

Actuated Passive Dynamic Walker Perturbation Control: Stable Walking with Varying Upper Body Mass and Ramp Angle

Update #2 (5/8/2019)

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Since the last update, we have been working on writing our own compass gait implementation using pydrake. We have run into issues with pydrake in part of our implementation and have been making use of piazza to help debug our code. As of writing this update, we are waiting for a code update to the pydrake bindings to be added to the docker image available to us, so that we may continue debugging. In the meantime, we have been working on the concept for a compass gait hip angle controller that reacts to perturbations in mass and ramp angle. Despite the series of roadblocks we encountered with our base code, we hoped to make some progress in the theory for the controller that we outlined in our proposal. Since we have found that the pydrake simulator prevents us from modifying the system dynamically (urdf constraint), for our paper, we plan to propose a theoretical controller that would fit our experimental outcome for various conditions. Essentially, if we can design a controller for getting the compass gait to a state that we know is a stable initial state from our experimental simulation, we can conclude that such a controller will successfully drive our compass gait to a stable walking state.