

The Field Robotics Center

Seminar Series

Friday, 11th August

GHC 6501 11:00am – 12:00pm

Lunch will be served



Merritt Jenkins

M.S. student
Robotics Institute

Detecting and Grasping Sorghum Stalks in Outdoor Occluded Environments

Abstract: Conventional methods of identifying and evaluating physical plant traits are labor-intensive and error-prone. For example, plant breeders use a combination of subjective and manual measurements to empirically confirm that new cross-breeds exhibit desired characteristics. Robots offer the opportunity to improve the speed and quality of plant measurements through a combination of computer vision and contact sensing. This thesis describes a custom manipulator and end-effector for field-based contact measurements, as well as online algorithms to visually detect crop stalks in-situ. Field-based crop stalk detection is a challenging computer vision problem due to occlusion by leaves, color similarity between stalks and surrounding foliage, and high stalk density within rows. The hardware and algorithms discussed in this thesis are evaluated in fields of Sorghum bicolor in South Carolina, USA.

Speaker Bio: Merritt Jenkins is an M.S. student in the Robotics Institute at Carnegie Mellon University, advised by Dr. George Kantor. Merritt's field robotics research focuses on perception and intelligent manipulation of plants in outdoor environments, enabling plant breeders and geneticists to make better-informed breeding decisions. Prior to CMU, Merritt received a B.E. in Mechanical Engineering and a B.S. in Environmental Studies from Dartmouth College, and developed mechanical systems at QBotix Inc. for several years.



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