



ali deylami

Cooperative and robust object handling by multiple manipulators based on the differential equation approximator

Authors Alireza Izadbakhsh, Nazila Nikdel, Ali Deylami

Publication date 2022/9/1

Journal ISA transactions

Volume 128

Pages 68-80

Publisher Elsevier

Description The problem of transporting a rigid object by a team of robotic arms is studied in this article. The study aims to enable manipulators to move the object in the desired and predefined direction efficiently. It is also desired to keep the force applied to the object limited to avoid distortion of its shape. Since practical systems usually confront limitations such as lack of complete system model information and disturbances, the presented approach should confront the effects of such phenomena on the performance. To fulfill the purpose, based on the universal approximation property, a powerful approximator for estimating uncertainties and disturbances based on differential equations is presented. Then a robust approximator-controller structure is designed to solve the multi-objective issue of position, orientation, and force control in the cooperating robotic system. To confirm a stable object grasp, and transportation, Lyapunov ...

Total citations [Cited by 20](#)

2022 2023 2024 2025 2026

Scholar articles [Cooperative and robust object handling by multiple manipulators based on the differential equation approximator](#)

A Izadbakhsh, N Nikdel, A Deylami - ISA transactions, 2022

[Cited by 20](#) [Related articles](#) [All 4 versions](#)