Field to Fork: Startup Serves Food Industry an AI Smorgasbord

Blu Cocoon Digital is delivering AI-powered transformation to farmers, food processors and their partners using NVIDIA AI on Microsoft Azure.

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It worked like magic. Computer vision algorithms running in a data center saw that a disease was about to infect a distant wheat field in India.

Sixteen days later, workers in the field found the first evidence of the outbreak.

It was the kind of wizardry people like Vinay Indraganti call digital transformation. He's practiced it for 25 years, the last dozen of them at companies like Ingredion, a Fortune 500 food-ingredient producer.

The India project was the first big test of AGRi360 — a product suite for sustainable agriculture powered by NVIDIA Metropolis — from the startup that Indraganti co-founded, Blu Cocoon Digital .

The pilot was both simple and effective.

Farm workers took pictures of the plants, time-stamped and geotagged by a mobile app. They sent them to the Microsoft Azure cloud, where Blu Cocoon's custom models found patterns that enabled their uncanny prediction.

Thanks to his background in the industry, Indraganti knows the value of such timely intelligence. It can help farmers and their entire food chain of vendors reap a bumper harvest.

"It's a vast area, that's why we've made 'AI for food' our mantra at Blu Cocoon," he said in an interview from the suburban Chicago office of the company headquartered in Kolkata.

AGRi360 acts "like a third eye in the field," said Pinaki Bhattacharya, a microbiologist who heads R&D; at Blu Cocoon Digital.

In the pilot, it gave farmers an early warning to apply a small amount of pesticide to arrest the disease. An agrochemical company got a heads up about conditions in the area, helping it manage its supply chain.

In the future, food producers that buy the crops will get key details about their microbiology. That helps in planning exactly how and when to process the crops into products to meet the regulatory requirements where they'll be sold.

"AGRi360 captures all these insights thanks to AI fed by pictures from farmworkers taken while they're doing their regular jobs," Bhattacharya said.

The AI models got their start in research using computer vision to quickly assess soil conditions and the quality of seeds.

Those skills are now part of the AGRi360 product portfolio along with products that monitor plant health and best practices in farming. Today, AGRi360 is in use in two countries, improving the quantity and quality of crop yields.

One customer reports it's on track to source 100% of its products sustainably by 2025. Another saw revenues for an insecticide rise, thanks to the service.

"Our sales of Cartap 50sp grew 70% in six months thanks to AGRi360's ability to identify emerging crop infections early," said Vandan Churiwal, a director at Krishi Rayasan, a leading agrochemical supplier based in Kolkata.

“As a result, we’re expanding our license with Blu Cocoon to bring AI-powered insights into every area of our business,” he said.

Initially, the startup used CPUs to train and run its AI models. Now it exclusively uses NVIDIA GPUs and the Metropolis framework for computer vision.

“It used to take us two months to train a single AI model on CPUs,” said Indraganti. “Now, with NVIDIA A10 Tensor Core GPUs , all four models in AGRi360 can be trained in a few hours — that’s a game changer.”

The time savings add up quickly because the models need to be retrained for new crops, variants and soil types.

GPUs reduced the time to complete inference jobs, too. Predictions that require 15-20 minutes on CPUs get generated in 2-3 seconds on NVIDIA T4 Tensor Core GPUs . The speed also enables Blu Cocoon to test its models on large and growing datasets.

Looking ahead, Blu Cocoon is extending its work in the food supply chain into managing containers in shipyards. It’s already testing computer vision models for a customer in India.

“We’ve figured out a way to optimize movement of containers, reducing their time in the yard and minimizing touch points to save time and money,” said Indraganti.

The startup is even helping food producers create recipes with AI. It’s already cooked up a gluten-free muffin for one packaged-foods client with plant-based cheeses, shakes and snack bars next on the menu.

One customer reports the AI-powered system helped reduce the time to create a new recipe by 80%.

“We named the company Blu Cocoon Digital because we look beyond the horizon and across the ocean for ways to nurture our customers’ aspirations with digital technology — and it all runs on the NVIDIA platform and Microsoft Azure,” he said.

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