HUMANITY CENTERED ROBOTICS INITIATIVE

BROWN

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Boston Dynamics

"Arms on Legs"

Monday, December 12, 2016
12-1pm
CIT 368

Abstract: Humanoid robots fit into our world. They slip between shelves in a warehouse, climb escalators, sit in cars, use hand tools, and open doors. However, they are constantly balancing, exerting energy and computational power just to stay upright. A humanoid robot can grab items off the floor, but its shifting weight places it at the edge of its kinematic workspace and strength. A walking robot cannot follow a scripted footstep plan, because its actual foot placement is a result of the instantaneous dynamics. Humanoid robots, already complicated platforms, require articulated necks or multiple cameras, because there is no fixed camera placement that can simultaneously see the next step in a staircase and a vase on a high shelf. In this talk, we explore the advantages and challenges of manipulation on a humanoid platform.

Jennifer Barry is a Senior Roboticist at Boston Dynamics where she works on manipulation with the next generation Atlas robot. Her Ph.D. work was on planning for complex manipulation problems, co-advised at MIT by Leslie Kaelbling and Tomas Lozano-Perez. Prior to Boston Dynamics, Jennifer was a controls engineer at Rethink Robotics.