Special Issue

Smart Pest Control for Building Farm Resilience

Message from the Guest Editors

Agriculture plays a crucial role in combating climate change, with pest management essential for food security and environmental sustainability. Traditional pest control methods, heavily reliant on chemical pesticides, offer short-term effectiveness but pose long-term risks such as environmental degradation, pest resistance, and harm to non-target species. In response, Smart Pest Control has emerged as a transformative approach, integrating advanced technologies with sustainable practices to enhance resilience in farming systems. Smart Pest Control reduces pesticide use, lowers costs, and improves environmental sustainability. By leveraging technologies like deep learning and large language models, farmers can develop intelligent pest monitoring systems adaptable to complex environments. These systems enable precise pest management, minimizing chemical interventions while maximizing ecological benefits. Future research should focus on scaling these technologies, improving accessibility, and expanding their application across diverse agricultural contexts to support sustainable farming and climate resilience.

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