Huber Adaptive Regression

An implementation of Huber Adaptive Regression.Codes are borrowed from tfHuber.

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Requirements

```
tfHuber
```

Installation

Install `tfHuber` from GitHub:

```
install.packages("devtools")
library(devtools)
devtools::install_github("XiaoouPan/tfHuber")
library(tfHuber)
```

Functions

There are four functions in this package:

- `huberMean` : Huber mean estimation.
- `huberCov` : Huber covariance matrix estimation.
- `huberReg` : Adaptive Huber regression.
- `cvHuberLasso` : *K*-fold cross-validated Huber-Lasso regression.

References

Eddelbuettel, D. and Francois, R. (2011). Rcpp: Seamless R and C++ integration. J. Stat. Softw. 40(8) 1-18. Paper

Eddelbuettel, D. and Sanderson, C. (2014). RcppArmadillo: Accelerating R with high-performance C++ linear algebra. Comput. Statist. Data Anal. 71 1054-1063. Paper

Fan, J., Liu, H., Sun, Q. and Zhang, T. (2018). I-LAMM for sparse learning: Simultaneous control of algorithmic complexity and statistical error. Ann. Statist. 46 814–841. Paper

Ke, Y., Minsker, S., Ren, Z., Sun, Q. and Zhou, W.-X. (2019). User-friendly covariance estimation for heavy-tailed distributions: A survey and recent results. Statis. Sci. To appear. Paper

Pan, X., Sun, Q. and Zhou, W.-X. (2019). Nonconvex regularized robust regression with oracle properties in

polynomial time. Preprint. Paper.

Sanderson, C. and Curtin, R. (2016). Armadillo: A template-based C++ library for linear algebra. J. Open Source Softw. 1(2) 26. Paper

Sun, Q., Zhou, W.-X. and Fan, J. (2019). Adaptive Huber regression. J. Amer. Stat. Assoc. 0 1-12Paper

Tibshirani, R. (1996). Regression shrinkage and selection via the lasso. J. R. Stat. Soc. Ser. B. Stat. Methodol. 58 267–288. Paper

Wang, L., Zheng, C., Zhou, W. and Zhou, W.-X. (2018). A new principle for tuning-free Huber regression. Preprint. Paper