

# STATISTICS SEMINAR

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Master's Defense

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Dickens Hall, Room 302, 1:00-3:00 pm



## LINEAR REGRESSION WITH LAPLACE MEASUREMENT ERROR

In this report, an improved estimation procedure for the regression parameter in simple linear regression models with the Laplace measurement error is proposed. The estimation procedure is made feasible by a Tweedie type equality established for  $E(X|Z)$ , where  $Z=X+U$ ,  $X$  and  $U$  are independent, and  $U$  follows a Laplace distribution. When the density function of  $X$  is unknown, a kernel estimator for  $E(X|Z)$  is constructed in the estimation procedure. A leave-one-out cross validation bandwidth selection method is designed. The finite sample performance of the proposed estimation procedure is evaluated by simulation studies. Comparison study is also conducted to show the superiority of the proposed estimation procedure over some existing estimation methods.