

On the Identification of Control Failures by the Dynamic Regularization Method

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Received March 5, 2024; revised March 14, 2024; accepted March 14, 2024

Abstract—The problem of calculating points and magnitudes of discontinuities in the controls acting on a system described by a nonlinear vector ordinary differential equation is considered. A similar problem is well known in systems theory and belongs to the class of failure identification problems. This paper specifies a regularizing algorithm that solves the problem synchronously with the process of functioning of the control system. The algorithm is based on a feedback control method called the dynamic regularization method in the literature; this method was previously actively used in problems of online reconstruction of nonsmooth unknown disturbances. The algorithm described in this work is stable to information noises and computational errors.

Keywords: control, failure identification.

DOI: 10.1134/S0081543824030106

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