7/5/2016 The caret Package

The caret Package



The <u>caret</u> package (short for Classification And REgression Training) is a set of functions that attempt to streamline the process for creating predictive models. The package contains tools for:

- data splitting
- · pre-processing
- feature selection
- · model tuning using resampling
- variable importance estimation

as well as other functionality.

There are many different modeling functions in R. Some have different syntax for model training and/or prediction. The package started off as a way to provide a uniform interface the functions themselves, as well as a way to standardize common tasks (such parameter tuning and variable importance).

The current release version can be found on <u>CRAN</u> and the project is hosted <u>on github</u>.

Some resources:

- The book *Applied Predictive Modeling* features **caret** and over 40 other R packages. It is on sale at <u>Amazon</u> or the <u>the publisher's website</u>. There is a <u>companion website</u> too.
- There is also a paper on caret in the <u>Journal of Statistical Software</u>. The example data can be obtained <u>here</u> (the predictors) and <u>here</u> (the outcomes).
- There is a webinar for the package on Youtube that was organized and recorded by Ray DiGiacomo Jr for the Orange County R User Group.
- At <u>useR! 2014</u>, I was <u>interviewed</u> and discussed the package and the book.

You can always email me with questions, comments or suggestions.

General Topics

- o Front Page
- Visualizations
- o Pre-Processing
- 0
- Data Splitting
- Variable Importance
- Model Performance
- o Parallel Processing

Model Training and Tuning

- o Basic Syntax
- Sortable Model List
- Models By Tag
- Models By Similarity
- <u>Using Custom Models</u>
- Sampling for Class Imbalances
- o Random Search
- Adaptive Resampling

Feature Selection

- o Overview
- RFE
- Filters
- o <u>GA</u>
- <u>SA</u>

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Created on Sun Apr 10 2016 using caret version 6.0-68 and R Under development (unstable) (2016-04-08 r70447).