Machine Learning Project, MAL1

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Data and scope of the project

The dataset 'falldataproject.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('falldataproject.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.

Before November 15th 2020, 09h00.

The project must be carried out by groups of two students. The names should be written in the two first lines of the jupyter notebook and the pdf report file ($dont'tforget$!);

The project zip file should contain a Python jupiter notebook and a pdf report file. The length of the pdf report should not exceed 5 pages.

→ **The project should be uploaded in the ENSIIE Project website, in the repository MAL2021Proj before November 15th 2020, 09h00.**

→ **For UEVE Students (and not ENSIIE), the project should be sent by email at mal.ensiie@gmail.com.**