Special Issue

Computer Vision and Pattern Recognition for Advanced Smart Agriculture Solutions

Message from the Guest Editors

The sustainability of food production is challenged by the growing population and food demands, with an estimate of a need for up to 70% production growth by 2050, though the arable land available for agriculture is decreasing. Agriculture is evolving into smart farming through innovations in artificial intelligence, big data analytics, the Internet of Things, and automation/robotics, all aimed at enhancing crop productivity and quality, leading to more cost-effective and reliable food production systems. Computer vision systems are increasingly used for smart agriculture applications such as biotic and abiotic stress detection, crop growth and yield monitoring, targeted spraying and irrigation. Advanced computational and data analytics techniques, such as deep learning, foundational models, image rendering, and 3D reconstruction, have significantly enhanced the robustness, reliability, and practical applications of computer vision technologies in all aspects of production agriculture. This Special Issue aims to promote a deeper understanding of major conceptual and technical challenges and facilitate the spread of recent breakthroughs in computer vision for smart farming.

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Deadline for manuscript submissions

30 September 2025

Sensors

an Open Access Journal by MDPI

Impact Factor 3.5
CiteScore 8.2
Indexed in PubMed

mdpi.com/si/216224

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Sensors is a leading journal devoted to fast publication of the latest achievements of technological developments and scientific research in the huge area of physical, chemical and biochemical sensors, including remote sensing and sensor networks. Both experimental and theoretical papers are published, including all aspects of sensor design, technology, proof of concept and application. Sensors organizes Special Issues devoted to specific sensing areas and applications each year.

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