STRONG UNIVERSAL CONSISTENCY OF SMOOTH KERNEL REGRESSION ESTIMATES

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Abstract.   The paper deals with kernel estimates of Nadaraya-Watson type for a regression function with square integrable response variable. For usual bandwidth sequences and smooth nonnegative kernels, e.g., Gaussian and quartic kernels, strong L_2-consistency is shown without any further condition on the underlying distribution. The proof uses a Tauberian theorem for Cesàro summability.

Key words and phrases: Nonparametric regression estimation, kernel estimate of Nadaraya and Watson, square integrability, strong and weak universal consistency, Efron-Stein inequality, covering, Tauberian theorem.