

```
In [ ]: import sys
import os
finalIndex = os.getcwd().split("/").index("AifSR_Trajectory_Analysis")
directory = "/" + os.getcwd().split("/")[:finalIndex]
sys.path.insert(1, directory)
from AifSR_Trajectory_Analysis.ml_pipelines.LRPipelineFactory import LRPipelineFactory
from AifSR_Trajectory_Analysis.algorithmanalysis.CreateAlgorithmAnalysisMD import createAnalysisDocument

createAnalysisDocument(LRPipelineFactory(), "LR_V1.0")
```

Logistic Regression Algorithm on dataset: Simple\_cases  
**Accuracy Measurements:**  
Here is the accuracy of our algorithm when the training set, test set, and cross validation set is passed in  
Accuracy of an algorithm is typically measured based on test set accuracy because the algorithm has never seen the test set before

Training Accuracy: 0.9877777777777778  
Test Accuracy: 0.9858333333333333  
Validation Accuracy: 0.9916666666666667

**Inaccurate Trajectories**  
Here is some more information on the trajectories it predicted incorrectly. It displays the name of the incorrect trajectories, followed by the incorrect predicted diffusion type and the actual diffusion type.

Incorrectly Labeled trajectories for: Training Data  
Labeling Format:  
[Ballistic Motion, Confined Diffusion, Random Walk, Very Confinded Diffusion]  
Line Format:  
Name  
prediction, label  
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data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_1120.tck  
[0.51, 0.0, 0.49, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_347.tck  
[0.54, 0.0, 0.46, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_920.tck  
[0.72, 0.0, 0.28, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_448.tck  
[0.62, 0.0, 0.38, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_551.tck  
[0.83, 0.0, 0.16, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_909.tck  
[0.51, 0.0, 0.48, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_603.tck  
[0.87, 0.0, 0.13, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_1305.tck  
[0.62, 0.0, 0.37, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_882.tck  
[0.86, 0.0, 0.13, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_1272.tck  
[0.56, 0.0, 0.44, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_119.tck  
[0.6, 0.0, 0.4, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_479.tck  
[0.61, 0.0, 0.39, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_43.tck  
[0.58, 0.0, 0.42, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_352.tck  
[0.71, 0.0, 0.29, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_1232.tck  
[0.55, 0.0, 0.45, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_124.tck  
[0.71, 0.0, 0.29, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_403.tck  
[0.51, 0.0, 0.49, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_0.tck  
[0.62, 0.0, 0.38, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_1163.tck  
[0.59, 0.0, 0.4, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_1061.tck  
[0.55, 0.0, 0.44, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_360.tck  
[0.66, 0.0, 0.33, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_166.tck  
[0.59, 0.0, 0.41, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_288.tck  
[0.67, 0.0, 0.33, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_471.tck  
[0.63, 0.0, 0.36, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_1094.tck  
[0.8, 0.0, 0.2, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_559.tck  
[0.51, 0.0, 0.49, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_1105.tck  
[0.51, 0.0, 0.49, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_750.tck  
[0.76, 0.0, 0.24, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_890.tck  
[0.62, 0.0, 0.38, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_898.tck  
[0.71, 0.0, 0.29, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_1266.tck  
[0.61, 0.0, 0.38, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_412.tck  
[0.58, 0.0, 0.41, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_114.tck  
[0.62, 0.0, 0.38, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_1289.tck  
[0.77, 0.0, 0.23, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_723.tck  
[0.87, 0.0, 0.13, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_519.tck  
[0.58, 0.0, 0.42, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_1440.tck  
[0.82, 0.0, 0.18, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_217.tck  
[0.91, 0.0, 0.09, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_449.tck  
[0.69, 0.0, 0.3, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_1386.tck  
[0.77, 0.0, 0.22, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_1182.tck  
[0.93, 0.0, 0.07, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_50.tck  
[0.64, 0.0, 0.36, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_453.tck  
[0.59, 0.0, 0.41, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_1121.tck  
[0.78, 0.0, 0.21, 0.0] , [0, 0, 1, 0]

Incorrectly Labeled trajectories for: Testing Data  
Labeling Format:  
[Ballistic Motion, Confined Diffusion, Random Walk, Very Confinded Diffusion]  
Line Format:  
Name  
prediction, label  
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data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_381.tck  
[0.53, 0.0, 0.47, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_741.tck  
[0.75, 0.0, 0.25, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_1398.tck  
[0.77, 0.0, 0.23, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_798.tck  
[0.54, 0.0, 0.45, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_803.tck  
[0.64, 0.0, 0.36, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_842.tck  
[0.85, 0.0, 0.15, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_327.tck  
[0.67, 0.0, 0.33, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_1088.tck  
[0.79, 0.0, 0.2, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_707.tck  
[0.8, 0.0, 0.2, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_757.tck  
[0.89, 0.0, 0.11, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_896.tck  
[0.8, 0.0, 0.2, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_1437.tck  
[0.72, 0.0, 0.28, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_447.tck  
[0.57, 0.0, 0.42, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_687.tck  
[0.8, 0.0, 0.19, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_957.tck  
[0.0, 0.0, 0.19, 0.81] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_100.tck  
[0.58, 0.0, 0.42, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_875.tck  
[0.82, 0.0, 0.18, 0.0] , [0, 0, 1, 0]

Incorrectly Labeled trajectories for: CV Data  
Labeling Format:  
[Ballistic Motion, Confined Diffusion, Random Walk, Very Confinded Diffusion]  
Line Format:  
Name  
prediction, label  
-----  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_37.tck  
[0.59, 0.0, 0.41, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_1050.tck  
[0.73, 0.0, 0.27, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_676.tck  
[0.7, 0.0, 0.3, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_332.tck  
[0.67, 0.0, 0.32, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_1261.tck  
[0.85, 0.0, 0.15, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_74.tck  
[0.52, 0.0, 0.47, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_701.tck  
[0.74, 0.0, 0.26, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_1434.tck  
[0.6, 0.0, 0.4, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_1099.tck  
[0.57, 0.0, 0.43, 0.0] , [0, 0, 1, 0]  
data/02\_01\_Simulated\_trajectories/Simple\_cases/Random\_walk/trajectories/random\_283.tck  
[0.56, 0.0, 0.44, 0.0] , [0, 0, 1, 0]