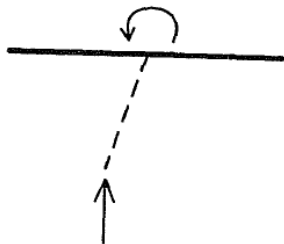
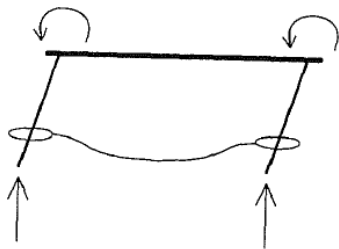
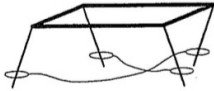


Virtual leg

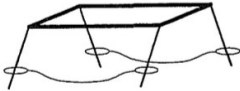


- From Raibert [1986]
- Intra-group control
 - Toe positioning (flight)
 - Touchdown synchronization
 - Virtual hip positioning (stance)
- Inter-group control

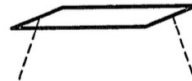
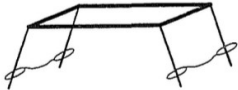
Virtual bipeds (trot, bound, pace)



TROT



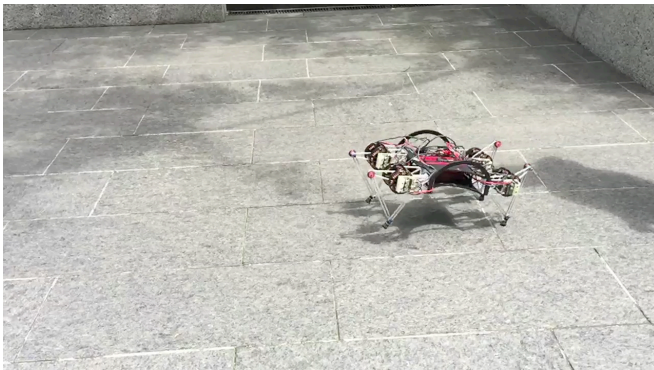
PACE



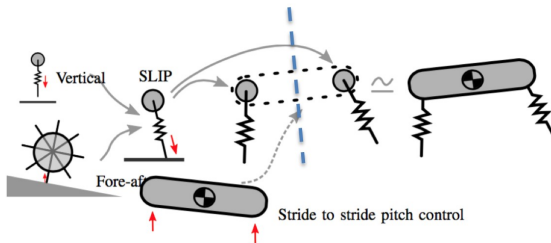
BOUND

- From Raibert [1986]
- Control action “mirrored,” repeated step-to-step
- Location of virtual hip
- Move using internal forces in stance

Minitaur bounding



Pitch coordination:
antiphase



Summary

- Multilegged robots can be controlled as compositions of monopedes
- Virtual legs allow you to think of groups of legs as a single leg
- A virtual biped with a leg-to-leg symmetric control action is a composition of identical monopedes
- Phase coordination can be active or passive