Approximate Solution of Quadratic Time Varying Optimal Control Problems via Differential Transform Method

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Abstract:

Because of there is no general analytical method for solving the quadratic time varying optimal control problems (QTVOCPs), many authors adopt the numerical methods for this purpose. This motivates some authors to use the differential transform method (DTM) for finding an approximate solution for the linear quadratic optimal control problems (LQOCPs) and a class of nonlinear quadratic optimal control. In this paper, we propose an algorithm depend on applying DTM about the two end points of the time horizon to find an approximate solution for the linear or nonlinear QTVOCPs. To show the reliability, accuracy and efficiency of suggested method, some illustrated examples have been provided.

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