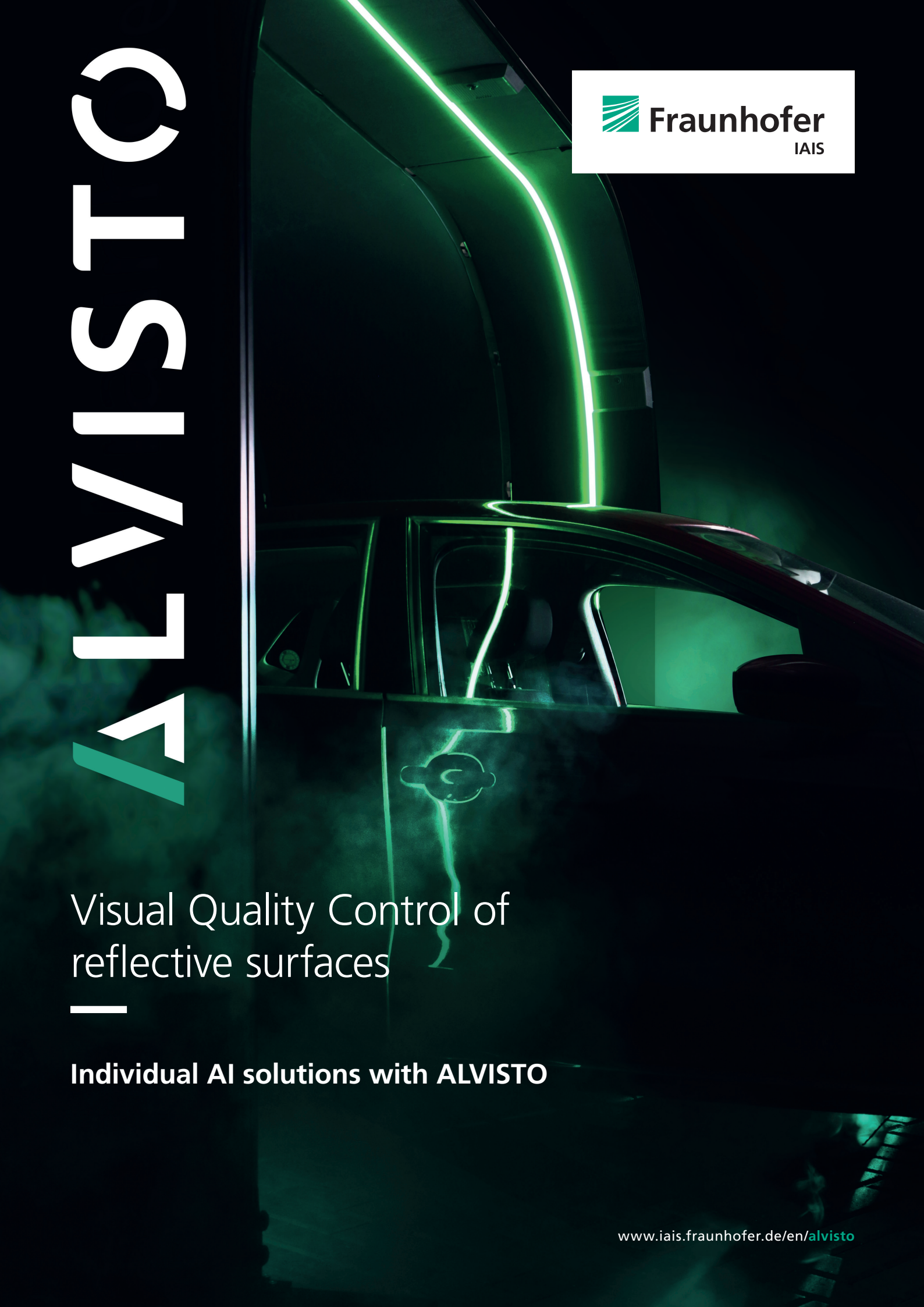


# ALVISTO

Fraunhofer IAIS

## Visual Quality Control of reflective surfaces

**Individual AI solutions with ALVISTO**

www.iais.fraunhofer.de/en/alvisto

ALVISTO

# Image-based automated error detection through artificial intelligence

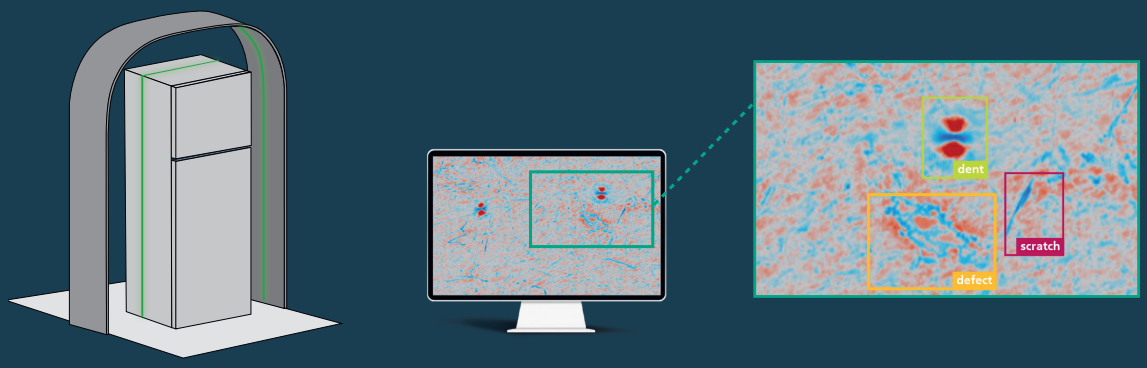
## The Challenge

Existing methods of inspecting reflective surfaces face a variety of problems. High cost, extensive maintenance and high space requirements are just the beginning. In addition, they place special demands on the site and may even require a production stop for the inspection.

