



TEXAS TECH UNIVERSITY

Edward E.  
Whitacre Jr.  
College of  
Engineering™  
Computer Science

## **Opportunities and challenges of data science and computer technology in precision agriculture**

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Tuesday, April 7, 2020 at 3:30 p.m.

Please join us through Blackboard Collaborate Ultra: spring 2020 TTU  
Computer Science Grad Seminar (CS-5120-001, 002, & D01) → course content  
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### **Abstract:**

Agriculture is facing the greatest challenge of feeding more than 9 billion people by 2050 in a manner that advances economic development and a healthy environment. Precision agriculture is a technology and information-based management system at the sub-field scale for optimum profitability, sustainability, and protection of the environment. Various sensors are applied to collect spatial data on soil properties, crop growth status, crop yield, and environmental factors for decision support on site-specific management. Effectively and efficiently storing, processing, and analyzing big data for site-specific application and management becomes one of the greatest challenges in precision agriculture. More interdisciplinary and innovative efforts are required to enhance the understanding of the interactions among crop growth, soil, and environmental factors using big data analytics for sustainable agricultural production.

### **Bio:**

Dr. Wenxuan Guo is an assistant professor of Crop Ecophysiology and Precision Agriculture with the Department of Plant and Soil Science at Texas Tech University. Guo also has a joint appointment with Texas A&M AgriLife Research. Prior to these appointments, he worked as a global environmental modeling scientist with Monsanto Company in St. Louis, Missouri. He also worked as a precision agriculture scientist with South Plains Precision Ag in Plainview, Texas. Dr. Guo received his B.S. in crop science from Agricultural University of Hebei in Baoding, China, his M.S. in Plant, Soil, and Environmental Science from West Texas A&M University, and his Ph.D. in crop science from Texas Tech University. Guo's primary goal at Texas Tech University and Texas A&M AgriLife Research is to establish interdisciplinary research and teaching programs that leverage state-of-the-art technologies to improve agricultural production with limited resources, especially water. His research interests and efforts are mainly in precision agriculture, environmental sciences, and remote sensing in agriculture, especially the application of unmanned aerial systems in high-throughput plant phenotyping and big data in optimized crop production.

