



See What Your Perception System Is Missing with Ansys SCADE Vision

/ Autonomous vehicle (AV) sensor systems must accurately perceive and “make sense of” the world around them.

Detection Defects Can Cause Systems Failure ... or Worse

Edge cases are situations unanticipated by the perception software’s brain. As AVs enter increasingly complex environments, AV sensor systems encounter a greater number of edge cases.



People on bicycles or in costumes



Blizzards or hail



High beams or glare



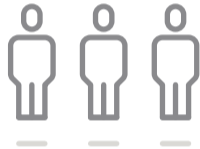
Statues or road barriers

/ Massive amounts of costly, manually labeled data are needed to test and validate AI-based perception systems.

Systems reliability depends on the quantity and quality of the data.



>24 TB data/day are generated from a 5-camera AV setup



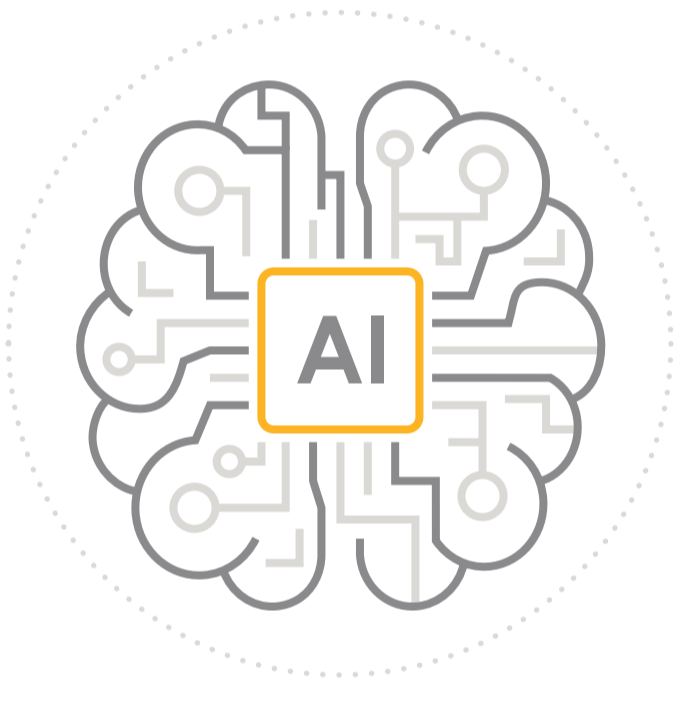
800 human hours yields 1 hour of labeled data



100,000 images + 1 week of AI training for software to learn a single traffic situation



1 M frames labeled/month required for full-scale AV development



/ SCADE Vision automatically tests unlabeled data to identify edge cases.

Using data analytics, it augments sensor-captured video frames for comparison with the raw, unmodified frames — to reveal weakness and fragilities in the perception system under test (SUT).



Finds edge cases **30X faster***



Saves \$245,000 in labor costs (based on a weeks’ worth of raw video data)*

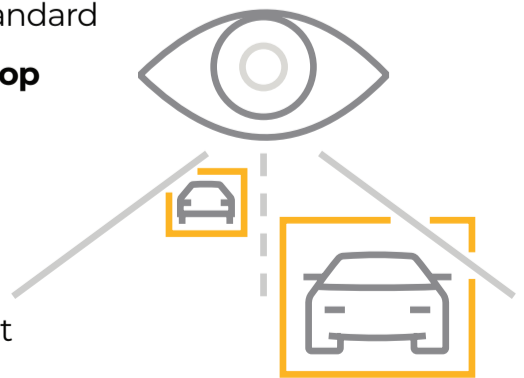


Reduces reviewable data from **petabytes to megabytes***

*compared to manual analysis

/ The SCADE Vision Advantage: You Can Believe What It Sees

- Validates **safety of the intended functionality** (SOTIF) standard
- Assesses perception algorithms using **software-in-the-loop** vs. road testing
- Identifies and categorizes **triggering events** (root causes of edge cases):
 - camouflage, bare legs, red objects, children
- Automatically **generates safety reports** for enhancement of perception algorithms



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