

An Algorithm Approach for Model Order Reduction of Discrete Time Interval Systems

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Abstract

A new method based on combining time and frequency domain techniques of model order reduction of discrete time interval systems is proposed in this paper. In the new method z -transfer function is transformed into the w -domain by the bilinear transformation, $z = \frac{(1+w)}{(1-w)}$. Then the denominator is reduced by Alpha truncation method and numerator is reduced by Pade approximation method. The proposed method offers advantage that stability of original system can be preserved in the reduced models, and the original models retains dominant features of original discrete time interval system. The technique is illustrated by an example.