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Parametric component detection and variable selection in varying-coefficient partially linear models

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Abstract

In this research we are concerned with detecting the true structure of a varying-coefficient partially linear model. The first issue is to identify whether a coefficient is parametric. The second issue is to select significant covariates in both nonparametric and parametric portions. In order to simultaneously address both issues, we propose to combine local linear smoothing and the adaptive LASSO and penalize both the coefficient functions and their derivatives using an adaptive L_1 penalty. We give conditions under which this new adaptive LASSO consistently identifies the significant variables and parametric components along with estimation sparsity. Simulated and real data analyses demonstrate the proposed methodology.

Biography

K.B Kulasekera is chair and professor in the Department of Bioinformatics and Biostatistics at University of Louisville. He earned hid PhD in Statistics from University of Nebraska-Lincoln in 1988. He was previously at Clemson University, Clemson, SC. He has published over 45 articles in statistical theory and methods.