

Smart Agriculture, the Needs, Challenges and Approaches

Abstract

The extensive use of EIC technologies, especially AI and digital technologies, in agriculture, people believe that the industry is now moving to a new era of “smart agriculture”. While researchers put great enthusiasm to adopt AI & digital technologies in solving agricultural problems, people are still unsure what is the core issue they are going to address. The speaker suggests as a new era of technology advancement, smart agriculture should target on improving the capability of sustainably produce differentiated quality food to meet the needs of different customers, i.e. higher the overall efficiency on agri-food production, just like precision agriculture being targeting on optimizing the use of resources, mechanized agriculture on higher productivity, and cultivated agriculture on producing sufficient food. The adoption of EIC technologies provides the needed means to address this challenge.

Qin Zhang

Professor Emeritus, Biological Systems Engineering
Washington State University

RESEARCH AREAS AND EXPERTISE

- General area: Agricultural Machinery Automation and Agriculture Automation
- Specific area: Automated and Autonomous Agricultural Machinery Technologies, Intelligent Agricultural Machinery Controls, On-Machinery Crop Health Sensing Technologies, Machinery-Area Network Technologies, Agricultural Infotronics Technologies

SELECTED AWARDS AND RECOGNITION

- John Deere Gold Medal (2017)
- iAABE Fellow
- ASABE Fellow
- Member, Washington State Academy of Science (WSAS)
- Honorary Vice President, International Commission of Agricultural and Biological Engineering (CIGR)
- Full Member, Club of Bologna (World Taskforce on Agricultural Mechanization Strategies)
- Former Director, Center for Precision and Automated Agricultural Systems (CPAAS), WSU



Dr. Qin Zhang is the former Director of the Center for Precision and Automated Agricultural Systems (CPAAS) and a Professor Emeritus of Biological Systems Engineering, Washington State University (WSU); a Member of Washington State Academy of Science (WSAS), a Fellow of iAABE (International Academy of Agricultural and Biological Engineering) and ASABE. He has received several awards and honors over his career, featured by John Deere Gold Medal in 2017. Dr. Qin Zhang has given 20 keynote speeches and 37 invited talks at international professional conferences, plus numerous invited seminars and guest lectures at 60+ universities Worldwide. He has also been invited to give talks at more than a dozen major agricultural equipment manufacturers in North/South America, Europe, and Asia. Dr. Qin Zhang is an Honorary Vice President of CIGR (International Commission of Agricultural and Biological Engineering), a Full Member of the Club of Bologna (a World Taskforce on the Strategies for the Development of Agricultural Mechanization).