Documentation: MIP Function — Visual Performance Evaluation

The ViperCharts web-based platform for visual performance evaluation of data analysis algorithms.

Metadata

Category	MIP function, data analysis algorithm
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Homepage	http://viper.ijs.si/
Documentation	http://source.ijs.si/hbp/mipfunctions/raw/master/doc/r-viper.pdf http://viper.ijs.si/about/
Support	http://source.ijs.si/hbp/mipfunctions/issues
Source Code	http://source.ijs.si:bsluban/vipercharts.git http://source.ijs.si/hbp/mipfunctions/tree/master/r-viper
License	GNU GPL
Current Version	1.0
All Versions	1.0

Description

ViperCharts is a web-based platform for visual performance evaluation of classification, prediction, and information retrieval algorithms. The platform enables users to create interactive charts for easy and intuitive evaluation of performance results. It includes standard performance visualizations used in machine learning, data mining, information retrieval, etc., and extends them by offering alternative evaluation methods like F-isolines, and by establishing relations between corresponding presentations like ROC, Precision-Recall and Lift curves, or ROC Hull and Cost curves.

Additionally, the interactive performance charts can be saved, exported to several formats, and shared via unique web addresses. A web API to the service is also available.

ViperCharts support the following charts for visual performance evaluation:

- Scatter charts: PR space charts and ROC space charts.
- Curve charts: Lift curves, ROC curves, PR curves, Cost curves, Kendall curves and Rate-driven curves.
- Column charts: General column charts for visualizing multiple performance measures for a set of algorithms.

The development of the algorithm and its implementation was partly paid by HBP.

References

Sluban and Lavrač - ViperCharts: Visual Performance Evaluation Platform, ECML PKDD 2013, pp. 650-653, LNCS 8190, Springer, 2013.

Usage

Input: A set of algorithms and the experiment performance (a set of actual - binary - and predicted – continuous - values) for each algorithm.

Parameters: Type of performance curve we wish to draw (ROC, PR, Lift, Cost curve…).

Output: A performance chart of all given algorithms.

Example

Task:

We wish to evaluate the performance of one or more algorithms (in this case, 2) in solving a task of predicting the values of a binary variable. The outputs of both algorithms are probability values (values between 0 and 1), but in general the values can be any real number.

Input data:

Given a set of actual variables that should be predicted in a given experiment, and a set of algorithms with the values that the algorithms predicted, we can construct a ROC curve for each algorithm showing the performance of each algorithm.

Example output: