

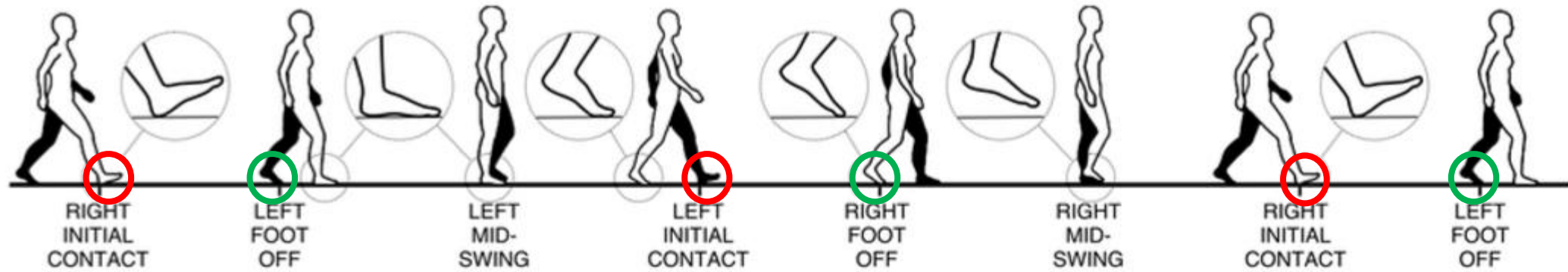
SofameHack2019

Data Mining Project

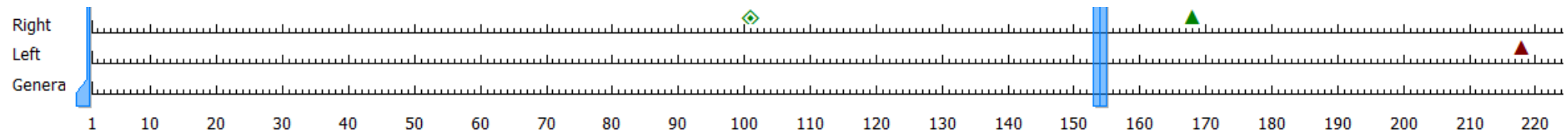
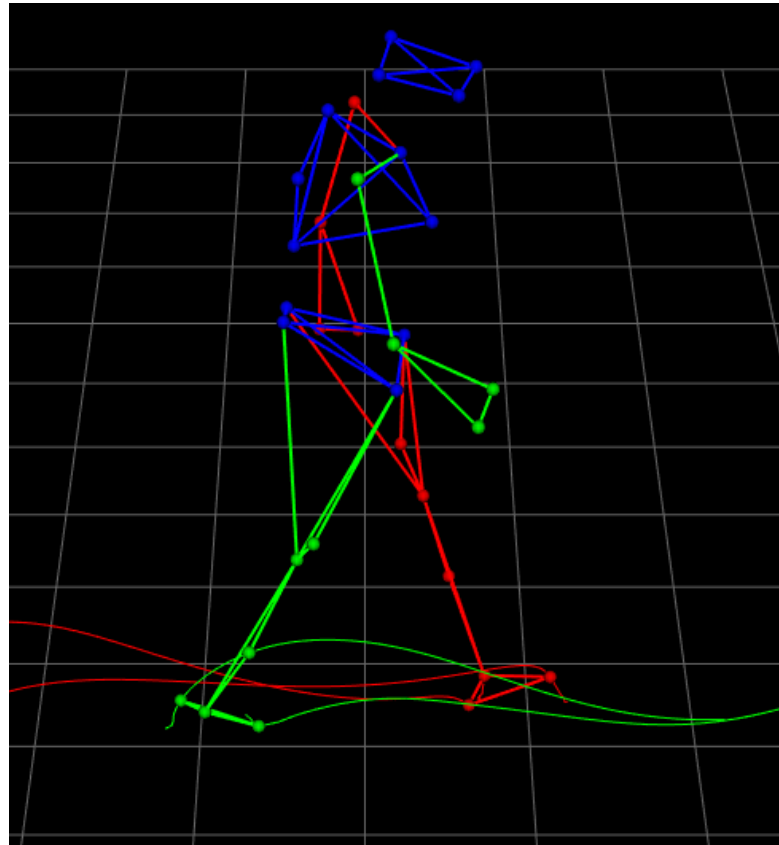
Marvin Fourastié

