Research Article

Modelling animal growth in random environments: An application using nonparametric estimation

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Abstract

We study a stochastic differential equation growth model to describe individual growth in random environments. In particular, in this paper, we discuss the estimation of the drift and the diffusion coefficients using nonparametric methods for the case of nonequidistant data for several trajectories. We illustrate the methodology by using bovine growth data. Our goal is to assess: (i) if the parametric models (with specific functional forms for the drift and the diffusion coefficients) previously used by us to describe the evolution of bovine weight were adequate choices; (ii) whether some alternative specific parameterized functional forms of these coefficients might be suggested for further parametric analysis of this data.

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