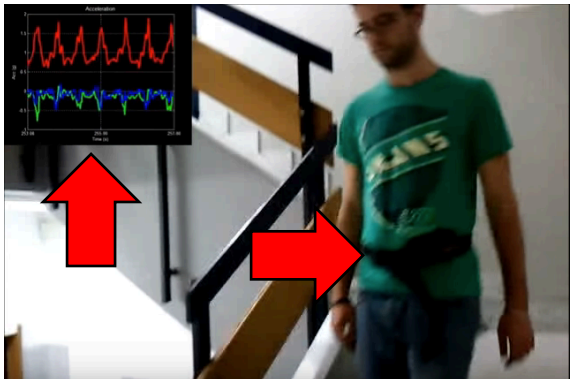

2nd Capstone Project

Nei Costa

Human Activity Recognition Using Smartphones

Video of Experiment:
https://www.youtube.com/watch?v=XOEN9W05_4A

Dataset Information:

Abstract: Human Activity Recognition database built from the recordings of 30 subjects performing activities of daily living (ADL) while carrying a waist-mounted smartphone with embedded inertial sensors.

Data Set Characteristics:	Multivariate, Time-Series	**Number of Instances:**	10299	**Area:**	Computer
Attribute Characteristics:	N/A	**Number of Attributes:**	561	**Date Donated**	2012-12-10
Associated Tasks:	Classification, Clustering	**Missing Values?**	N/A	**Number of Web Hits:**	624815

Source:

(http://archive.ics.uci.edu/ml/datasets/Human+Activity+Recognition+Using+Smartphones)

Question:
Is it possible to develop a statistical model that can predict with good accuracy the activity developed by the person based on the information provided by the sensors?

Pre-analysis of data:
There are 10,299 records with 561 features each with information about 3-axial linear acceleration and 3-axial angular velocity at a constant rate of 50Hz classified in six different activities, as below:

Activity	Nº records	%
WALKING	1,722	16.72%
WALKING UPSTAIRS	1,544	14.99%
WALKING DOWNSTAIRS	1,406	13.65%
SITTING	1,777	17.25%
STANDING	1,906	18.51%
LAYING	1,944	18.88%
Total	**10,299**	**100.00%**

Method:
To evaluate the characteristics of the available information, to compare the accuracy obtained through some classifier models of the sklearn and also through the construction of multi-perceptron neural network using keras.

Possible Applications:
Use of electronic equipment in the identification of activities developed in workplaces, evaluation and quantification of activities during sports and other applications.