Discriminant analysis for discretely observed ergodic diffusion processes

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Abstract

We consider a discriminant analysis for diffusion processes defined by stochastic differential equations. When a discretely observed ergodic diffusion process belongs to one of two diffusion models Π_1 and Π_2, we obtain two kinds of classification criteria based on discriminant functions, which are given by using adaptive maximum likelihood type estimators with training data. Under regularity conditions, asymptotic distributions of the discriminant functions are presented. Moreover, we show that the misclassification probabilities based on the classification criteria converge to zero.