Patrick Sardinha

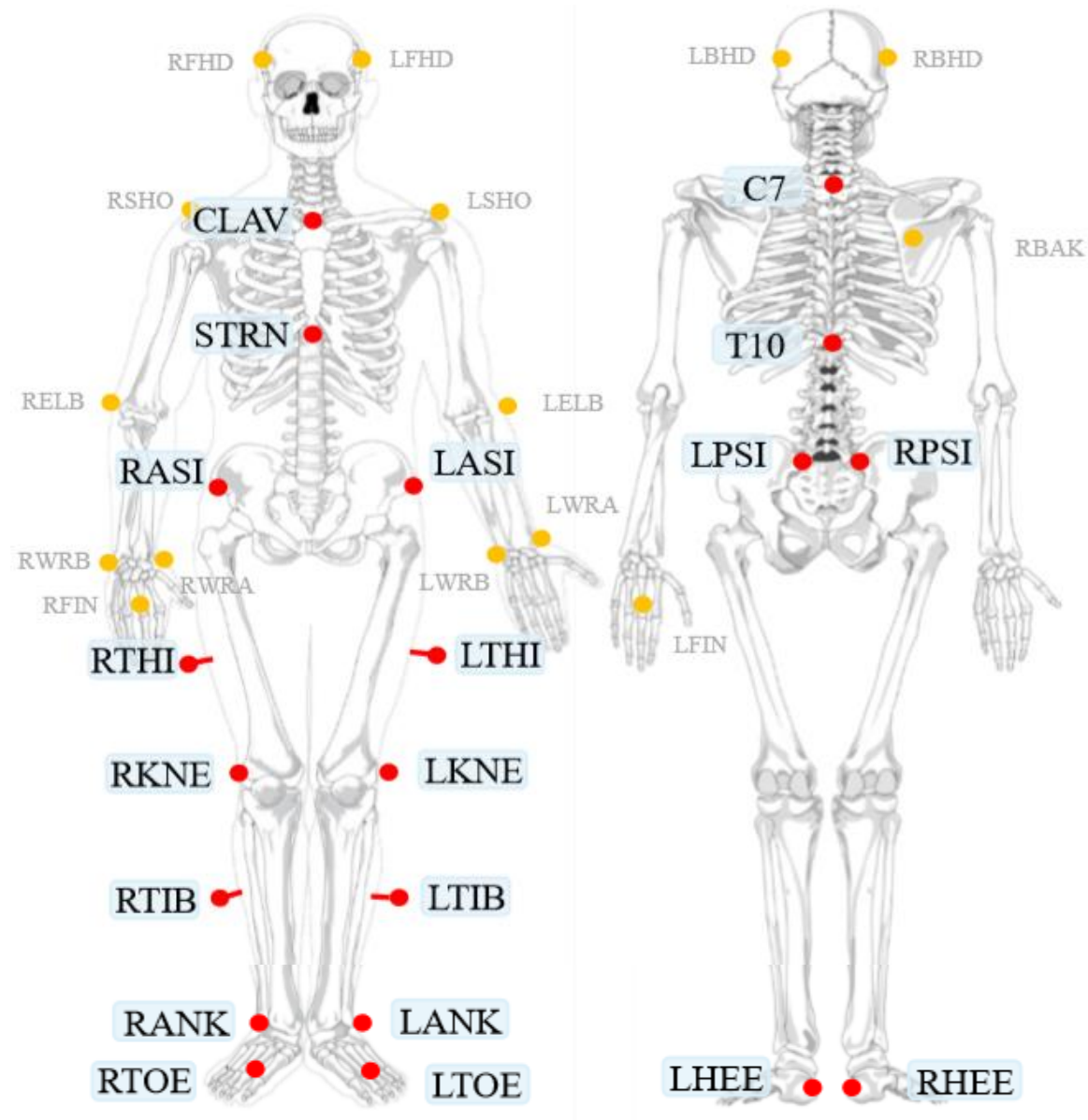
Challenge



Datas

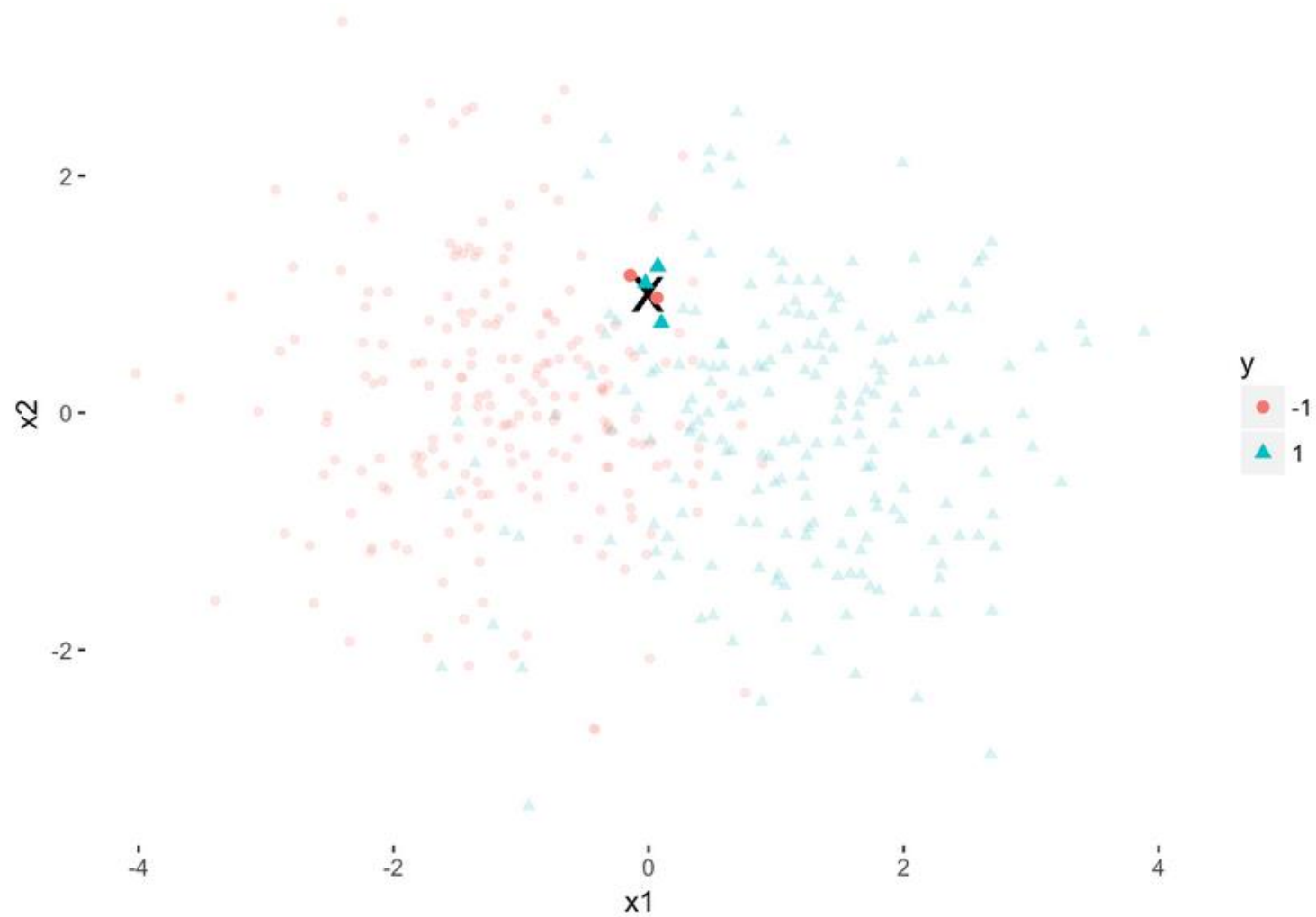


Sensors

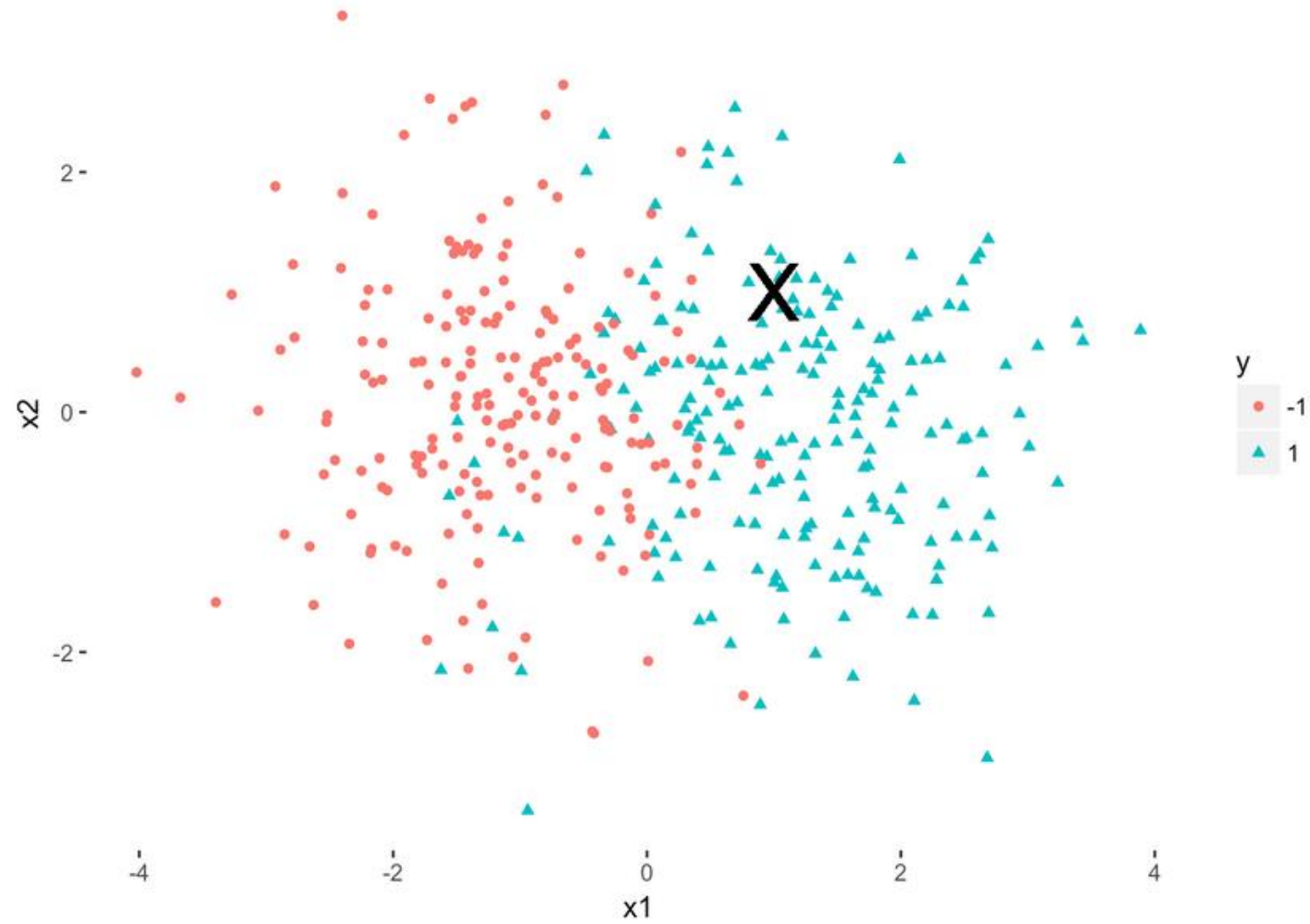


Decision Tree Classifier

K-nearest-neighbors Classifier



