

$$S_t \circ c(h)(a_s)_{ti} c(s) + \mathfrak{S}_e m^i n(a_r)$$

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Uniform central limit theorems for density estimators

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Let P_n be the empirical measure of an i.i.d. sample from the law P . In empirical process theory, the stochastic process $v_n := \sqrt{n}(P_n - P)$ is viewed as a random finite signed measure acting on classes of functions by integration. The CLT for empirical processes for instance gives conditions on the class F of functions such that v_n converges in law to a tight Gaussian process in the Banach space of bounded functions on F . For many statistical questions, it is natural to ask whether similar functional CLTs can be proved for processes $\sqrt{n}(\hat{P}_n - P)$, where \hat{P}_n is the random measure associated to some nonparametric density estimator. We discuss recent results of this kind for nonparametric MLEs, kernel density as well as wavelet series estimators.