Mathematics > Probability

Approximation of a random process with variable smoothness

Enkelejd Hashorva, Mikhail Lifshits, Oleg Seleznjev

(Submitted on 6 Jun 2012)

We consider the rate of piecewise constant approximation to a locally stationary process $X(t),t\in [0,1]$, having a variable smoothness index $\alpha(t)$. Assuming that $\alpha(\cdot)$ attains its unique minimum at zero and satisfies the regularity condition, we propose a method for construction of observation points (composite dilated design) and find an asymptotics for the integrated mean square error, where a piecewise constant approximation X_n is based on $N(n)\sim n$ observations of X. Further, we prove that the suggested approximation rate is optimal, and then show how to find an optimal constant.

Subjects: **Probability (math.PR)**
Cite as: **arXiv:1206.1251 [math.PR]**
(or **arXiv:1206.1251v1 [math.PR]** for this version)

Submission history

From: Oleg Seleznjev [view email]
[v1] Wed, 6 Jun 2012 14:55:10 GMT (16kb)

Which authors of this paper are endorsers?