Hybrid Compliance Control for a Bioinspired Quadruped Robot

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The benefit of compliant robotic design is becoming more and more evident with increasing tendency to involve robots navigating on rough or human tailored terrain especially when locomotion is executed using legs. When dealing with legged robot locomotion, these concerns are primarily related to ensuring robustness and energy efficiency of locomotion which are both compromised due to nondeterministic nature of the outdoor environment. This lecture deals with design and implementation of a hybrid compliance control system for a stiff-by-nature quadruped robot comprising active and variable passive compliance control parts. We show how this new joint effort of both complaince types is beneficial to the preformance of the legged robotic system under modernate external disturbances by preforming mathematical analysis and real world experiments.