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M-Estimation in Nonlinear Regression for Longitudinal Data

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Abstract: The longitudinal regression model $Z_i^j = m(\theta_0, \mathbb{X}_i(T_i^j)) + \varepsilon_i^j$, where Z_i^j is the jth measurement of the ith subject at random time T_i^j, m is the regression function, $\mathbb{X}_i(T_i^j)$ is a predictable covariate process observed at time T_i^j and ε_i^j is a noise, is studied in marked point process framework. In this paper we introduce the assumptions which guarantee the consistency and asymptotic normality of smooth M-estimator of unknown parameter θ_0.

Keywords: M-estimation; nonlinear regression; longitudinal data;

AMS Subject Classification: 62M10; 62F10; 60G55;

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