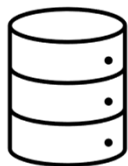


## 1. Data collection



Subject Characteristics

Medical History

Motor function

Non-motor (NM)

## 2. Data Preparation



Normalization

Data Missing

Cleaning Data

Feature selection

## 3. Data Splitting



Training

Testing

## 4. Model Training



Train classifier on original data

Train classifier Transform data

## 5. Fairness pre-processing



Discrimination data unit testing

Preprocessing Fairness Evaluation

Data bias checking and Mitigation

Fair predicted dataset

### Fairness Evaluation Metrics

#### Bias Metrics

Statistical Parity Difference,  
Disparate Impact,  
Equal Opportunity  
Difference,  
Average Absolute Odds  
Difference

#### Group Metrics

TP, TN, FP, FN, TPR, TNR, FPR  
, FNR, FDR, FOR, PPV, NPV,  
AR, ACC

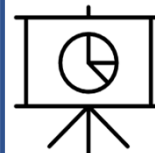
### Autobinning

```
*****
ResponseVar: "NMV"
WeightsVar: ""
VarNames: (1=128 cell)
NumericPredictors: (1=124 cell)
CategoricalPredictors: ('sex' 'race')
BinMissingData: 0
IDVar: ""
PredictorVars: (1=126 cell)
```

### Display points

	Predictors	Bin	Points
1	'DFBRADYP'	'0'	-2.1349
2	'DFBRADYP'	'1'	2.6332

## 6. Fairness Results and Comparison



### Model training Results

Original data

Transform data

Model

