

Martin Singull

Linköping University

Test for the mean in a Growth Curve model in high dimension

In this talk, we consider the problem of testing a general linear hypothesis in a general multivariate linear model, the so called Growth Curve Model, when the $p \times N$ observation matrix is normally distributed with an unknown covariance matrix. The maximum likelihood estimator for the mean is a weighted estimator with the inverse of the sample covariance matrix which is singular for $N \leq p$. We modify the maximum likelihood estimator to an unweighted estimator and propose a new likelihood ratio test which we compare with the previous likelihood ratio test based on the weighted estimator. For the high-dimensional case, when $N \leq p$, we construct a new test based on the trace of the variation matrices due to the hypothesis (between sum of squares) and the error (within sum of squares). To compare the performance of these tests we compute the attained significance level and the empirical power.