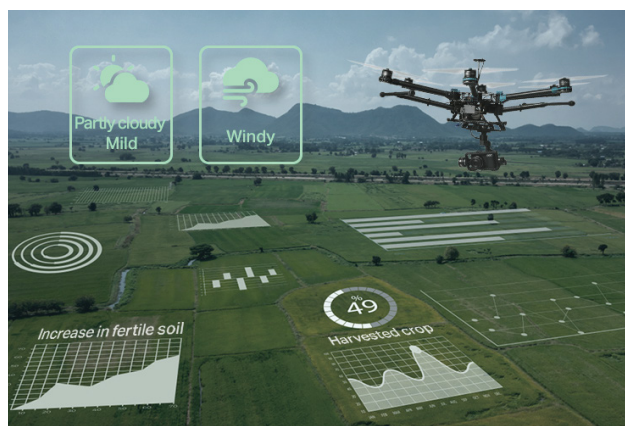Tassel

+19%
ALGORITHM
PERFORMANCE

IMPROVING YIELD USING AI

Sentera leverages iMerit's expert annotation to scale their business and generate agricultural insights in a specialized domain.

THE CHALLENGE

Sentera's deep-learning platform FieldAgent helps farmers use drones to gather data and generate real-time insights around weather, soil, and field operations to improve harvests, inform growth strategy, and control pests. One of Sentera's customers was consulting with farmers who were planting 30,000 plants of corn per acre, and wanted to use drones to monitor crop growth progress.

> **"**
>
> *We realized there was no way we could efficiently annotate this imagery our-selves. We also needed guidance on scaling our data pipeline or we risked losing this critical opportunity.*
>
> Dimitris Zermas
> Principal Scientist
> Sentera

To monitor this growth, Sentera drones scanned the fields for corn tassels, which indicate the maturity of the plants and aids in harvest planning. After generating terabytes of image data, Sentera realized they needed annotation assistance to meet the needs of the project.

Suddenly we had an army of expert annotators. Knowing we could now scale gave us the ability to provide the best results to our customers in record time. We started growing exponentially.

Dimitris Zermas
Principal Scientist
Sentera

THE SOLUTION

After evaluating vendors, Sentera chose iMerit for their tool-agnostic approach, integration with AWS SageMaker Ground Truth, and expert human-in-the-loop annotation. iMerit began the project by successfully annotating test batches around Sentera's edge cases. These results helped Sentera realize how they could leverage iMerit to improve the deep-learning outputs of FieldAgent.

iMerit's feedback helped Sentera create unambiguous and actionable instructions for iMerit annotators across the image data to ensure every tassel would be labeled. After iMerit annotated 1.2M tassels with 95% accuracy, training datasets were created that were fed into FieldAgent's algorithm that stood to improve tassel detection.
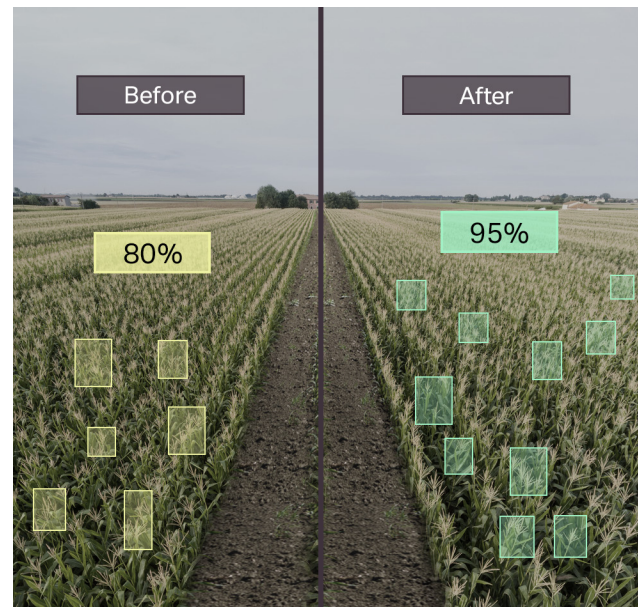
THE RESULT

After working with iMerit, FieldAgent's tassel detention accuracy improved from 80% to 95%. Sentera customers could now deploy drones with seamless autodetection that could help inform replanting decisions, stand counts, crop health, and yield estimation with higher accuracy than ever before.

Sentera expanded their use of iMerit for other agricultural applications including crop health detection, stand counting, canopy coverage, tree locations, yield estimation, and more. In each new case, Sentera partners early and deeply across processes and data pipelines with iMerit. The three-year long partnership has now created tight integration, standardized best practices and a repeatable methodology that scales to meet seasonal demand peaks.

Before   After

80%   95%

BOTTOM LINE IMPACT

95%
Detection Accuracy

1.2Mn
Tassels Annotated

+19%
Algorithm Performance

About iMerit

iMerit is a full-service data annotation company specializing in artificial intelligence and machine learning. Need a collaborator on your next big project? Speak with an iMerit expert today, and take your project to the next level.

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