Estimation of parameters for linear regression using median estimator

Şerif Hekimoğlu[1] and R.Cüneyt Erenoğlu[1]

[1] Yıldız Technical University, Faculty of Civil Engineering, Department of Geodetic and Photogrammetric Engineering, 34349, Beşiktaş, İstanbul, Turkey

Abstract: In order to detect outlier for linear regression, median method is used to estimate the parameters seperately. This procedure is based on eliminating the parameters one by one until only one parameter remains behind where the parameter is estimated by the median. Later estimated parameter is placed into regression equations and other unknowns are estimated as mentioned alternately using median.

This method is applied to the linear regression by monte-carlo simulation and the success rates to detect outlier, are compared with LMS method. The new method does not produce any outlier unlike LMS when sample include no outlier and also it is faster than LMS method at least two times. However, its success to detect the leverage points is smaller than LMS

Keywords: Median, outlier, regression, LMS, leverage point.