The Field Robotics Center

Seminar Series

Thursday, 4th Dec **GHC 2109 10:00am – 11:00am**

Food will be served

Jon Anderson

Graduate Student

Robotics Institute

Actuating Planetary Rover Wheels

Abstract : Planetary wheel actuators incorporate specialized motors, gearboxes, lubrication, bearings, and seals in order to cope with the harsh environments they operate in. Despite this, mechanical loads, wide thermal swing, aggressive dust intrusion, vacuum, and prolonged operation have contributed to failure of prior wheel actuators. Planetary rover performance and mass optimization resulting in low margin and high complexity increases vulnerability. Wheel actuators with high performance margins and simplicity have compelling technical advantages as well the programmatic advantages of agile development, economy, and straightforward acceptance testing. This research investigates a process of wheel actuator design that yields substantial performance margin while maintaining design simplicity and acceptable mass. Evaluation of this process is accomplished through its application to the development of a lunar wheel actuator.

Speaker Bio : Jon Anderson is an M.S. student in the Robotics Institute advised by William “Red” Whittaker. He holds B.S. degrees in Robotics Engineering and Mechanical Engineering from Worcester Polytechnic Institute. His work focuses on hardware development for field robotics operating in extreme environments. Aerospace industry experience with SpaceX, Planet Labs, and Astrobotic Technology positioned him to lead a team of CMU staff and students in pursuit of a $500K Google Lunar X-Prize Milestone Mobility Prize in 2014..




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