

ROOT R

A TMVA Interface



Student

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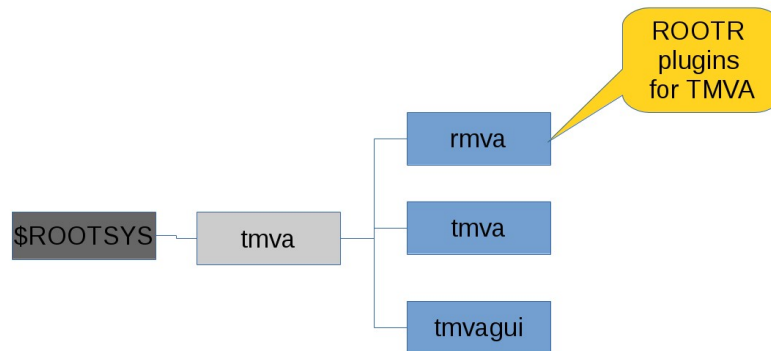
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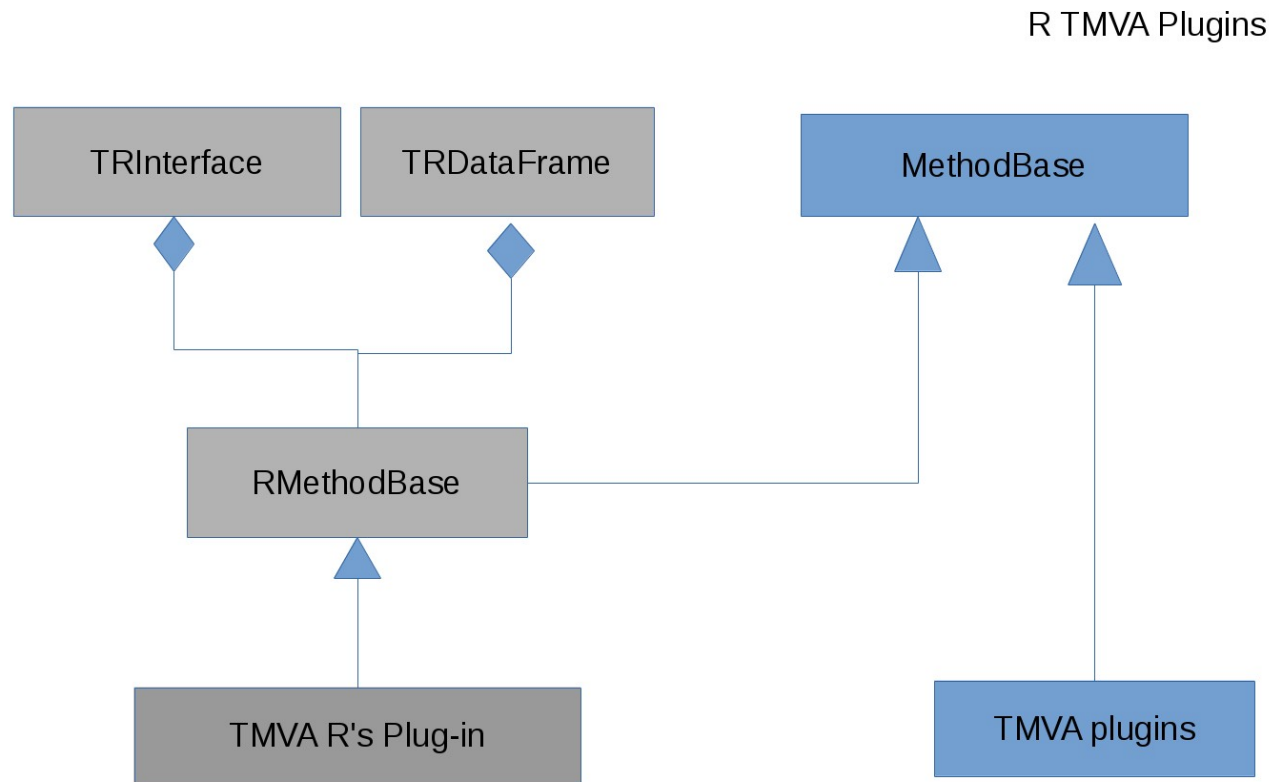
About this project

- ROOTR is an R interface for ROOT that lets you to use R directly from ROOT in C++.
- TMVA is a machine learning library that lets you to do multivariate analysis for regression and classification.
- RMVA is a set of classes and plugins for TMVA that works using ROOTR.





ROOT R TMVA INTERFACE (RMVA)





Deliverables

- Class RMethodBase:

Base class for all TMVA's plugins base on R interface, the class have a TRInterface's object to parse information from R to ROOT and vice versa.

The class can load needed R's packages and it will have a system to control error checking if the package is not installed.

- Plugins for classification and regression.

- Examples and tests codes:

- An example using the classes for classification and regression from ROOT-R .
- Other basic examples about how to create your own plugin for TMVA based in ROOTR
- Test cases for every feature



R packages for plugins

- **Boosted decision tree** (Package C50)

Description: Fit classification tree models or rule-based models using Quinlan's C5.0 algorithm.

Website: <http://cran.r-project.org/web/packages/C50/index.html>

- **Neural networks**(Package RSNNS)

Description: The Stuttgart Neural Network Simulator (SNNS) is a library containing many standard implementations of neural networks..

Website: <http://cran.r-project.org/web/packages/RSNNS/index.html>

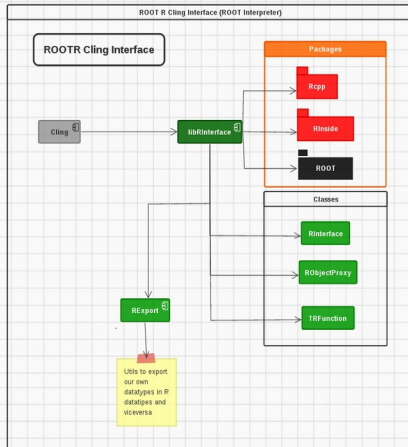
- **Support vector machine** (Package e1071)

Description: svm is used to train a support vector machine. It can be used to carry out general regression and classification (of nu and epsilon-type), as well as density-estimation.

Website: <http://cran.r-project.org/web/packages/e1071/index.html>

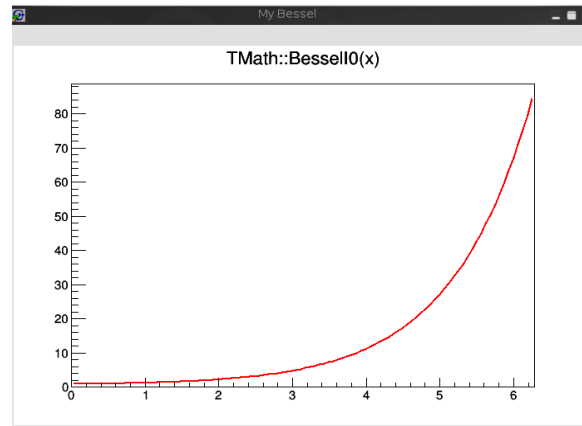


More Information



```
require(ROOT)

c1 <- TCanvas('c1', 'My Bessel')
bessel <- TF1('bessel', 'TMath::BesselI0(x)')
bessel$SetRange(0, 2*pi)
bessel$Draw('') #plotting with ROOT's graphics system
c1$update()
```



[ROOTR \(CERN Site\)](#)

[RMVA\(Status Doc\)](#)

[GSoC Proposal](#)





Thanks

