

ON SOME PROPERTIES OF RECONSTRUCTED TRAJECTORIES FROM SPARSE LONGITUDINAL DATA

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ABSTRACT: In sparse longitudinal data, we only have a few measurements on irregularly spaced time points from a hidden continuous stochastic process (trajectory) for each subject. The prediction of individual trajectories is sometimes useful for functional data analysis of such data, and the properties of the reconstructed trajectories play important roles in theoretical analysis. When we have measurements on a dense grid of time points for each subject, we can reconstruct the individual trajectories independently. However, for sparse longitudinal data, we often use the reconstruction method (Yao *et al.*, 2005) based on functional principal component analysis (FPCA). In this case, the predicted trajectories are not independent. In this complicated situation, we demonstrate some fundamental properties of the individual trajectories reconstructed by FPCA.

KEYWORDS: functional data analysis, weak convergence.

References

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