In[183]:=
```
dataPath = FileNameJoin[
    {ParentDirectory[NotebookDirectory[]], "data/dataOccupancyPreprocessed.csv"}];
```

In[184]:=
```
data = SemanticImport[dataPath, {"DateTime", "Real",
     "Real", "Real", "Real", "Real", "Boolean"}, "Dataset", HeaderLines → 1];
```

In[185]:=
```
trainData = Values@
    Normal[data[[All, {"Temperature", "Humidity", "Light", "CO2", "HumidityRatio"}]]];
```

In[186]:=
```
cluster[method_: "GaussianMixture", numberClusters_: 2,
  distanceFunction_: EuclideanDistance] := Module[{clusters, rules, classifier},
  clusters = ClusteringComponents[trainData, numberClusters, 1, Method → method,
    DistanceFunction → distanceFunction, PerformanceGoal → "Quality"];
  rules = Map[clusters[[#]] → data[[#, "Occupancy"]] &, Range[Length[data]]];
  classifier = Classify[rules, Method → Automatic];
  Return[ClassifierMeasurements[classifier, rules]];
 ]
```

In[187]:=
```
cm = cluster["KMeans", 30, SquaredEuclideanDistance];
```

In[188]:=
```
cm["ClassMeanCrossEntropy"]
```

Out[188]=
```
⟨|False → 0.0367437, True → 0.0684802|⟩
```

In[189]:=
```
cm["Accuracy"]
```

Out[189]=
```
0.989127
```

In[190]:=
```
cm["FScore"]
```

Out[190]=
```
⟨|False → 0.993169, True → 0.973366|⟩
```

In[191]:=
```
cm["ClassMeanCrossEntropy"]
```

Out[191]=
```
⟨|False → 0.0367437, True → 0.0684802|⟩
```

In[192]:=
```
cm["Specificity"]
```

Out[192]=
```
⟨|False → 0.995482, True → 0.987542|⟩
```

In[193]:=
```
cm["Perplexity"]
```

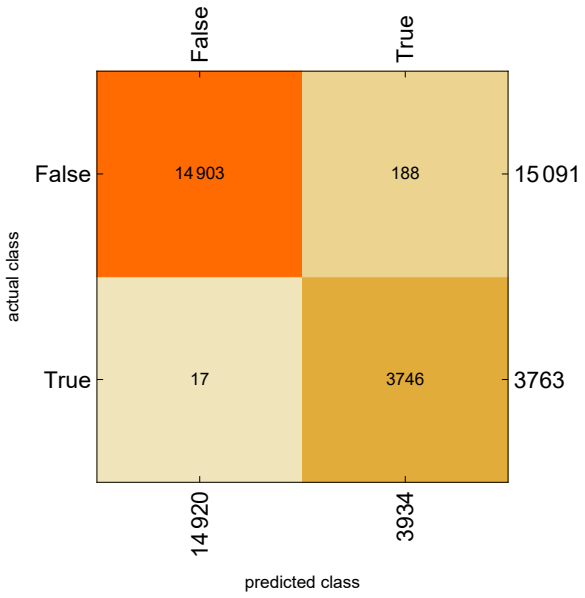
Out[193]=
```
1.04402
```

In[194]:=
```
cm["Precision"]
```

Out[194]=
```
⟨|False → 0.998861, True → 0.952211|⟩
```

In[195]:=
```
cm["ConfusionMatrixPlot"]
```

Out[195]=



In[196]:=
```
cm["ROCCurve"]
```

Out[196]=