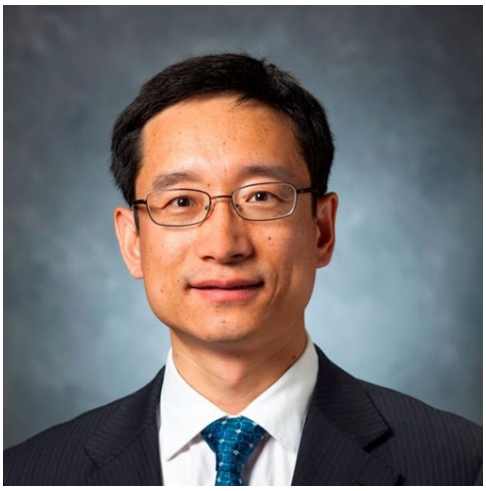
Upcoming Candidate Seminar



Changying Li, Ph.D.

Candidate for Artificial Intelligence (AI) Food Chain Resilience Engineer

Monday

December 6, 2021

10:30 AM

Location:
Frazier Rogers Hall R-122 & Zoom

Other information:
Zoom link:
https://tinyurl.com/vwd92xnz

UF IFAS
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AGRICULTURAL AND BIOLOGICAL ENGINEERING

AI-enabled Sensing and Automation for a Resilient Food Chain

To sustainably intensify agricultural production and food supply while preserving the environment, we must radically improve the efficiency and resilience of our agri-food systems through AI-driven digital agriculture. In this talk, I will go over multiple research projects that leverage agricultural robotics and AI to address challenges spanning the food chain from breeding, open field crop management, to harvest and postharvest handling. I will present a novel modular agricultural robotic system (MARS) that is an autonomous, multi-purpose, and affordable robotic platform for in-field automated phenotyping and precision farming, as well as unmanned aerial systems that integrate customized image acquisition to quantify plant growth rate, biotic and abiotic stresses. The robotic system is empowered by machine learning-based vision intelligence, including object detection and semantic/instance segmentation for detecting plants and plant parts in 2D images, video frame-based multi-object tracking for plant organ counting, and 3D deep learning models for point cloud segmentation and architectural trait extraction. Another project will highlight the patented Berry Impact Recording Device (BIRD) to emulate berry fruit (and other small fruits) and quantify mechanical impacts during the mechanical harvesting and postharvest handling processes, as well as a deep learning-based hyperspectral imaging approach for berry internal bruise detection and quantification. At the end of the talk, I will share my perspectives on future research and team building leadership for convergent research.

About Dr. Changying Li

Changying “Charlie” Li is a Professor and Distinguished Faculty Scholar at the College of Engineering and the inaugural Director of the Phenomics and Plant Robotics Center at the University of Georgia (UGA). He earned his doctoral degree in Agricultural and Biological Engineering from the Pennsylvania State University and received his postdoctoral research training at the University of Illinois at Urbana-Champaign. He has over 20 years of experience in developing innovative AI-based sensing and automation technologies to advance digital agriculture and automated phenotyping. He is a member of the ASABE and IEEE. His work has been recognized by several national awards, including New Holland Young Researcher Award, Rain Bird Engineering Concept of the Year Award, five Best Conference Paper Awards, and one Superior Paper Award, all from the ASABE. He is also the recipient of the UGA College of Engineering Research Award. His research has been funded by USDA-NIFA, National Science Foundation, and the industry (US Highbush Blueberry Council, Cotton Inc., and Georgia Commodity Commissions). He holds one US patent and founded a startup company focusing on agricultural AI and robotic technologies.