

Robustness of non-linear feedback systems: the gap metric approach

M C Smith

Department of Engineering
University of Cambridge
Cambridge, UK

Abstract

This talk will describe the background and recent progress on an approach to the robustness of non-linear feedback systems which is an extension of the gap metric approach for linear systems. The basic viewpoint is to regard systems as operators on signal spaces and to use a notion of closeness of signal trajectories which is not tied to a particular uncertainty representation, such as additive, parametric, structured, etc. Examples will be presented to illustrate the local or global applicability of the theory as well as its usefulness for problems in oscillator robustness and repetitive control.