Team ICASIS

The ICASIS team consists of an interdisciplinary team of experts specialized in SaaS product development, automotive safety, AI and simulation technology. With in-depth knowledge in computer vision, sensor technology and functional safety, we are working to develop a future-proof solution that meets the highest industry standards.

We work closely with OEMs, Tier 1 suppliers and technology partners to ensure that ICASIS meets real-world requirements. Our agile, innovation-driven approach enables us to us to continuously develop the product to meet the dynamic and growing needs of the automotive industry. Through the combination of synthetic data generation, sensor modeling and AI-supported validation and training, we help our partners to develop safer and smarter vehicles.

ICASIS Roadmap

Validation of driver monitoring

Validate driver condition detection algorithms under different environmental conditions to ensure safety regulations and reliability in real-world use.

Validation of occupant monitoring

Simulate and validate passenger behavior and interactions to reliably detect safety-critical conditions (e.g. child seats or incorrect seating position).

Camera sensor positioning & specification

Validate camera specifications and optimize sensor positioning to ensure safety-critical conditions in different use cases and environmental scenarios.

Algorithm training with synthetic data

Train monitoring algorithms with synthetic data to reduce expensive and time-consuming physical testing and improve system accuracy in edge cases.

Your successful start

- 100% cloud-based application, no installation required on your PC
- Personal onboarding together with you and our technical experts
- Automatic deployment of your requested assets in our secure cloud environment
- Continuous status updates of your personal implementation
- Step by step guidance to create your scenarios
- Personal Check-Ins and support with the first steps
- Export to your desired video format for use with your HiL/SiL system

VAIVA Safe Mobility

We enable safe mobility – today, tomorrow and in the autonomous future.

Safety, new mobility concepts and the competitiveness of the automotive industry are the challenges of our time. All our entrepreneurial achievements contribute to these challenges.

We develop innovative driver assistance and safety systems that are already installed in millions of vehicles worldwide, which significantly increase road safety and protect lives every day. We create products that enable manufacturers, suppliers or engineering service providers to develop innovative features and put them on the road quickly and safely.
With ASPICE standards and integrated best practices, we continuously optimize our processes, develop tools and use technologies such as simulation, machine learning and AI.

For us, innovation is always paired with safety. With our three solution offerings – Engineering Services, Advisory Services and VAIVA Products – we are playing a major role in shaping the mobility of the future. The connecting elements between all three business areas are our own development and validation processes, our methods and tools. All three business areas are closely linked and mutually beneficial.

VAIVA Engineering: Safety first. Integrally designed and implemented.

https://www.vaiva.io/en/portfolio/engineering

VAIVA Advisory: We have been there, we have done this.

https://www.vaiva.io/en/portfolio/advisory

VAIVA Product World: Technologies for the Future.

https://www.vaiva.io/en/portfolio/products

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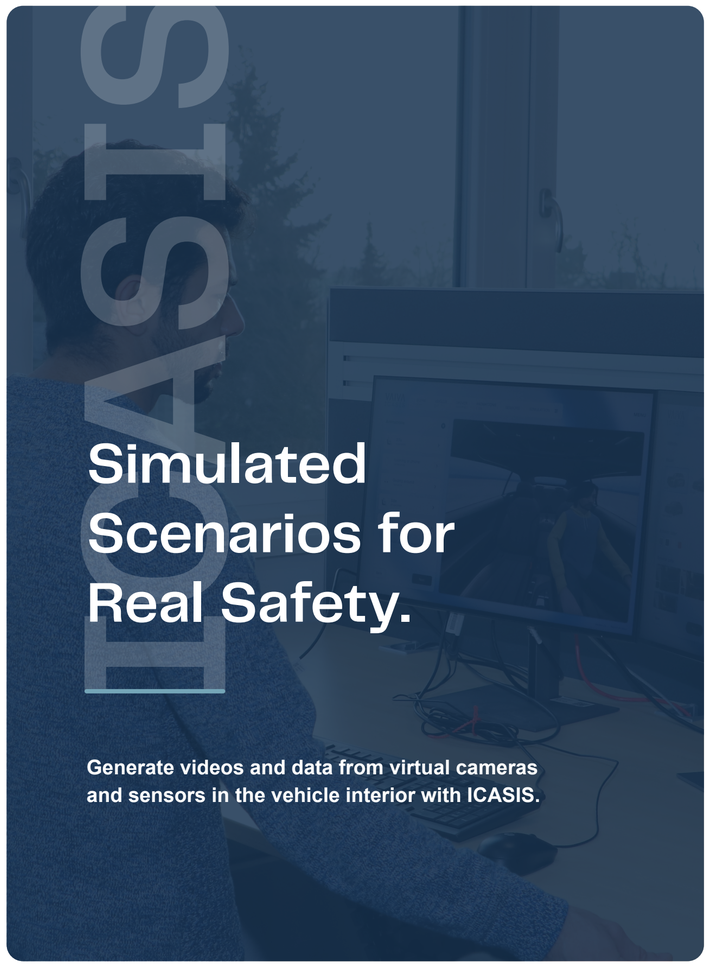


Simulated Scenarios for Real Safety.

