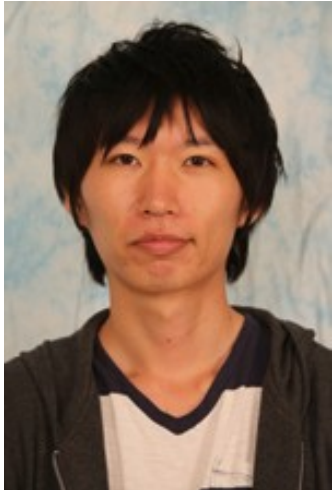


The Field Robotics Center

Seminar Series

Wednesday, May 28 GHC 2109 1-2PM



Food and Drinks will be served

**Hiroaki Inotsume
Graduate Student
Robotics Institute**

Study on Wheel Grouser Designs for Improving Traverse Performance of Planetary Rovers

Abstract: Because of great successes of the JPL's Mars Rovers, future planetary exploration rovers are expected to probe more scientifically fascinating areas traversing sand dunes, flank of mountains, and/or crater rims which are covered with loose soil. In such areas, wheels of a rover will lose their traction resulting in high slip and sinkage, or deviations from planned paths. It has been acknowledged that wheel tread patterns, called grousers, have an important role to improve traveling capability of vehicles. However, any comprehensive design guidelines of grousers for Lunar/Mars vehicles have not been developed. This talk will present a fundamental grouser design equation that our research group has developed from observations of visualized soil flow under wheels. We have conducted hundreds of experiments of wheels with grousers in various longitudinal and lateral slip conditions. In this presentation, some latest results will be shown, and guidelines for grouser design will be provided for different operating conditions.

Speaker Bio: Hiroaki Inotsume is a M.S. student in the Robotics Institute, advised by Prof. David Wettergreen. His work focuses on analysis of vehicle-terrain interactions for design, motion planning, and control of planetary rovers. He received his B.E. and M.E. degrees in Aerospace Engineering from Tohoku University in Japan.



For further information please contact: Uland Wong,
uyw@andrew.cmu.edu. www.frc.ri.cmu.edu