

Field Day: Institutional Collaborations



Phenotyping in Small Plot Agronomic Field Trials with sUAS: Tips and Examples for Plant Breeders and Researchers

Progeny Drone was founded at Purdue University in response to the need for a better and more accessible way to extract data from drone-acquired imagery of small plot agronomic field trials. From the beginning, plant breeders and researchers have embraced the software, now called Plot Phenix. We will detail how to get started using sUAS for phenotyping with a modest investment and minimal complication. Use cases specific to the needs of research scientists will be shared, including how Plot Phenix can be a powerful tool for collaboration, such as the Maize Genomes to Fields (G2F) Initiative.

Presenters:



Anthony Hearst is CEO of Progeny Drone, Inc. He holds a Ph.D. in Agricultural & Biological Engineering from Purdue University.



Edwin Reidel (MS, UC-Davis; Ph.D., Cornell University) joined Progeny Drone in 2019 to lead business development efforts.

AI-Based Plant Phenotyping and Harvesting for Sustainable Agriculture

Precision yield prediction of crop growth and unmanned harvesting are the main tasks of plant phenotyping in sustainable agriculture. With the boom of neural network, convolution neural network (CNN) and reinforcement learning are state-of-art approaches in computer vision and motion control. We are specifically interested in development of an image-based tomato yield prediction model via multi-threaded AI agents. The system consists of two AI agents: breed classification and temporal stage prediction. They are weaved in a model with a tomato yield table to produce interpolated yield estimation. The system was trained with a tomato dataset and the experimental result shows the prediction is accurate up to 90 percent.

Presenter:



Dugan Um is an associate professor of Mechanical Engineering and Geospatial Computing Science at Texas A&M University-Corpus Christi. He holds a Ph.D. in Mechanical Engineering from the University of Wisconsin at Madison.

Nov. 17, 2021

10:30 AM–12:00 PM

(Central Time, –6 GMT)

Purpose: Present examples of and opportunities for collaboration with institutions that could further G2P research and advance the agricultural industry.

**Register for this
Zoom virtual
meeting:**

<https://tinyurl.com/AG2PI-FD13>

Upon registration, you will receive a confirmation email with information about joining the meeting.

A recording will be available at a later date at: ag2pi.org/



Agricultural Genome to Phenome Initiative (AG2PI) is funded by USDA-NIFA awards 2020-70412-32615 and 2021-70412-35233.