Statistic Seminar

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WAVELET DESIGNS FOR NONPARAMETRIC REGRESSION MODELS WITH AUTOCORRELATED ERRORS

Abstract:

We consider minimax designs for estimation of nonparametric regression models using wavelet approximations of the mean response function. We assume that the error terms are autocorrelated. Since the choice of design depends on the method of estimation , we argue that using ordinary least squares method (OLS) for estimation may lead to designs that are less efficient than designs constructed based on generalized least squares (GLS) or weighted least squares (WLS). A simulated annealing algorithm is developed to carry out the minimization problems to search for minimax designs. In this thesis we considered AR(1) model for example. We found that the GLS method is good for the moderate level correlation and WLS or OLS is preferred for highly correlated data.