Generate videos and data from virtual cameras and sensors in the vehicle interior with ICASIS.

ICASIS

ICASIS is an advanced SaaS vehicle interior simulation platform that generates synthetic data for the validation of driver and occupant monitoring systems, enabling efficient, scalable and NCAP-compliant function development.

We are currently observing how real-world tests are reaching their limits:

They are too expensive, too slow, too limited. Yet every second counts when it comes to saving lives.

The safety of people deserves every step forward, which is why

- ICASIS stands for the future of validation: precise, flexible and intuitive.
- ICASIS reduces the number of real-world tests and optimizes resource limitations - giving your team room for revenue-generating innovations.
- ICASIS takes the latest regulatory requirements into account - so that you are always on the safe side.

ICASIS...

... optimizes the utilization of test equipment and team capacities.

... reduces the cost of manual configuration work by up to 40%.

... improves test and development processes.

... accelerates your project realization.

... enables more robust algorithm validation and training.

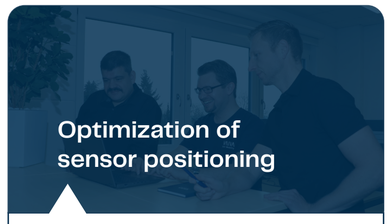
... reduces the number of test cases in the real world by 10%.

... offers flexible scenario customization with quick adaption to legal requirements or market-specific requirements such as Euro-NCAP or US-NCAP.

Technical overview

Scalable SaaS solution

ICASIS is a scalable SaaS solution that accelerates the validation of driver and occupant monitoring systems through high-quality simulations. The platform generates synthetic sensor data based on virtual vehicle interiors, realistic human models and complex environmental conditions. As a result, ICASIS significantly reduces the need for costly and time-consuming physical testing.



Optimization of sensor positioning

With ICASIS, monitoring algorithms can be tested in a variety of edge cases, including different driver behaviors, passenger postures and realistic lighting conditions. The platform offers a customizable sensor model that supports camera-based surveillance systems with variable parameters such as resolution, field of view and signal noise. As a result, ICASIS will make it possible to optimize sensor positioning and specification in the early stages of development so that hardware and software can be ideally matched.

Consideration of NCAP standards

ICASIS is being developed in line with NCAP standards and supports car manufacturers and their suppliers in complying with regulatory requirements and increasing system reliability. In the future, the platform will also enable multi-sensor fusion so that different sensor inputs such as lidar, radar and infrared in sensor fusion can be combined, validated and trained.

One-stop-shop solution

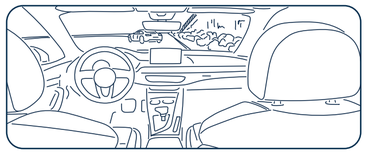
ICASIS lays the foundation for future innovations in vehicle safety and will evolve into a one-stop-shop solution for in-cabin safety by 2027. With its modular architecture, cloud-based access and scenario generation, ICASIS is setting new standards in the industry - for efficient, precise and scalable safety validation and algorithm training in driver and occupant monitoring.

Applications

ICASIS enables the simulation of a variety of diversity factors. A wide variety of drivers and passengers, accessories such as glasses, caps or other objects, as well as variations in behavior and external circumstances can be simulated. This includes extreme lighting conditions such as bright sunlight or night driving, as well as limited visibility due to accessories such as sunglasses. In this way, the algorithms can be tested and optimized under all realistic conditions in order to function reliably in reality.

Features

ICASIS offers a wide range of powerful features that enable precise and realistic validation of algorithms:



01

Diverse Icasians: simulate a wide range of virtual passengers with different ethnic backgrounds, head and eye movements, field of vision, poses and emotions.

02

Diverse vehicle models: test and validate your algorithms in different vehicle types to ensure their functionality in different vehicle classes.

03

Variable lighting conditions: ICASIS simulates realistic lighting conditions – from bright sunlight to driving at night – in order to validate the algorithms even in changing light conditions.

04

True-to-the-original interior representation: ICASIS displays the individual vehicle interior in high detail so that the algorithms can be validated under realistic conditions – including the interior and exterior world.

05

High-precision sensor models: our complex sensor models simulate the functionality of the hardware that will later be used in the vehicle, so that the algorithms are tested with precise data for reliable validation.

06

Groundtruth data: ICASIS provides accurate reference data (groundtruth) for the correct validation of the algorithms, ensuring that they function efficiently, accurately and reliably.