Robust Control of the Classic Dynamic Ball and Beam System

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Abstract:

This article presents the design of robust control system for the Ball and Beam system, as well as the comparison of their performances with classic control techniques. Two controllers were designed based on Algebraic Riccati Equations for the synthesis of H2 and H∞ controllers and a third one based on Linear Matrix Inequalities techniques for the design of H∞ controllers. The results show that H∞ controllers offer better performance.

Keywords:

Robust control H2 and H∞, Uncertainties, Modeling, Ball and beam system