



Science Café Announcement

Free and open to public



GEORGIA SECTION

Tuesday, September 19, 2017

“Bipedal Locomotion from Robots to Ostriches: An Optimization Story”

Speaker:

Dr. Christian Hubicki (Georgia Institute of Technology)

Location:

Condesa Coffee
Old Fourth Ward
480 John Wesley Dobbs Ave
Ste 100, Atlanta, GA 30312

Directions: [Click Here](#)

6:30 pm Meet and mingle

7:00 pm Talk

Parking: Parking is available along the street on John Wesley Dobbs, on Cain St. across the street or in the free Tribute Lofts parking deck.

RSVP by 5:00 pm on Friday, September 15, 2017 at

<https://goo.gl/wP6JL7>

Abstract

Bipedal robots are becoming increasingly adept locomoting machines, but they still lag behind the agility, robustness and efficiency of their animal counterparts. This work demonstrates how we can leverage optimization techniques both to control walking/running robots and understand the biology that inspired them. This talk chronicles four case studies demonstrating the engineering and scientific utility of optimization in the context of dynamic bipedal locomotion. 1) We use optimization to generate efficient and formally stable walking on the humanoid robot, DURUS. 2) We use optimal control tools to discover the underlying behavioral priorities of ground-running birds; an insight spanning across species from quail to ostrich. 3) We discover optimal strategies that emerge from locomotion on complex deformable terrain, like sand. 4) Finally, we unify many of these insights to control the ATRIAS bipedal robot, which is able to run outdoors at 9 kph and withstand large disturbances.