

STANFORD UNIVERSITY
DEPARTMENT OF STATISTICS
DEPARTMENTAL SEMINAR

4:15 p.m., Tuesday, April 26, 2005
Sequoia Hall Room 200
(Cookies at 3:45 in 1st Floor Lounge)

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Iterative Estimating Equations

We propose an iterative estimating equations procedure for analysis of longitudinal data. We show that, under very mild conditions, the probability that the procedure converges at an exponential rate tends to one as the sample size increases. Furthermore, we show that the limiting estimator is consistent and asymptotically efficient, as expected. The method applies to semiparametric regression models with unspecified covariances among the observations. In the special case of linear models, the procedure reduces to iterative weighted least squares. An extension of the method incorporating data that is missing informatively is discussed. Finite sample performance of the procedure is studied using a simulated example, and compared with other methods. A numerical example from a medical study is considered to illustrate the application of the method.

This work is joint with YouGan Wang, National University of Singapore and Yihui Luan, Shandong University, PRC.