

عنوان مقاله:

An Efficient Dynamic Analysis Platform to Simulate the Locomotion of a Quadruped Robot

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خلاصه مقاله:

Quadrupeds have caught the interest of researchers in recent years because of their ability to be utilized in different areas such as rescue missions, agriculture, and military activities. Yet, simulating quadruped movement is intricate and demands a thorough grasp of the robot's dynamics and control. This article introduces a system for efficiently modeling and simulating the movement of quadruped robots. In order to simplify the process of modeling a complex multi-degrees-of-freedom system, it is suggested to use the direct communication features of SolidWorks and MATLAB to develop the dynamic equations of motion for the three-dimensional robot model being studied. The accuracy, flexibility, and visualization are the key benefits of the suggested model. Because of the modular setup of the MATLAB toolboxes, it is simple to use different toolboxes to analyze the robot's stability, path planning, and control in different scenarios. Results from simulating the kinematics and dynamics of the suggested method using SolidWorks, Simulink, and MATLAB offer a useful tool for modeling a four-legged robot.

کلمات کلیدی:

Quadruped, Dynamics, Locomotion, Robot

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