Nearest Centroid Classifier



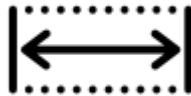
Explanation of our algorithm



Learn by pathology



Selection of sensors

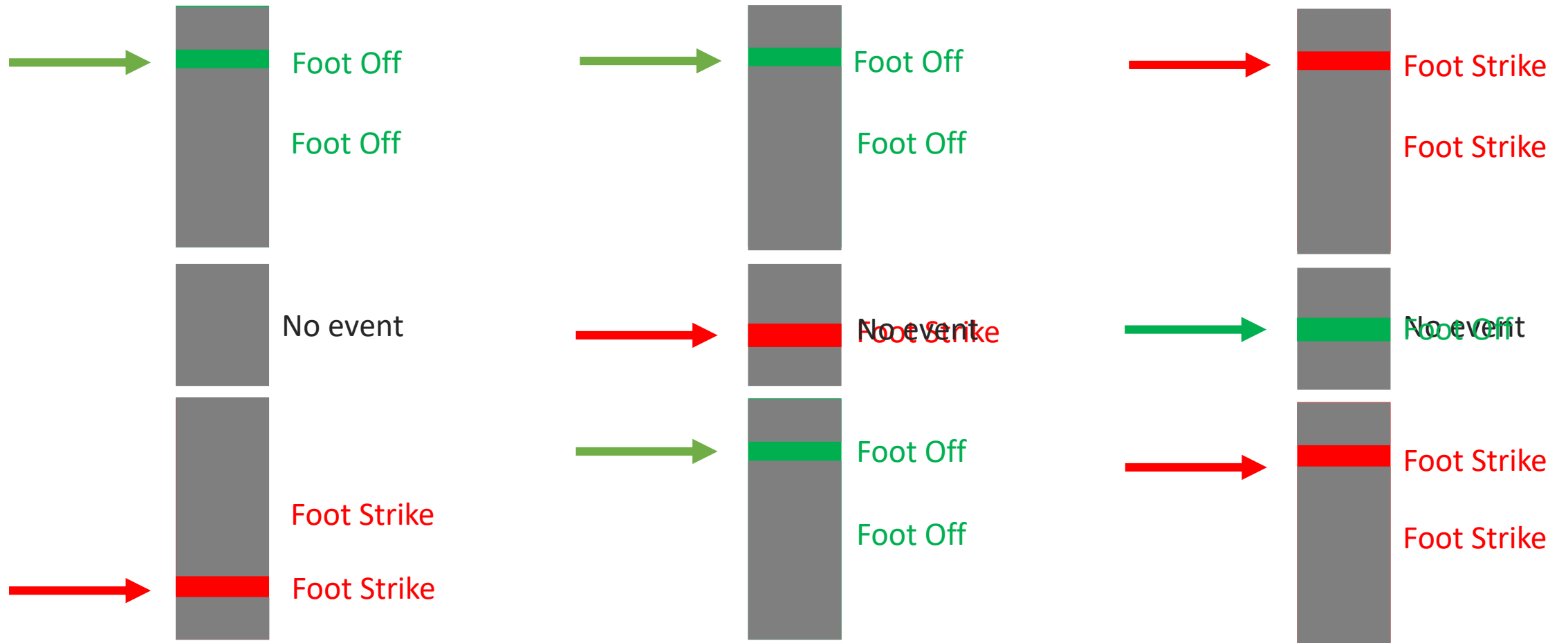


Get ranges



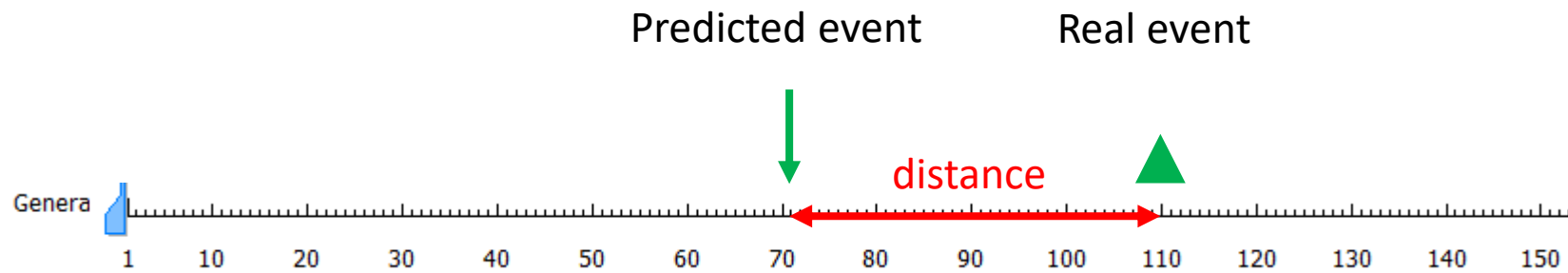
