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*Switching Nonparametric Regression Models*

We analyze functional data arising from a curve that, over its domain, changes between  $J$  states. We consider a sequence of response variables,  $y_1, \dots, y_n$ , where  $y_i$  depends on a covariate  $x_i$  according to an unobserved state  $z_i$ . The  $z_i$ 's form a stochastic process with the possible values of  $z_i$  being  $j = 1, \dots, J$ . If  $z_i = j$  the expected response of  $y_i$  is  $f_j(x_i)$ . We modify the EM algorithm to estimate the parameters from the state process and the functions  $f_1, \dots, f_J$ . We obtain standard errors for the parameter estimators of the state process. We conduct simulation studies and an application to a data set.