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Université de Tunis

Ecole Nationale Supérieure d'Ingénieurs de Tunis

Conférence de

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Decomposition and equivalence of general nonlinear dynamical control systems

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Abstract

Transformations between two given systems to highlight properties such as linear equivalence, observer canonical forms, immersion, or bisimulation and quotients, are largely investigated in the literature. The first systematic approach to classify linear dynamical systems goes back to Brunovsky in 1970. In this talk this problem is generalized: given two nonlinear systems with the same number of inputs, we seek for the conditions under which there exists a change of coordinates such that the largest dimensional system projects onto the smaller dimensional one. Robotics provides a clear motivation to this theoretical problem.This talk aims to give an overview on the theoretical aspects, the recent achieved results and the new challenges.