

Special Issue

Integrating AI and Robotics for Precision Weed Control in Agriculture

Message from the Guest Editors

Weed control remains one of the most persistent and costly challenges in modern agriculture, particularly under the increasing pressure to reduce herbicide use, manage resistance and promote sustainability. Traditional methods—manual, mechanical, or chemical—are increasingly challenged by the need for environmental stewardship, labor shortages and the global imperative to secure food supply. The rising demand for sustainable and efficient crop production has catalyzed transformative changes within agricultural engineering, particularly in weed management. This Special Issue aims to address these pressing concerns by showcasing the latest advancements in precision weeding, leveraging cutting-edge technologies such as machine learning, robotics, sensor fusion and big data analytics. Our intent is to create a collaborative platform where researchers, technologists, and practitioners from diverse backgrounds can share breakthroughs, practical insights, and case studies.

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