Jumping robot energy storage

Abstract Small jumping robots widely adopt complex catapult mechanisms. This paper presents a novel jumping strategy using dead point instead of traditional catapult ...

Energy Storage: Springs, elastic materials, or pneumatic systems often store potential energy during the preparatory phase of a jump. For instance, when a robot compresses a spring, kinetic energy is converted into potential energy ...

Small jumping robots widely adopt complex catapult mechanisms. This paper presents a novel jumping strategy using dead point instead of traditional catapult mechanisms, ...

Request PDF | Elastic energy storage of spring-driven jumping robots | Spring-driven jumping robots use an energised spring for propulsion, while the onboard motor only ...

Secondly, a spring energy storage and trigger mechanism is designed, including incomplete gear, one-way bearing, torsion spring, and so on, to realize the complete jumping function of the ...

Jumping robots use catapult mechanisms to store and rapidly release energy for jumping. There are various types of catapult mechanisms depending on the medium of force transmission: ...

After a detailed analysis to actuators and energy storage devices and a comprehensive summarization to functional and soft materials commonly applied in jumping robots, different ...

Through a specific structural design, the robot can storage energy and switch motions to jump in the desired direction based on the preset angle according to actual demand. The jumping process is thoroughly ...

2.1.2. Spring Drive The spring has the advantages of strong energy storage, fast energy release, simple structure, and simple control. So it has been widely used in the design of bioinspired jumping robots to replace ...

Integrating this cascade in a robot enables jumping with unidirectional muscles and power amplification (JUMPA). These JUMPA systems use a single lightweight mechanism for energy storage and release with a mass of 1.6 g ...

The ability of quadruped robots to overcome obstacles is a critical factor that limits their practical application. Here, a design concept and a control algorithm are presented that aim at ...

The proposed adjustable multimodal jumping robot (Tumro) draws inspiration from the energy-storage

jumping mechanism of the jumping beetle. It is capable of executing ...

An energy storage unit is designed at each joint. The energy storage unit is driven by a servo motor, and servo motor drives a guide rod to compress a spring for energy storage, ...

The water-jumping robot& #8217;s energy storage size is the key to improving the jumping performance. Materials with high energy density and large deformability are ...

Secondly, a spring energy storage and trigger mechanism is designed, including incomplete gear, one-way bearing, torsion spring, and so on, to realize the complete jumping ...

The proposed adjustable multimodal jumping robot (Tumro) draws inspiration from the energy-storage jumping mechanism of the jumping beetle. It is capable of executing various modes of movement, inclu...

Web: https://www.mozgmalina.pl