Model Context Selection for Run-to-Run Control

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Abstract

In the design of run to run controllers one is usually faced with the problem of selecting a model structure that best explains the variability in the data. The variable selection problem often becomes more complex when there are large numbers of candidate variables and the usual regression modeling assumptions are not satisfied. This paper proposes a model selection approach that uses ideas from the statistical linear models and stepwise regression literature to identify the context variables that contribute most to the autocorrelation and to the offsets in the data. A simulation example and an application on lithography alignment control are presented to illustrate the approach.