



# 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



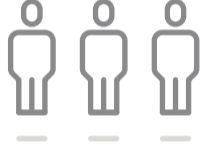
Statues or road barriers

**/ 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



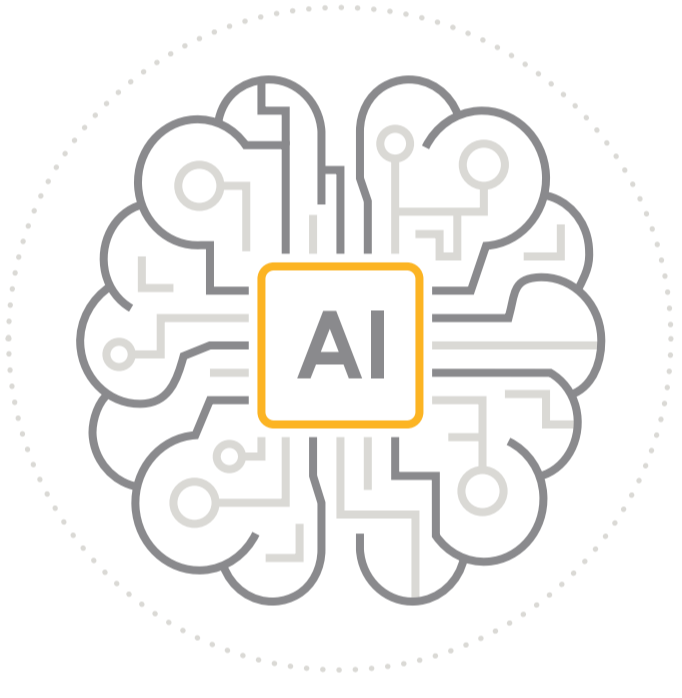
800 human hours yields 1 hour of labeled data



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)\*

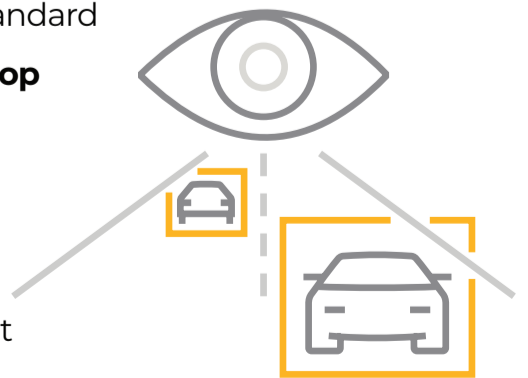


Reduces reviewable data from **petabytes to megabytes\***

\*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



To learn more visit [ANSYS.com/SCADEVision](https://www.ansys.com/SCADEVision)