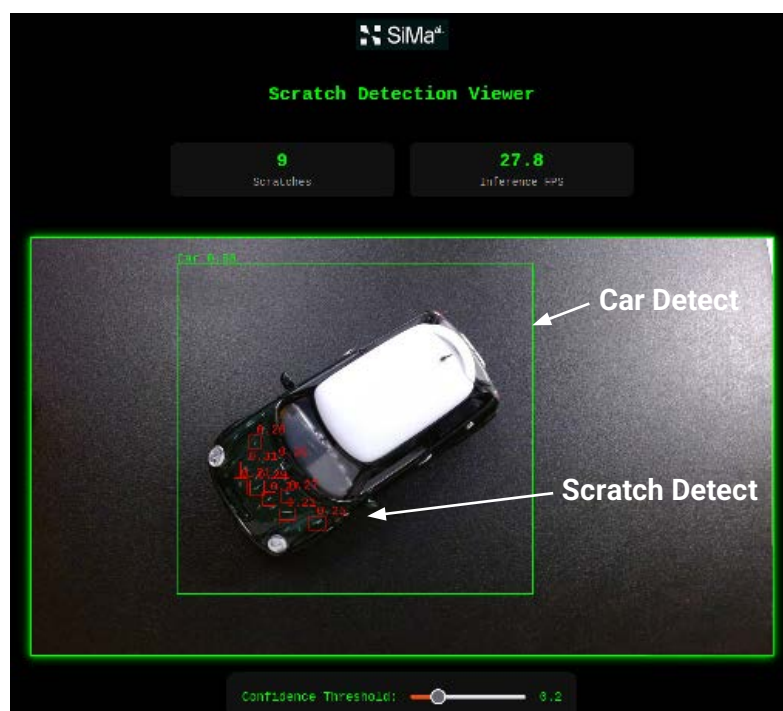




Product Inspection - Scratch Detection

SiMa.ai Value Proposition

- Faster, low-latency on-device defect detection
- No cloud dependency
- Works on any industrial camera
- Flexible across product and defect variations
- Low-power solution <10W



Product Inspection with SiMa.ai redefines factory quality control

AI-powered scratch detection delivers higher accuracy and adaptability than rule-based systems by continually learning from data to identify subtle, irregular defects. Once trained, models deploy easily at scale - enabling faster, more reliable defect detection with minimal maintenance across products and surfaces, while reducing false positives and negatives.

- Detects scratches, gaps, and misalignments in real-time using YOLO.
- Performs on-device processing for instant response, zero network latency, and complete data privacy.
- Works with standard industrial cameras—no specialized or proprietary optics required.
- Reduced footprint and total cost of ownership through compact low-power design (<10 W).
- Adapts easily to new parts, colors, and defect variations.

Catch Every Product Defect in Real-Time

With Physical AI Built for the Factory Floor

Technical Details

YOLOv9C vision model trained for car and defect detection.

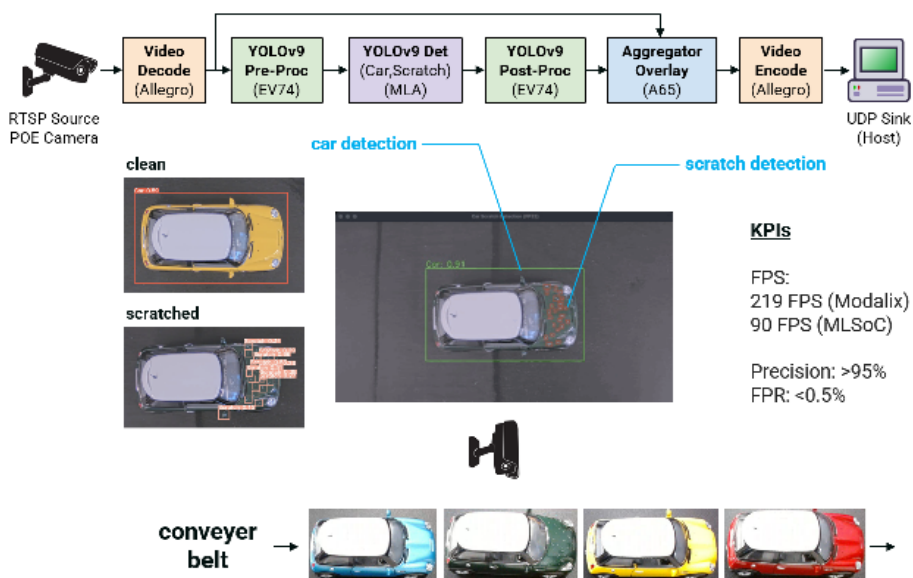
High performance and efficiency at 219 FPS on Modalix at >95% precision and <0.5% false positives (FPR).

Supports multi-camera pipelines at production line speed.

Full inference on-device using SiMa Modalix MLSoC™ for <10 W.

Heterogeneous architecture with machine learning acceleration (MLA), 8-core Arm® A65 CPU, plus Allegro and EV74 accelerate video processing.

Runs entirely offline – no cloud or host PC required.



Car Scratch - Demo Architecture

Hardware

Our Silicon



Modalix

Our Boards



SoM



SoM Dev



PCIe HHHL

Software



Hugging Face huggingface.co/simai

Model Zoo simai.ai/model-browser/



About SiMa.ai

SiMa.ai is a leader in Physical AI, delivering a purpose-built, software-centric platform that brings best-in-class performance, power efficiency, and ease of use to Physical AI applications. Focused on scaling Physical AI across robotics, automotive, industrial automation, aerospace & defense, smart vision, and healthcare, SiMa.ai is led by seasoned technologists and backed by top-tier investors. Headquartered in San Jose, California. Learn more at www.simai.ai.

