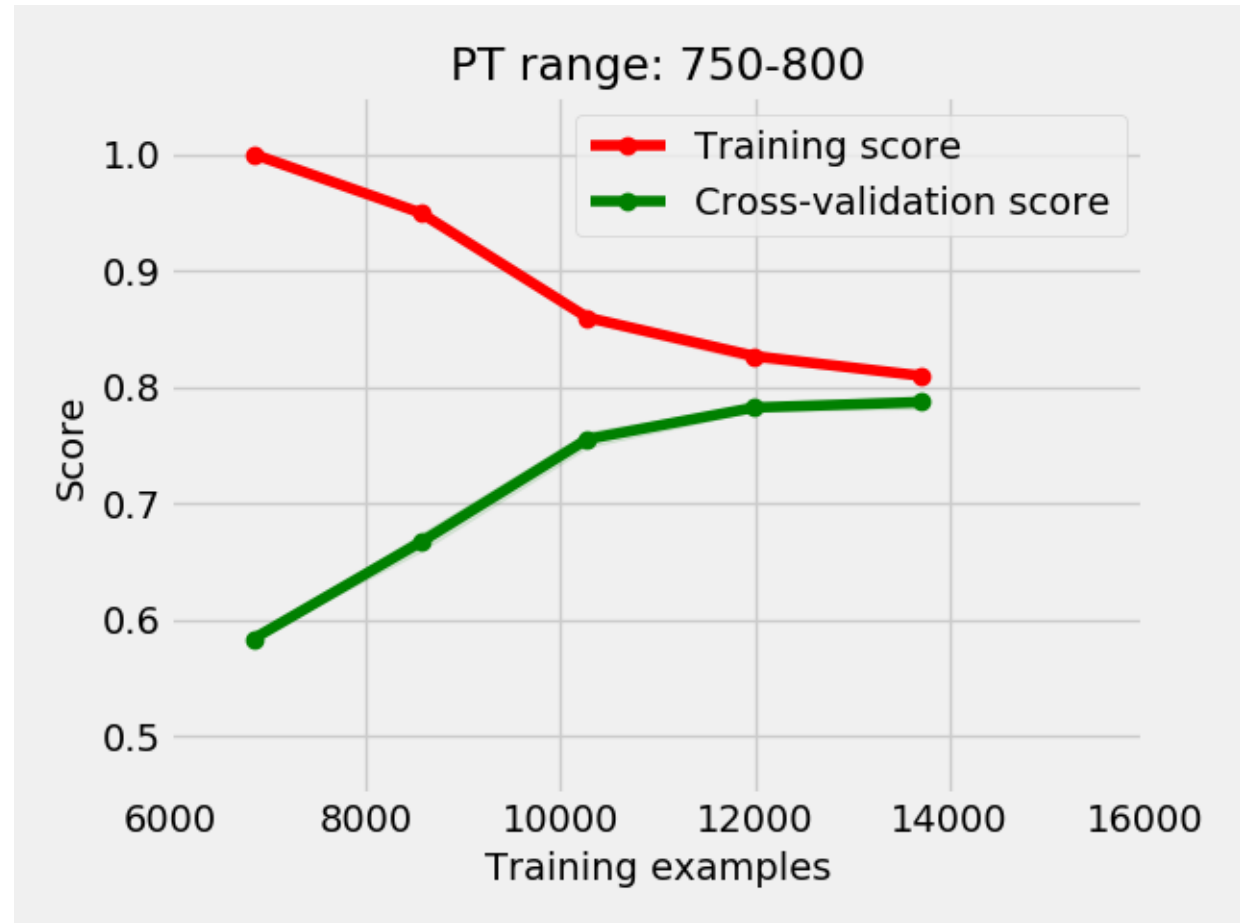
- Multilayer perceptron
- 1 hidden layer
- 5 neurons



