

**Nonparametric Imputation of Missing Values for Estimating Equation
Based Inference – a Full Report**

by

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ABSTRACT

We propose a nonparametric imputation procedure for data with missing values and establish an empirical likelihood inference for parameters defined by general estimating equations. The imputation is carried out multiple times via a nonparametric estimator of the conditional distribution of the missing variable given the always observable variable. The empirical likelihood is used to construct a profile likelihood for the parameter of interest. We demonstrate that the proposed nonparametric imputation can remove the selection bias in the missingness and the empirical likelihood leads to more efficient parameter estimation. The proposed method is evaluated by simulation and an empirical study on the relationship between eye weight and gene transcriptional abundance of recombinant inbred mice.