



agriculture



Special Issue Reprint

Novel Applications of Optical Sensors and Machine Learning in Agricultural Monitoring

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Agricultural production management is facing a new era of intelligence and automation. With developments in sensor technologies, the temporal, spectral, and spatial resolution from ground/air/space platforms have been notably improved. Optical sensors play an essential role in agriculture production management. Specifically, monitoring plant health, growth conditions, and insect infestation has traditionally involved extensive fieldwork. We believe that sensors, artificial intelligence, and machine learning are not simply scientific experiments but opportunities to make our agricultural production management more efficient and cost-effective, further contributing to the healthy development of natural–human systems. This reprint compiles the latest research on optical sensors and machine learning in agricultural monitoring, including related topics: Machine learning approaches for crop health, growth, and yield monitoring; Combined multisource/multi-sensor data to improve the crop parameters mapping; Crop-related growth models, artificial intelligence models, algorithms, and precision management; Farmland environmental monitoring and management; Ground, air, and space platforms application in precision agriculture; Development and application of field robotics; High-throughput field information survey; Phenological monitoring.



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