Special Issue

Non-Conventional Kinematic Structures in Modern Collaborative Industrial Robots: Issues and Solutions

Message from the Guest Editors

The spread of cobots in common industrial practice has led constructors preferring the development of collaborative features, which are necessary to prevent injuries to operators, over the realization of simple kinematic structures for which joints-to-workspace mapping is well known. An example is given by the replacement, in serial robots, of spherical wrists with safer solutions, where the danger of crushing and shearing is intrinsically avoided. Despite this tendency, the kinematic map between actuated joints and Cartesian workspace remains paramount importance for robot analysis and programming, deserving the attention of the research community. The objective of this Special Issue is to give visibility to all of the issues raised by such tendencies and the consequent solutions found by researchers and constructors. Topics of interest include, but are not limited to: Non-conventional kinematic structures: applications, drawbacks, and future developments.

Control strategies of robots with non-conventional kinematics.

Robot designs.

Motion and trajectory planning. Redundantly actuated robots.

Guest Editors

Prof. Dr. Massimo Callegari

Department Industrial Engineering & Mathematical Sciences, Polytechnic University of Marche, Ancona, Italy

Prof. Dr. Luca Carbonari

Department Industrial Engineering & Mathematical Sciences, Polytechnic University of Marche, Ancona, Italy

Deadline for manuscript submissions

closed (31 May 2025)



Robotics

an Open Access Journal by MDPI

Impact Factor 3.3 CiteScore 7.7



mdpi.com/si/224622

Robotics Editorial Office MDPI, Grosspeteranlage 5 4052 Basel, Switzerland Tel: +41 61 683 77 34 robotics@mdpi.com

mdpi.com/journal/ robotics





Robotics

an Open Access Journal by MDPI

Impact Factor 3.3 CiteScore 7.7



robotics



About the Journal

Message from the Editor-in-Chief

It is my great pleasure to welcome you to our open access journal, *Robotics*, which is dedicated to both the foundations of artificial intelligence, bio-mechanics and mechatronics, and the real-world applications of robotic perception, cognition and actions. The 21st century is the robotics century and intelligent robots will change our lifestyle forever. Let us work together toward the realization of intelligent robots step by step. It is great fun to create intelligent robots and imagine their practical applications. *Robotics* is now ready to serve you in the long journey towards such a goal.

Editor-in-Chief

Prof. Dr. Marco Ceccarelli LARM: Laboratory of Robotics and Mechatronics, University of Cassino and South Latium, 03043 Cassino, Italy

Author Benefits

Open Access:

free for readers, with article processing charges (APC) paid by authors or their institutions.

High Visibility:

indexed within Scopus, ESCI (Web of Science), dblp, Inspec, and other databases.

Journal Rank:

JCR - Q2 (Robotics) / CiteScore - Q1 (Control and Optimization)