KATHOLIEKE UNIVERSITEIT LEUVEN

Statistics Seminar

Joint organization statistics research groups Faculty of Science and Faculty of Economics and Applied Economics
Leuven Statistics Research Centre (LSTAT)

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"Measuring the discrepancy of a parametric model via local polynomial smoothing"

Thursday December 3, 2009
12:00—13:00

Location**:** Room B00.05, Department of Mathematics, Celestijnenlaan 200B,Heverlee.
Supporting research project: GOA-project 2007/04

Abstract:

In the context of multivariate mean regression we propose a new estimator of the minimum L2-distance between the true but unknown regression curve and a given parametric family. The method is based on local polynomial averaging of residuals with a polynomial degree that increases with the dimension of the covariate. Under some weak assumptions we give a Bahadur-type representation of the estimated distance from which root n-consistency and asymptotic normality are derived for strongly mixing variables. We then show how to use the proposed method to : (i) test the goodness of fit hypothesis, (ii) measure the explanatory power of a parametric model and (iii) estimate the ration of noise to signal. We conclude with a small simulation study that aims to check the finite sample properties of the these techniques.