Annotation according to intervals

Intervals

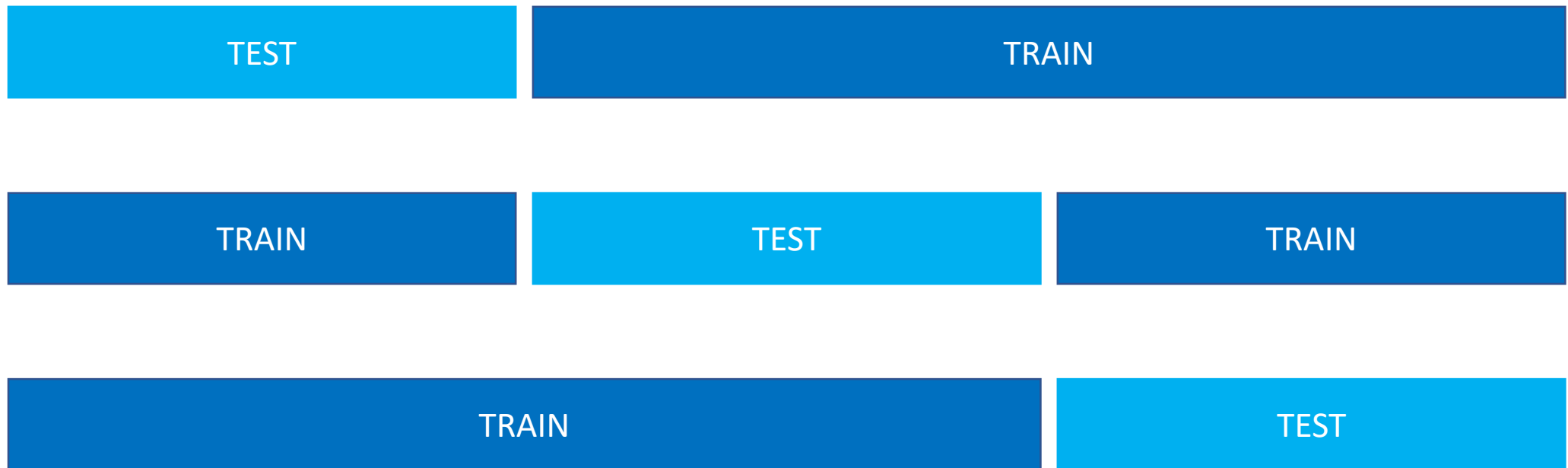


Score

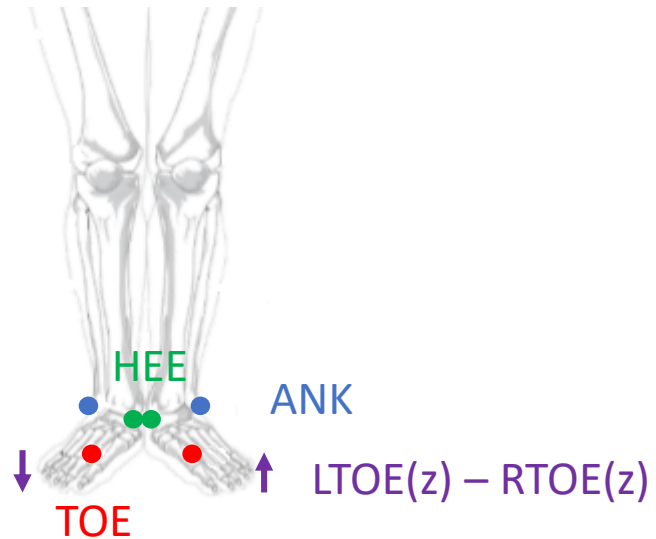
$$\text{SCORE} = \sum \exp(\textit{distance})$$



Cross validation



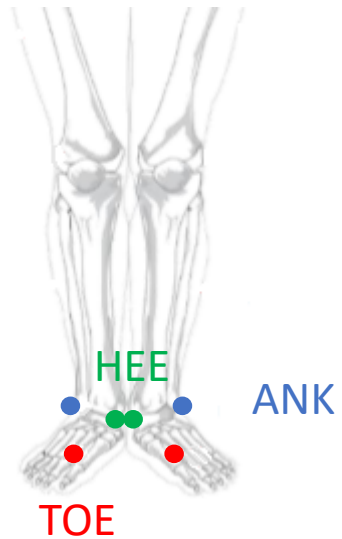
