

(a) 2D Planar Locomotion Environments



(b) 3D Subequivariant Locomotion Environments

Table 1. Comparison in the problem setup.

2D-Planar Our 3D-SGRL

State Space	Range Initial Target	xoz -plane x^+ -axis x^+ -axis	3D space Arbitrary direction Arbitrary direction
Action Space	# Actuators DoF	1 per joint 1 per joint	3 per joint 3 per joint
Symmetry	External Force Group	NULL Ø	Gravity \vec{g} , Target of $O_{\vec{g}}(3)$