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PRESS RELEASE

Synetic AI and University of South Carolina Announce Breakthrough Study: Fully Synthetic Data Outperforms Real by 34%

Woodinville, WA — October 21, 2025 — Synetic AI, the leader in physics-accurate synthetic datasets for computer vision, today announced results from a groundbreaking benchmark study conducted in collaboration with the University of South Carolina. The peer-reviewed research reveals that fully synthetic data can outperform real-world annotated data by up to 34% in model performance — marking a major inflection point for AI, robotics, and agritech.

The study, independently reviewed and verified by university researchers, demonstrates that photorealistic rendered datasets can now deliver higher accuracy, faster training, and better generalization than even mixed real + synthetic pipelines.

"The Synetic-generated dataset provided a remarkably clean and robust training signal," said Dr. Ramtin Zand, University of South Carolina. "Our analysis confirmed the superior feature diversity of the synthetic data, validating its capacity to establish a highly generalized model foundation capable of stable performance in high-variance environments."

Key Findings
- 100% Synthetic Training Outperformed Real and Hybrid Datasets by 34%
- Human Annotation Error Eliminated — pixel-perfect procedural labeling replaced noisy manual annotation
- Higher Generalization — robust across lighting, occlusion, sensor types, and weather conditions
- Scalable and Repeatable — synthetic datasets enable rapid iteration at production scale

While the advantages of synthetic variability are well understood, the study uncovered a counterintuitive result: mixing synthetic and real data can actually degrade model performance in agriculture. The culprit is annotation noise and inconsistent ground truth in human-labeled datasets — especially prevalent in edge cases like occluded leaves, early growth stages, and overlapping crops.

Synetic's synthetic datasets, by contrast, are rendered with physically accurate lighting, geometry, and materials, eliminating this source of human error. This results in stronger model reliability across fields, seasons, and crop types — a major advance for real-world deployment in agriculture and beyond.

Setting a New Gold Standard

This breakthrough establishes Synetic AI as the new gold standard in computer vision training data. The implications extend far beyond agriculture, enabling higher-performing vision systems in robotics, industrial safety, autonomous mobility, and national defense.

"For the first time, we've proven that synthetic data doesn't just match real data — it surpasses it," said Dana Walsh, VP of Sales at Synetic AI. "The gold standard for computer vision is no longer real and manually annotated — it's rendered."

About Synetic AI

Synetic AI creates physics-accurate synthetic datasets that help AI models generalize across edge cases before deployment. The platform combines procedural rendering, perfect ground truth, and massive variability, enabling developers to train faster, deploy smarter, and scale vision AI without the constraints of real-world data collection.

Download the full whitepaper: https://synetic.ai/white-paper/breaking/benchmark