# Learning Curve

## Classifier

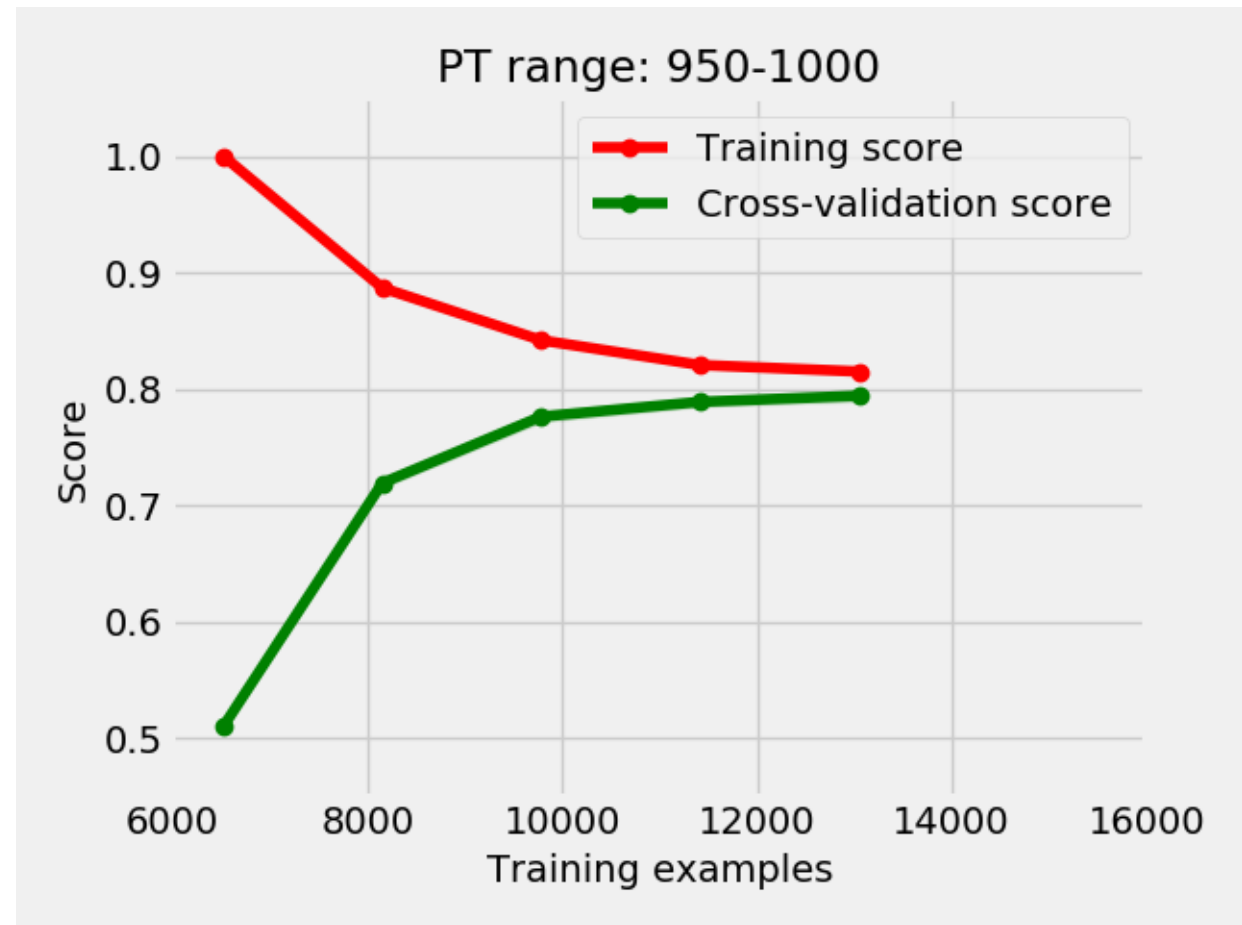
- Multilayer perceptron
- 1 hidden layer
- 5 neurons



