

Reliability of relevant predictors in classifiers

The replicability crisis in medicine, behavioral science and data science

The replicability in finding relevant predictors

What is a reliable predictor

Why predictors may be unreliable and model dependent

Datasets

Psychological tests with varying number of items

TITLE of datasets with brief descriptions

Link to Datasets:

<https://drive.google.com/drive/u/1/folders/1e0rBDQOup6tT85ePKFzgs9TnpO0hC2o2>

XAI

Link to ebook:

<https://christophm.github.io/interpretable-ml-book/>

<https://machinelearningmastery.com/feature-selection-for-regression-data/>

<https://machinelearningmastery.com/feature-selection-with-real-and-categorical-data/>

Project

To have a general overview of the problem read here:

<https://machinelearningmastery.com/calculate-feature-importance-with-python/>

Metrics

- identify a metric which emphasis the stability of the identified relevant features
- classification accuracy (less important)

Strategies

preliminarily identify the structure of the data

In psychometrics (the science of psychological test building) the best items are identified on the basis of their factor loading. Usually only the items with the highest factor loading are retained in the final version of the test.

Note:

Some tests have factorial structures and the scale corresponds to orthogonal factors (see datasets NeoPI and Big Five).

By contrast in some other test the dimension names do not correspond to orthogonal factors (e.g. Dark Triad)

This approach consisting in identifying a latent structure could have some advantages.