Special Issue

Application of Artificial Intelligence and Simulation Technology in Fruits and Vegetables Production

Message from the Guest Editor

Fruit and vegetable production, as a critical domain in modern agriculture, faces immense pressure to ensure quality. Traditional models exhibit limitations in precision management, risk prediction, and resource optimization. However, the rapid advancement of artificial intelligence (AI) and simulation technologies offers unprecedented opportunities. These technologies enable in-depth analysis of complex crop growth environments, physiological processes providing with intelligent decision-making support. This propels the industry toward precision, efficiency, and sustainability. This Special Issue, aims to compile and showcase cutting-edge research and systemic solutions. Key focus areas include, but are not limited to: machine learning and computer vision-based crop phenotyping analysis; intelligent pest and disease identification; yield prediction models; intelligent regulation and optimization of growth environments; vision-guided navigation and operation of harvesting robots; non-destructive postharvest quality detection and grading; digital twin or system dynamics-based simulation and optimization of production processes; and virtual testing of harvesting protocols.

Guest Editor

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Message from the Editor-in-Chief

Horticultural plants and their products provide sustenance, health, and beauty. A confluence of factors is putting increasing pressure on horticultural production to evolve, and innovative research is addressing these challenges. *Horticulturae* provides a venue to communicate research results in a rapid manner with open access, allowing everyone the opportunity to stay abreast of leading research addressing horticulture. I invite you to consider publishing the results of your research in this high quality, peer-reviewed journal.

Editor-in-Chief

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