# Learning Curve

## Classifier

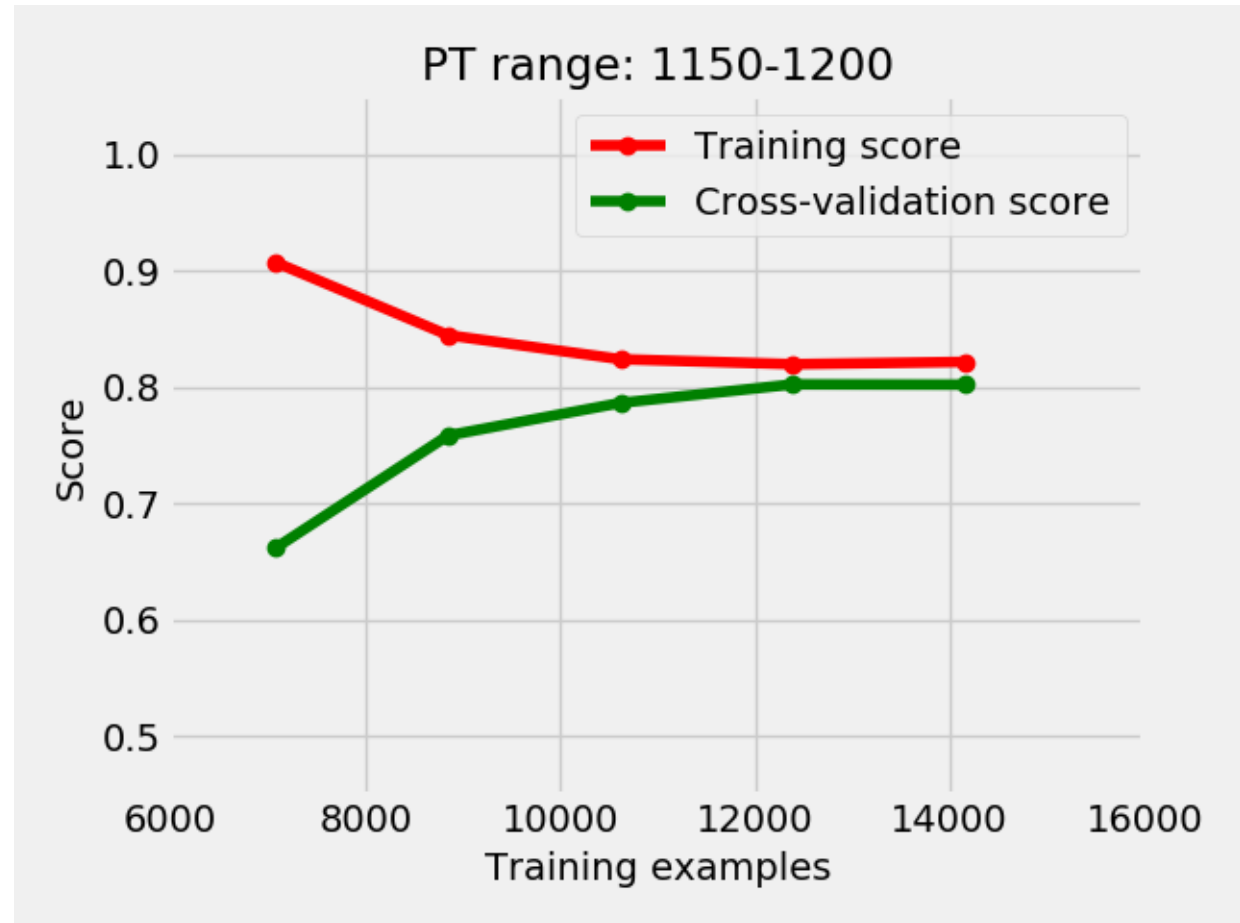
- Multilayer perceptron
- 1 hidden layer
- 5 neurons



# Learning Curve

## Classifier

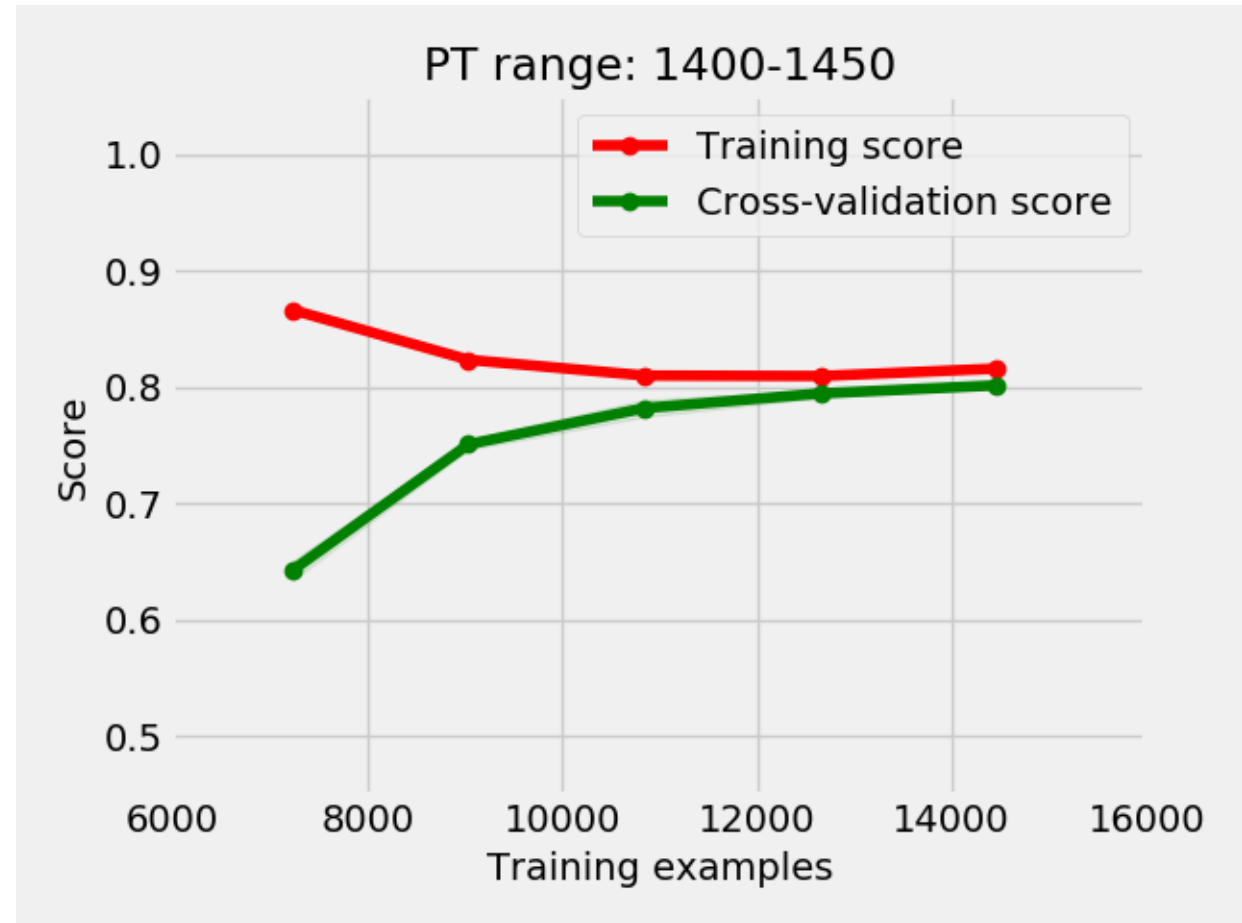
- Multilayer perceptron
- 1 hidden layer
- 5 neurons



