

Innovate > Simulate > Accelerate



1. Industry Trends

What is the leader saying?

- According to Dmitry Dolgov Waymo's CTO making a better driver is extremely challenging
- "Everytime we think we have reached the peak of the mountain we have to climb an other"
- A lot of Research & Engineering is required to design new generation of sensors and more powerfull while cheaper CPUs
- The AV perception needs to go beyond individual scenes but to understand the dynamics of a particular scene and the interactions playing behind the scene
- A lot of this research is done via simulation which is a critical tool
- Simulation needs to be realistic
- Robotaxis







Autonomous Vehicles are the new living room

Once cars drive people, what is the role of a "cockpit"?

- Experience above all
- Less performance, horse power and accelerations
- More **comfort**, **entertainment**, capacity and high-tech experiences
- The next User Interface to consume content

Driving simulators will become key to test **ergonomics** and user acceptance **while being driven**







Augmented Realities

- Virtual reality will improve in quality
- Augmented and mixed-reality will see an explosion in use-cases
- We will see even more AR use cases in engineering, marketing and next-gen headsup displays in cars
- The shift to more AR is already boosting the rise of virtual 3D representations of physical products
- Soon, every car that leaves a factory will come with such a digital copy





Ecosystems and alliances

- Compress timeframes to reduce Time-to-market
- Rather than creating a collection of sophisticated capabilities in-house and risking longer development cycles, automotive businesses must engage the ecosystem—startups, universities and digital transformation companies such as IBM, Microsoft, Amazon or Goodle —to deliver leading-edge capabilities.
- For the first time, major rivals are collaborating to design future value chains that transform businesses, products and even the market itself. When speed is everything, these types of partnerships are what can accelerate the development of new services and features for automakers.
- Competitive advantage will not be determined by an organisation alone but by the strength of the **partners** and **ecosystems** chosen.
- Embrace standards



\mathbf{N} No genuine Al without flawless simulation

- Deep learning is heaviliy used in segmentation /shape recognition
- However most AV manufacturers focus on rule-based AI for decision to avoid unpredictable behaviours
- Focus seems to be rather on mass validation instead of AV training through deep learning
- Simulation will become a perequisite before launch
- But in order to do so it needs to be extremely realistic:
 - Physics based sensor simulation
 - Realistic modelling of pedestrians



Flawless simulation is a enabler and a perequisite for AI based decision



Building Trust

- Safety
- Reliability
- Cybersecurity

But the most important is to build TRUST

Uber accident has damaged the trust that was built by the AV community

Validation and development process need to be flawless

 \Rightarrow Simulate 1st, drive 2nd

 \Rightarrow The quality of the simulation is as important as the number of miles driven







2. How AVSimulation can help

30 years experience in Simulation, Automotive and Engineering

Shareholding structure:

SOGECLAIR GROUPE RENAULT





SC∧NeR[™]

Single simulation platform:

- Workstation
- Distributed

Wide range of driving simulators:





Value add services:

- Customized content such as scenarios
- System integration
- Consulting

SCANER^{**} : the most complete, open and modular platform



SCANER[™] across the innovation lifecycle





Customer Testimonials

"Supply in simulation software has grown as demand grew, last year we reviewed about ten of them when 10 years before there were only 2 or 3 options. We selected SCANER"

M. B., Leading US Automotive Company

"SCANeR is the backbone of our Autonomous Vehicle validation process" D.W., Renault

A Simulator For Every Use Case (& Budget)

New generation advanced DS (Roads, BMW)



Performances



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