Agriculture

an Open Access Journal by MDPI

CiteScore: 7.8
Impact Factor: 4.5

Special Issue Reprint

Intelligent Equipment and Automation Technology in Farmland Production

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This Reprint presents a focused collection of recent studies on intelligent equipment and automation technology for farmland production. The contributions cover a broad range of agricultural operation scenarios, including precision spraying, fertilizer detection and regulation, soil-engaging machinery, bionic tillage, strip tillage, harvesting devices, plug seedling extraction, greenhouse crop phenotyping, pest image segmentation and agricultural robotics. Together, these studies reflect the ongoing transformation of agricultural machinery from single-function mechanical devices to integrated systems that combine perception, actuation, control and decision-making. Particular attention is given to machine vision, deep learning, sensing systems, DEM and MBD-coupled simulation, real-time monitoring, autonomous regulation and field validation. By integrating equipment design, digital perception, algorithmic analysis and agronomic application, this Reprint provides a timely reference for researchers, engineers and practitioners seeking to improve operational accuracy, adaptability, efficiency and reliability in modern agricultural production systems.

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