# Learning Curve

## Classifier

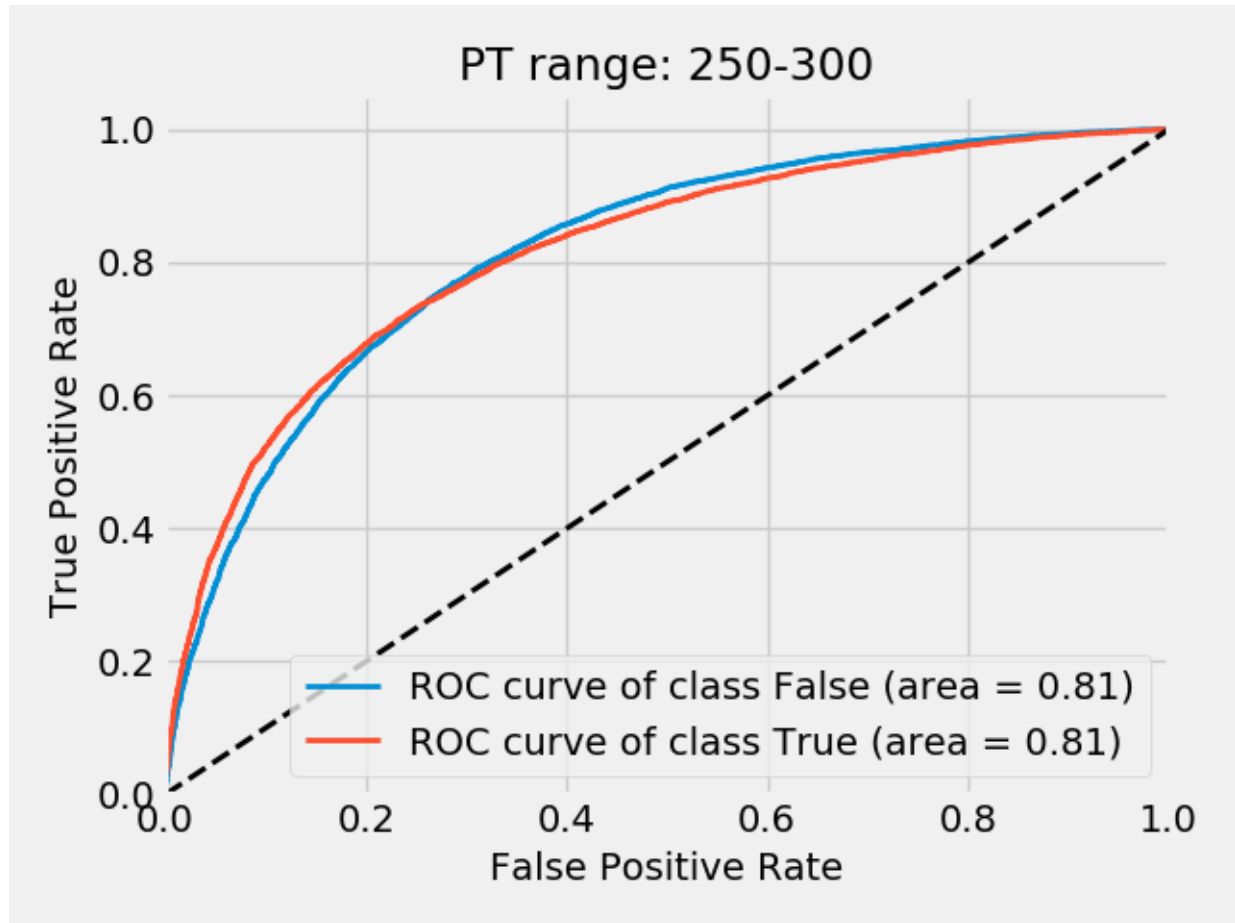
- Multilayer perceptron
- 1 hidden layer
- 5 neurons



