

Optimizing Dynamic Trajectories for Robustness to Disturbances Using Polytopic Projections

Henrique Ferrolho¹, Wolfgang Merkt^{1,2}, Vladimir Ivan¹,
Wouter Wolfslag¹, and Sethu Vijayakumar¹

¹University of Edinburgh, UK ²University of Oxford, UK

- Study robustness of legged robots against unknown external forces during planning;
- Propose a bilevel problem for trajectory optimization and maximum robustness;
- Explain the transcription and reformulation required to make the problem tractable for NLP solvers;
- Compare robustness maximization against torque minimisation for multiple scenarios.



Quadruped robot equipped with an arm performing a task over uneven terrain.