

Machine Learning Project, MAL1

ENSIIE, October 2021

Data and scope of the project

The dataset 'falldataproyect.csv' contains a sample of observations characterizing the walk then the fall (or not) of several people. The walk is describes thanks to 87 indicators and the indicator of fall (or not) is described by a binary label. The variables correspond to several indicators computed on the raw signals or on the derivated signal or the the energy of the signals (fft means Fast Fourier Transform). For confidentiality reason, all variables (except the label) have been scaled and the name of the variables truncated. The joint article 'SmartFloorFallDetection.pdf' describes the methodology and the results already obtained for a similar data set but directly on the raw data.. The data can be uploaded in Python using the following instructions:

```
import pandas as pd
data = pd.read_csv('falldataproyect.csv')
```

Description of the work

- The aim of this project is to study the ability of several learning machines to automatically detect fall thanks to the indicators.
- Train, test and compare different binary machine learning classifiers to automatically detect falls.
- Draw conclusions about the performances and the models used.