# ROC Curve

## Classifier

- Multilayer perceptron
- 1 hidden layer
- 5 neurons

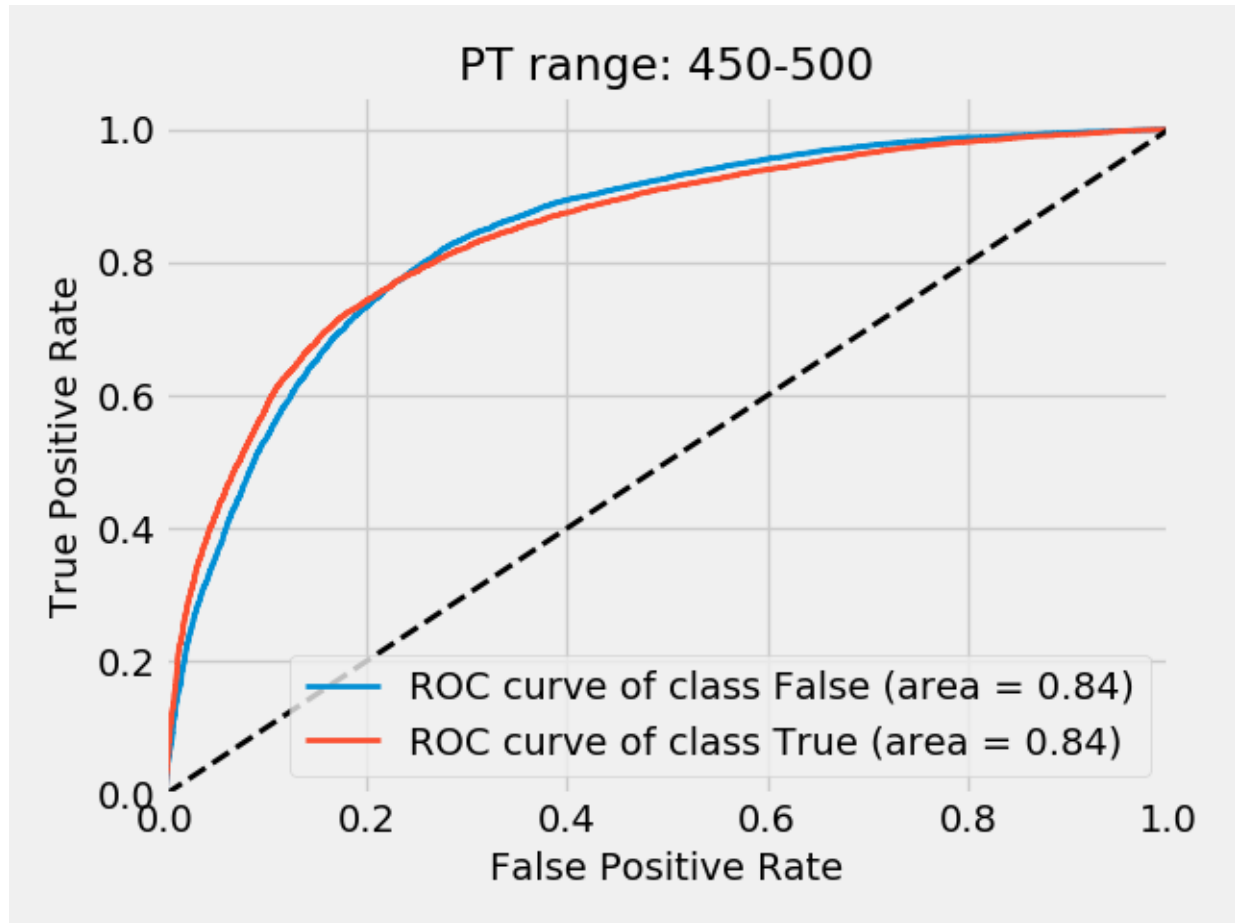




# ROC Curve

## Classifier

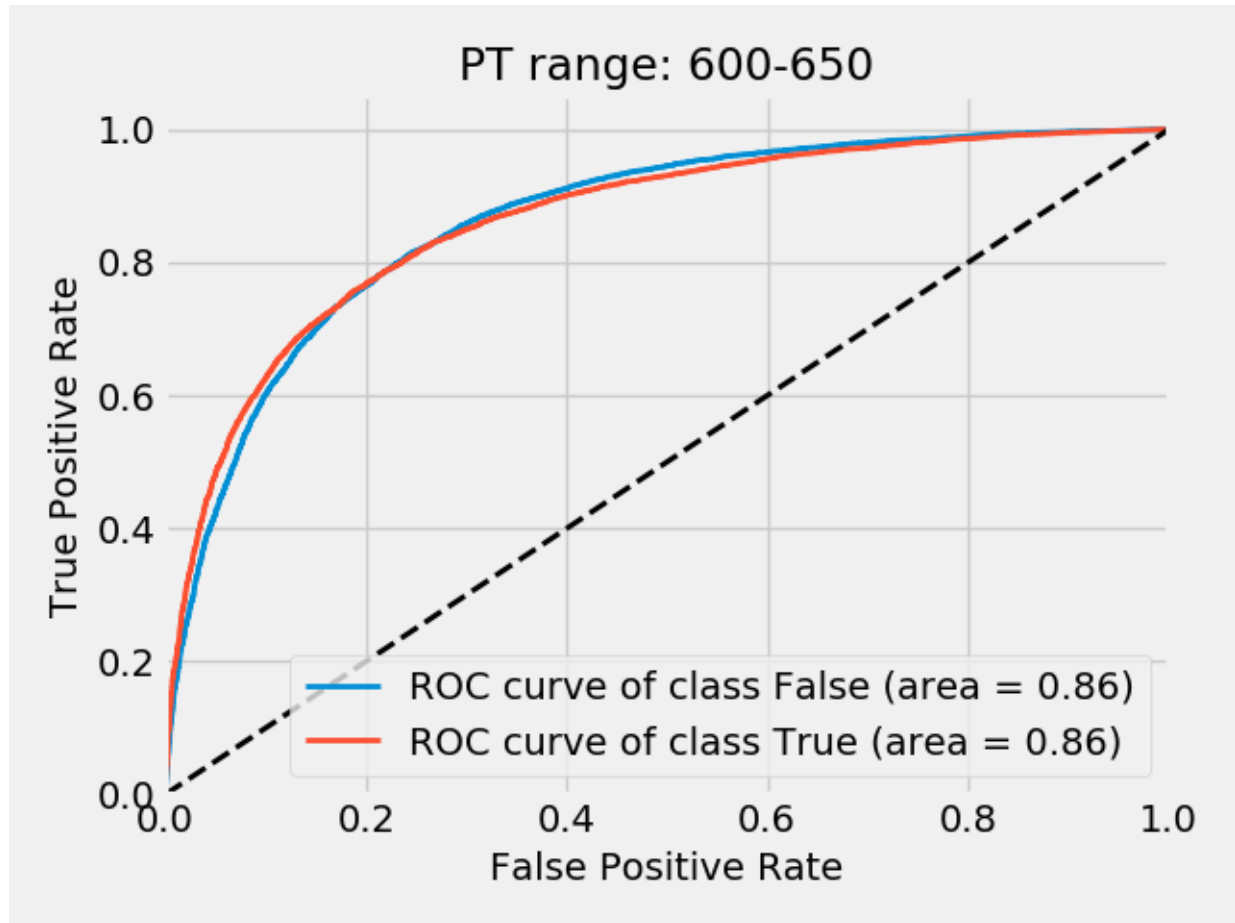
