

Modeling and Control of a Hybrid Wheeled Jumping Robot

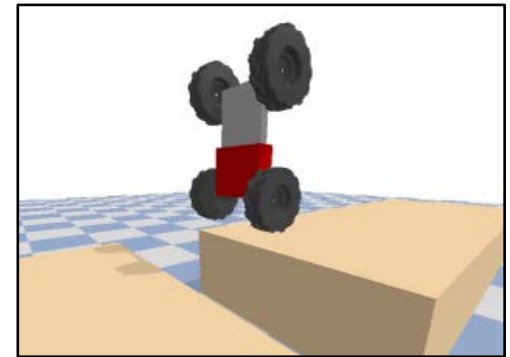
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- Propose a Model Predictive Control pipeline for the control of **hybrid wheel-jumping** robots.
- Derive an analytical **template model** of the system dynamics and use in a **direct transcription** motion-planning framework.
- Demonstrated **dynamic motions**, such as jumping, in simulation, using PyBullet.
- Tested robustness to **sensor noise** and **rough terrain** locomotion.



The hybrid robot jumping over a gap. Dynamic behaviors emerge from first principles of optimization