Editorial

Artificial Intelligence as a Tool in Floriculture Research

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Artificial Intelligence (AI) is a field of computer science dedicated to developing systems and algorithms capable of performing tasks that typically require human intelligence. These tasks range from learning and reasoning to pattern recognition, natural language understanding, and decision-making. AI is divided into two main categories: Weak AI, which deals with specific and limited tasks such as voice recognition or data analysis, and Strong AI, which aims to create systems with intelligence comparable to humans in all tasks and contexts. To achieve these goals, AI employs various techniques, including machine learning, where systems are trained with large datasets to improve their performance. AI plays a growing role in various areas of society, driving innovations and improvements in sectors such as healthcare, education, and agricultural sciences (Angelov et al., 2021).

In recent years, there has been a notable growth in the utilization of AI in floriculture-related research. This advancement represents a silent revolution in the field as researchers and farmers harness the potential of AI to enhance the production and quality of ornamental plants. AI's ability to process vast amounts of data and identify subtle patterns has been instrumental in expediting the development of new flower varieties, making the genetic improvement process more efficient and precise. Furthermore, AI may help in early disease and pest detection, aiding in the protection of ornamental plants from potential threats. As AI continues to evolve and become more accessible, its integration into floriculture research holds the promise of revolutionizing the industry, promoting sustainability, innovation, and the production of even more stunning flowers.

AI provides a powerful set of tools to optimize each stage of the cultivation process, from planting to harvest. Through real-time data collection and analysis, AI can monitor environmental factors such as temperature, humidity, light, and nutrient levels, allowing for precise adjustment of the ideal conditions for the growth of different flower varieties. Additionally, AI algorithms can accurately predict the optimal timing for irrigation and fertilizer application, avoiding resource waste and ensuring more efficient use. This intelligent approach not only increases productivity but also contributes to plant health and the quality of the flowers produced, making it a valuable tool for producers seeking superior and sustainable results (Arachchillage et al., 2021).

The prospects for the role of AI in floriculture are brimming with promise. AI is expected to continue deeply shaping the flower industry, driving remarkable advancements. One of the most notable trends is personalization. Furthermore, advanced automation, such as robotic harvesting can enhance production efficiency, reduce costs, and minimize waste. AI research can also focus on improving plant resilience to adverse conditions, making them more robust and sustainable. With the growing availability of data and ongoing advances in machine learning algorithms, AI is poised to drive innovation and efficiency in floriculture, transforming how flowers are grown, marketed, and appreciated by consumers (Mahmud et al., 2023).

In a scenario where AI intertwines with floriculture, we envision a future teeming with opportunities and transformations. As demonstrated, AI transcends the boundaries of human intelligence, enabling remarkable advancements in the research and cultivation of ornamental plants. Its data analysis and machine learning capabilities are fostering and expediting the development of new flower varieties, safeguarding them from potential threats, and making production more efficient and sustainable. As we look to the years ahead, flower customization, intelligent automation, and resilience to adverse conditions are among the many promises that AI brings to the industry. It is important to emphasize as a final conclusion that, to support this theme, this editorial text was written by an Artificial Intelligence, using the "ChatGPT-4. Some small corrections were necessary and, to support the consideration that human action would not be necessary, we emphasize that only with previously acquired knowledge was it possible to understand the text presented and, mainly, to identify terms and phrases that were not consistente.

AI represents an efficient tool to drive advances in research, as demonstrated in the context of floriculture. However, it is crucial to emphasize that AI is a complement to human knowledge and creativity, not a replacement. While AI can expedite research and optimize production, human creativity and experience remain essential for innovation and complex decision-making. The synergy between humans and AI is the path to a promising future where floriculture can thrive with sustainability, efficiency, and customization.

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