- Multilayer perceptron
- 1 hidden layer
- 5 neurons



# ROC Curve

## Classifier

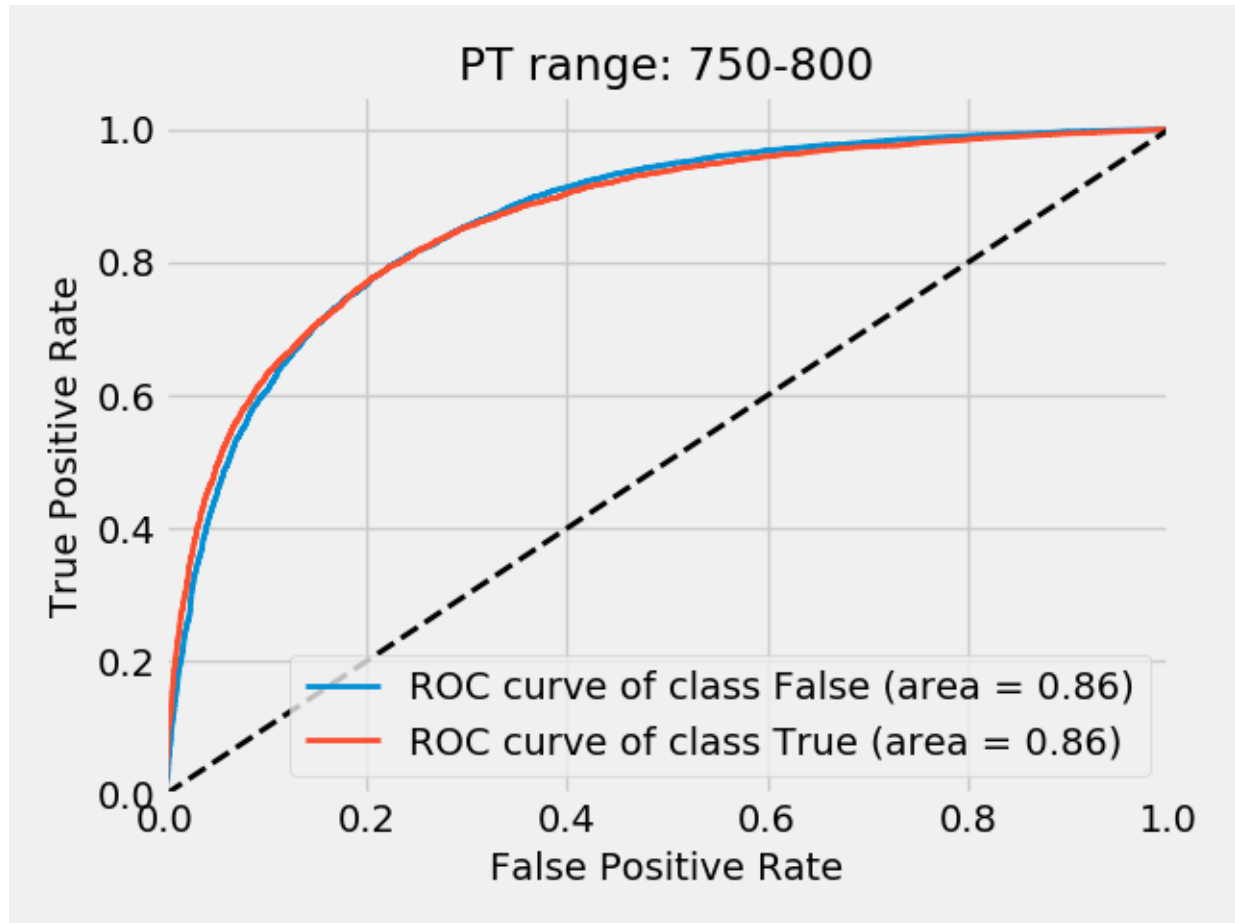
- Multilayer perceptron
- 1 hidden layer
- 5 neurons



