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35294. *Statistical analysis of EIV regression models.*

We study the maximum likelihood estimate (MLE) for the linear and circular regression in Errors-In-Variables (EIV) model where both coordinates of observed points are uncertain. It is widely known that MLE is the most accurate estimate even though its theoretical moments are infinite!. To demonstrate the optimality and superiority of MLE, higher order error analysis was employed to derive some approximations, which have finite moments. Then numerical experiments were conducted to show that these approximations and the exact MLE are virtually equal when the noise in the data does not exceed its typical values. (Received January 25, 2010)