Artificial intelligence and robotics: current and future tools for organic agriculture

The past decade has seen dramatic advances in robotics and artificial intelligence technologies, resulting in emerging tools that have practical applications in agricultural production today. Additionally, an even larger number of potential tools are in development in university research labs and tech startups. This talk will provide an overview of some of these techniques, ranging from image processing to autonomous mobility solutions to robotics interventions that require intelligent tactile manipulation. After laying the foundation of where we are today, the presentation will move on to discuss potential future tools that could be developed for the specific needs of organic agriculture. are pursuing early disease detection in greenhouse tomato production, apple fruitlet growth rate monitoring, and robotic dormant season grapevine pruning. He is a part of the USDA/ NIFA Artificial Intelligence Institute for Resilient Agriculture, which is combining AI, sensing, and robotics to create comprehensive digital twins of staple crops. Kantor holds B.S. in Electrical Engineering from Michigan State University, and M.S. and Ph.D. degrees in Electrical and Computer Engineering from the University of Maryland College Park.

George Kantor

Carnegie Mellon University Robotics Institute, USA

Biography

George Kantor is a Research Professor at Carnegie Mellon University's Robotics Institute. He has over 20 years of experience research in developing and deploying robotic technologies for real-world applications such as agriculture, mining, and scientific exploration. In the agriculture domain, earlier research projects include the development distributed sensor-actuator networks for intelligent irrigation, the development vehicles for autonomous navigation in specialty crops environments, and the development of in-field robotic phenotyping technologies. Current projects are pursuing early disease detection in greenhouse tomato production, apple fruitlet growth rate monitoring, and robotic dormant season grapevine pruning. He is a part of the USDA/NIFA Artificial Intelligence Institute for Resilient Agriculture, which is combining AI, sensing, and robotics to create comprehensive digital twins of staple crops. Kantor holds B.S. in Electrical Engineering from Michigan State University, and M.S. and Ph.D. degrees in Electrical and Computer Engineering from the University of Maryland College Park.