# ROC Curve

## Classifier

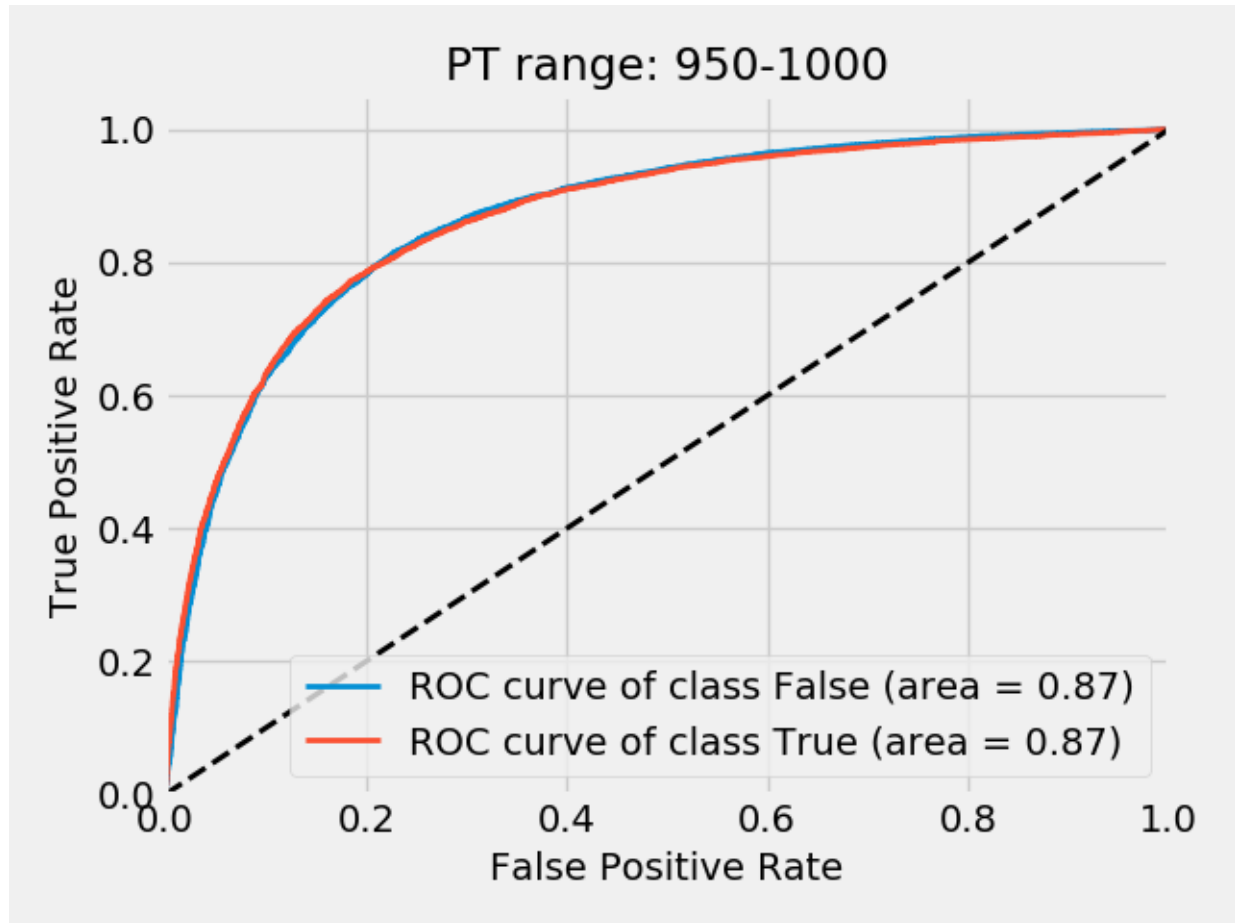
- Multilayer perceptron
- 1 hidden layer
- 5 neurons



