

Explanation of Terminology, jargon and definitions

Introduction

In this document you can find the explanation of the Terminology, jargon and definitions. This can be used to give more insight into the terms that have been used through this project.

Accelerometer - is a tool that measures proper acceleration.

Proper acceleration – is the physical acceleration experienced by the object. It is thus acceleration relative to a free-fall, or inertial, observer who is momentarily at rest relative to the object being measured. Gravitation therefore does not cause proper acceleration, since gravity acts upon the inertial observer that any proper acceleration must depart from. A corollary is that all inertial observers always have a proper acceleration of zero.

ActivPAL accelerometer – captures body posture and transition between these postures, stepping, and stepping speed (cadence).

Vyntus – Document that contains the lab data of the Vyntus sensor, which measures the O_2 uptake and the CO_2 production.

Dataframe - A table of data with rows and columns.

Data cleaning - is the process of detecting and correcting (or removing) corrupt or inaccurate records from a record set, table, or database.

Resampling – Changing the timeseries.

BMI (body mass index) - is the value derived from the mass and height of a person.

Metabolic rate – The rate of energy usage by the body.

MET - The ratio of the work metabolic rate to the resting metabolic rate.

Correlation – Measurement of the extent to which variables are related.

Epoch – a particular period of time.

Feature – An individual measurable object / characteristic of something that being used.

Seed – A random number generated by software based on a static number (the seed).

Precision - The accuracy of the measurement of the results to be true.

Recall – The ability of a model to find all relevant cases within the dataset.

Dice Face – The face the accelerator is moved looking towards (north side, south side) expressed into the numbers 1-6 (up, down, left, right, etc).

Thresholding - The knock off criteria based on a certain object/feeling/number

Lab data – fully labelled data, which was received and processed in the lab. Plus, literature (on off cut values), the manufacturers' summary information, open-source software.

Raw data – is unprocessed computer data.

Outliers – A data point that differs significantly from other observations.

Research plan – is a short document, which sets out the initial thoughts on a research project in a logical and concise manner. It contains the research question, the hypothesis, aims and objectives, research design.

Linear regression - attempts to model the relationship between two variables by fitting a linear equation to observed data. One variable is an explanatory variable, and the other is a dependent variable. For example, a modeler might want to relate the weights of individuals to their heights using a linear regression model.

Decision tree model - is a machine learning algorithm that partitions the data into subsets. The partitioning process starts with a binary split and continues until no further splits can be made. Various branches of variable length are formed.

Random forest model - a supervised learning algorithm. The "forest" it builds, is an ensemble of decision trees, usually trained with the "bagging" method. The general idea of the bagging method is that a combination of learning models increases the overall result.

Peak-to-peak amplitude – is the change between peak (highest amplitude value) and trough (lowest amplitude value, which can be negative).

Acceleration – The measurement of an object's velocity.

G-Force – The gravitational force of the earth's surface. One g is the same as 9.8m/s²

Kcal (calorie) – Kcal is a measurement of energy. Known from Latin, warmth.

Physical activity – Any movement done by the contraction of the skeletal muscles of the body.

Light-intensity Physical activity – Activity's with a MET value between 1.5 and 3.

Moderate-intensity Physical activity - Activity's with a MET value between 3 and 6.

Vigorous-intensity Physical activity - Activity's with a MET value above 6.

Vo₂ – Oxygen consumption by breathing system.