Future of farming: How next-generation robots breed heartier crops and optimize yields

In a research field off Highway 54 last autumn, corn stalks shimmered in rows 40-feet deep. Girish Chowdhary, an agricultural engineer at the University of Illinois at Urbana-Champaign, bent to place a small white robot at the edge of a row marked 103. The robot, named TerraSentia, resembled a souped up version of a lawn mower, with all-terrain wheels and a high-resolution camera on each side.

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The robot is designed to generate the most detailed portrait possible of a field …. so that agronomists can breed even better crops in the future.

Traditionally, plant breeders have measured these phenotypes by hand, and used them to select plants with the very best characteristics for creating hybrids. The advent of DNA sequencing has helped …. but it still takes a human to assess whether the genes isolated from the previous generation actually led to improvements in the next one.

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"The idea is that robots can automate the phenotyping process and make these measurements more reliable," Dr. Chowdhary said. In doing so, the TerraSentia and others like it can help optimize the yield of farms far beyond what humans alone have been able to accomplish.

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