# ROC Curve

## Classifier

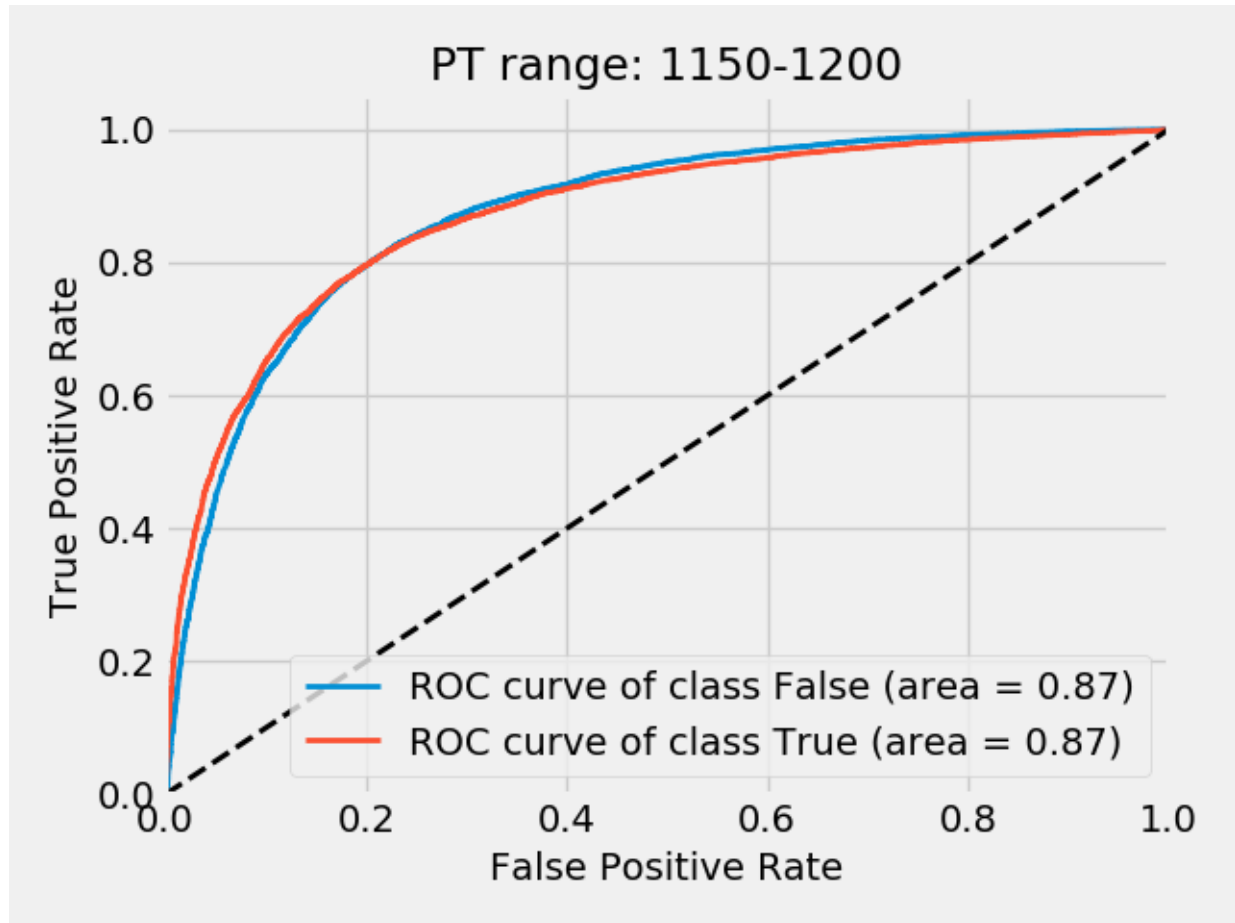
- Multilayer perceptron
- 1 hidden layer
- 5 neurons



# ROC Curve

## Classifier

- Multilayer perceptron
- 1 hidden layer
- 5 neurons



# ROC Curve

## Classifier

- Multilayer perceptron
- 1 hidden layer
- 5 neurons