Results CP



	Permutation 1	Permutation 2	Permutation 3
Score FO	2.35e+17	1.21e+06	4.76e+05
Score FS	5.40e+12	1.34e+09	7.89e+04
Score Global	2.35e+17	1.34e+09	5.55e+05

Mean Score Global : 7.85e+16

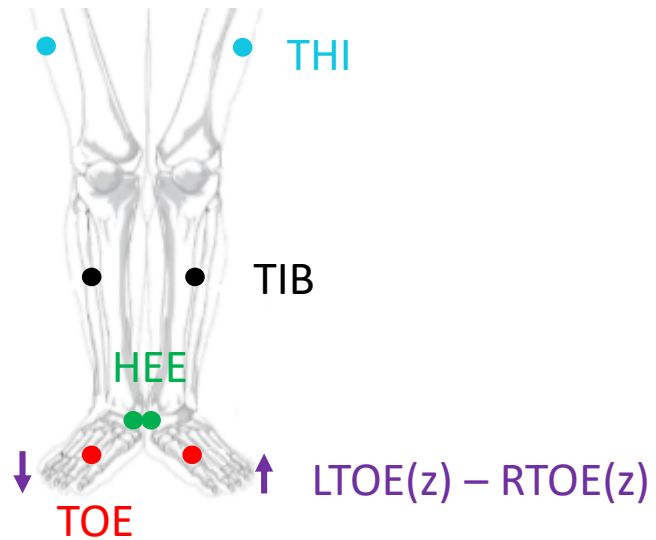
Results FD



	Permutation 1	Permutation 2	Permutation 3
Score FO	8.99e+06	2.07e+02	6.01e+04
Score FS	3.44e+03	2.17e+02	2.38e+03
Score Global	9.00e+06	4.24e+02	6.25e+04

Mean Score Global : 3.02e+06

Results ITW



	Permutation 1	Permutation 2	Permutation 3
Score FO	8.63e+15	3.67e+19	7.97e+20
Score FS	4.20e+25	2.01e+18	1.30e+20
Score Global	4.20e+25	3.87e+19	9.27e+20

Mean Score Global : 1.40e+25

Improvements



Amount of data



Modify sensors for learning



Event predictions