

Parallel robots with unconventional joints: kinematics and motion planning

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Abstrak

This book shows how, through certain geometric transformations, some of the standard joints used in parallel robots can be replaced with lockable or non-holonomic joints. These substitutions allow for reducing the number of legs, and hence the number of actuators needed to control the robot, without losing the robot's ability to bring its mobile platform to the desired configuration. The kinematics of the most representative examples of these new designs are analyzed and their theoretical features verified through simulations and practical implementations.