

Guest Editorial Preface

Special Issue on Role of Emerging Technologies Toward Sustainability and Productivity Growth in Agriculture

Ashutosh Sharma, Institute of Computer Technology and Information Security, Southern Federal University, Russia

A key challenge for the agriculture sector is to feed an increasing global population, while at the same time reducing the environmental impact and preserving natural resources for future generations. Agriculture can have significant impacts on the environment. While negative impacts are serious, and can include pollution and degradation of soil, water, and air, agriculture can also positively impact the environment, for instance by trapping greenhouse gases within crops and soils, or mitigating flood risks through the adoption of certain farming practices. The emerging technologies here are playing an important role between the environment and agriculture, identifies successful agricultural policies that mitigate the negative environmental impacts while enhancing the positive ones, and provides recommendations to improve policy coherence for environmental performance of the agricultural sector. The objective of this published special issue is to concentrate on all aspects and future research directions on the role of emerging technologies to agriculture and environment.

We have received total 22 submissions for this special issue across the globe and after the rigorous review process, only 6 manuscripts have been accepted for publication in this special issue. A short review about the commitments for this Special Issue is as underneath: First paper presents a method for smart agriculture using sensor network and Internet of Things (IoT). The proposed system presents smart agriculture monitoring system that collects and monitors the soil moisture, environmental temperature and humidity. The second paper introduces the application scope of IoT knowledge and to present the model of agricultural IoT for prediction using neural network by studying the influence of IoT technology towards modern agriculture. The third paper presents a model to solve the problem of high cost and difficult management of traditional agricultural planting. An IoT technology-based model is proposed to realise the real time detection and management of crop growth. The fourth paper proposed an agricultural robot vision system for two typical environments-farmland and orchard, combined with weeding between crops. The proposed system constitutes the orchard production monitoring, prediction tasks, the target information recognition approach, and visual servo decision-making. The fifth paper proposed an extraction algorithm to quickly extract the visual navigation line of the farmland robot based on the dark primary color principle. The sixth paper proposed a wireless transmission platform which is integrated with various sub-parts such as intelligent agricultural

equipment, and computer wireless reception and processing which improved the automation level and quality of agricultural equipment.

I hope that the quality research work published in this special issue will be able to serve the concerned humanity, science, agriculture, environment and technology. The Guest Editor is thankful to the authors and reviewers who contributed to this special issue with their scientific work and useful comments, respectively.

Ashutosh Sharma
Guest Editor
IJAEIS