

# Deepen AI and Vicomtech Advance Data Integrity for Next-Generation Physical AI Systems

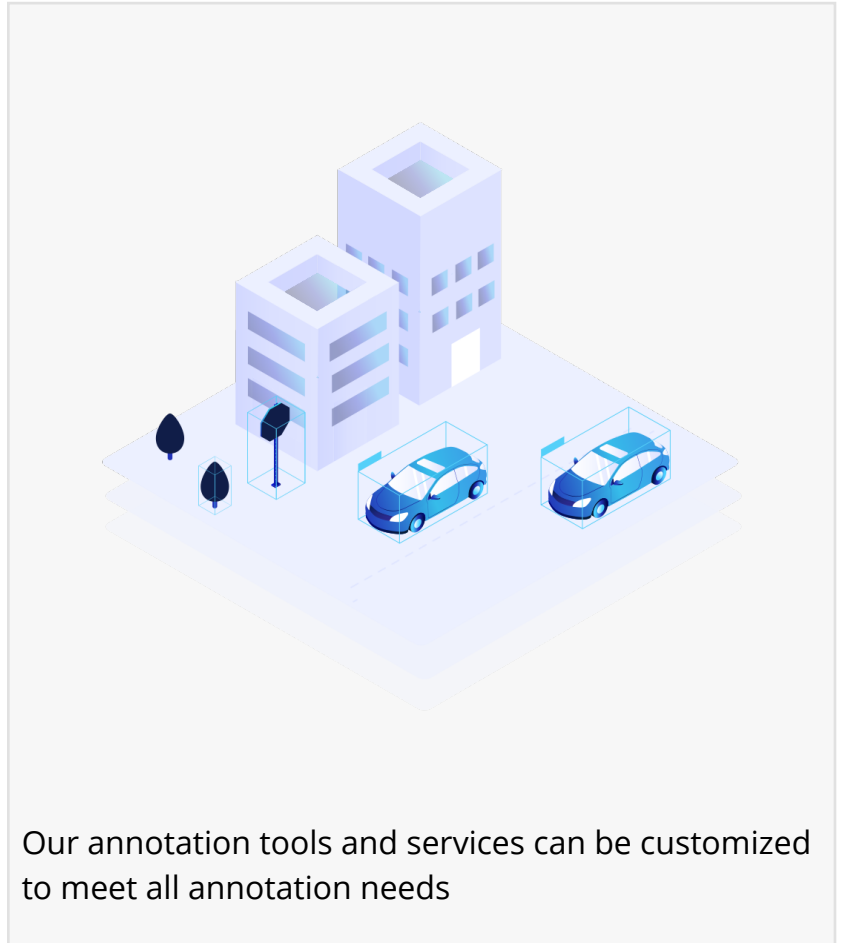
*Collaboration highlights the growing importance of calibration, localization, and sensor alignment in building reliable AI systems for autonomous vehicles*

SANTA CLARA, CA, UNITED STATES, June 18, 2026 /EINPresswire.com/ -- As [Physical AI](#) systems become increasingly dependent on multi-sensor perception, one challenge continues to slow development across the industry: poor data quality upstream of [annotation](#) and model training.

From driver assistance systems and robotics to industrial automation and smart infrastructure, organizations are investing heavily in collecting sensor data. Yet many AI teams still face hidden [calibration](#) errors, localization inconsistencies, coordinate system mismatches, timing synchronization, and sensor alignment issues that can compromise model performance long before annotation begins.

To address these challenges, Deepen AI and Vicomtech collaborated on a multi-sensor data validation and annotation initiative focused on creating a reliable foundation for perception-based AI systems.

The collaboration centered around a complex LiDAR and camera dataset used for advanced perception workflows. During the engagement, Deepen AI identified and resolved a series of underlying data integrity challenges that could have otherwise propagated through annotation pipelines and into downstream AI models.



Our annotation tools and services can be customized to meet all annotation needs

"As perception systems become more complex, data integrity becomes critical. This collaboration helped ensure that calibration, localization, synchronization and sensor alignment challenges were addressed early, creating a stronger foundation for AI development." — Dr. Marcos Nieto Doncel, Director of the Connected & Cooperative Automated Systems Department, Vicomtech

Rather than treating annotation as an isolated task, the teams worked together to validate sensor calibration, synchronization, diagnose localization inconsistencies, standardize coordinate systems, align camera models, and ensure data consistency across multiple environments before annotation was performed.



This approach reflects a growing realization across the industry: annotation quality alone cannot compensate for inaccuracies in the underlying sensor data. As autonomous vehicles, advanced

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*Dr. Marcos Nieto Doncel,  
Director, Vicomtech*

driver assistance systems (ADAS), robotics, and other Physical AI applications move closer to large-scale deployment, the consequences of poor data integrity extend beyond model accuracy. Calibration drift, synchronization errors, and sensor misalignment can create blind spots in perception systems, impacting validation efforts, slowing safety certification processes, and increasing deployment risk. As a result, leading AI organizations are increasingly shifting their focus from simply acquiring and labeling more data to ensuring the underlying sensor data is trustworthy, consistent, and fit for safety-critical applications.

"As AI systems move from the digital world into the physical world, the quality of sensor data becomes increasingly important," said Mohammad Musa, CEO of Deepen AI. "Organizations often focus on collecting more data and labeling more data, but the real challenge is ensuring the data is accurate, consistent, and trustworthy before it enters the training pipeline."

The collaboration demonstrates how a structured approach to data enablement, diagnostics, standardization, and validation can help organizations reduce downstream rework, accelerate development cycles, and improve confidence in AI model performance.

For organizations building autonomous systems, the implications are significant. Errors introduced at the calibration, synchronization, localization, or coordinate-system level can silently propagate through the entire development lifecycle, resulting in months of avoidable engineering effort and costly retraining cycles.

As the industry continues to scale investments in Physical AI, Deepen AI believes that data integrity will become a critical competitive advantage, serving as the foundation for safer, more reliable, and more scalable AI systems.

Deepen AI and Vicomtech have published a detailed case study outlining their collaboration, including the technical challenges encountered, the methodologies used to resolve them, and the outcomes achieved.

Access the full case study: <https://www.deepen.ai/case-studies>

Learn more about Deepen AI: [www.deepen.ai](http://www.deepen.ai)

Learn more about Vicomtech: <https://www.vicomtech.org/>

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