Special Issue

Dynamics and Control of Robot Manipulators

Message from the Guest Editors

Robotic manipulators are becoming increasingly complex systems in order to meet market demands for their safer and more flexible use. Complex robotic systems, such as mobile collaborative robots, aerial robots, parallel robots, cable-driven robots, or continuum robots, are modifying the way robots are perceived and exploited in several areas. In order for these systems to be effective, researchers are faced with new challenges, such as: trajectory planning must account for robot dynamics; control algorithms should adapt to variable robot and/or payload parameters and disturbances; robot-link elastic behavior, resulting in large deflection and/or vibratory phenomena, needs to be evaluated and compensated for; etc. The aim of this Special Issue is to collect original theoretical results about robot dynamic modeling and control, as well as experimental studies related to their use in real-world applications.

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Deadline for manuscript submissions

closed (20 October 2022)

Actuators

an Open Access Journal by MDPI

Impact Factor 2.3
CiteScore 4.3

mdpi.com/si/84521

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About the Journal

Message from the Editorial Board

We are just entering the Next Wave of Technology (NWT) where actuators will play the same role as the computer chip did for computers/social media approximately four decades ago. Just in the U.S., production of $1 trillion year of electromechanical systems (vehicles, orthotics, manufacturing cells, freight trains, aircraft, etc.) will be impacted by the NWT, all driven by actuators. Five key trends can be found for the future perspectives: “Performance to Reliability”, “Hard to Soft”, “Macro to Nano”, “Homo to Hetero” and “Single to Multi functional”. We invite papers that primarily impact these economic sectors; those illustrating basic scientific principles are also welcome.

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