Manual visual inspection is prone to error and the documentation of faults is difficult and time-consuming. We have addressed these issues. Discover our innovative solution for the inspection of reflective surfaces - we have the answer to your challenges.

## ALVISTO – Our AI-Based Solution

Intelligent surface inspection in three steps:




1 Detection of the object by camera

2 Two-dimensional reconstruction of the surface

3 Detection of damage with Deep Learning

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# Possible areas of application

### Automotive / Transportation

- Quality control in car body painting
- Quality inspection of add-on parts from suppliers
- Detection of hail damage for expert reports
- Inspection of renting and leasing vehicles in the return process

### Renewable Energies

- Fault detection in solar panel production
- Quality inspection in the production of wind turbine components
- Inspection and maintenance in the service area for solar systems

### Healthcare

- Ensuring surface quality in vial production
- Quality assurance of medical devices

### Electronics

- Quality control in display production for cars and smartphones
- Quality assurance in the “Refurbished Products” area
- Testing lens filters for intactness

### Household appliances

- Quality inspection of the surfaces of appliance enclosures
- Quality control in ceramic cooktop production
- Quality monitoring in the production of sheet metal cuttings

# All the advantages of ALVISTO

**Individual** customizable fault characteristics

Use with **highly** and **diffusely** reflective surfaces

**Scalable** fault detection independent of component size

**Inline** testing

Easy, **cost-efficient** and mobile hardware setup

Fault detection **independent of ambient light**

**No special** safety precautions are required

Applicable for **various industries**

# Our next steps together

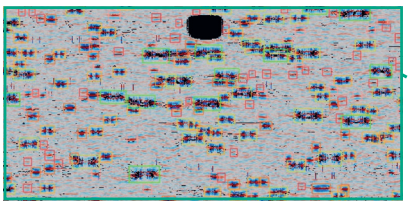
1. **Briefing** – Discussion of sample objects
2. **Feasibility study** – Testing the objects for compatibility
3. **Workshop** – Results of the feasibility study and planning of the construction
4. **Follow-up** – Follow-up of the workshop results
5. **Final Check-In** – Planning further steps

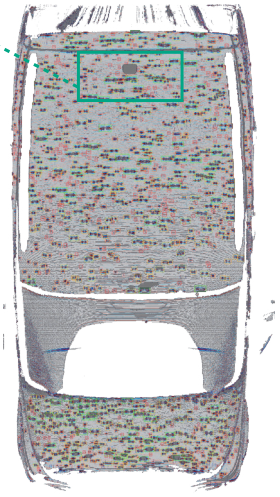
**Discover how AI can improve your production – contact us and we will work with you to develop a customized solution.**

# Success Story

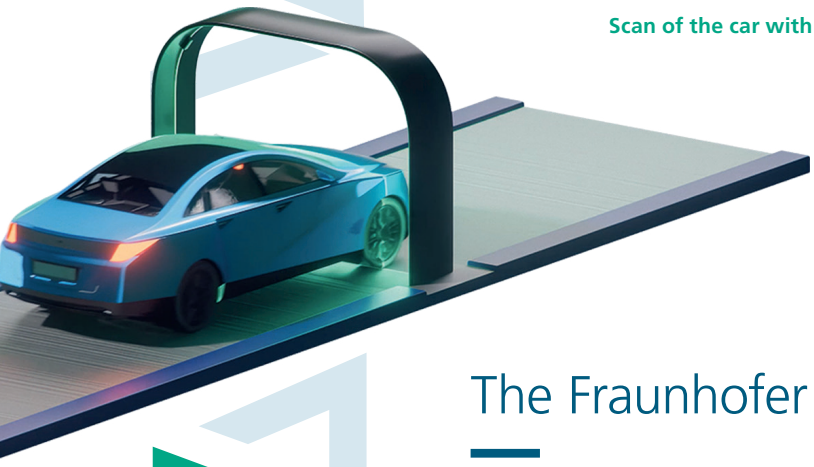
## ALVISTO in Use to Detect Hail Damage

ALVISTO has been in use for the automated inspection of hail damage at various locations throughout Germany since the beginning of 2022. The system recognizes hail dents and divides them into classified sizes. A mobile, arc-shaped scanner is used for this, which can be set up in 30 minutes. ALVISTO evaluates the damage in a quarter of the time it would take an expert to carry out the same manual inspection. This saves time and costs. There are five cameras with single-board computers built into the arch. This means that image material can be processed offline.





Scan of the car with classified dents



# The Fraunhofer IAIS

As part of the largest organization for application-oriented research in Europe, the Fraunhofer Institute for Intelligent Analysis and Information Systems IAIS, based in Sankt Augustin near Bonn, is one of the leading scientific institutes in the field of artificial intelligence, machine learning and Big Data in Germany and Europe. With more than 350 employees, the institute supports companies in the optimization of products, services, structures and processes as well as in the development of new digital business models. Fraunhofer IAIS is thus shaping the digital transformation of our working and living environment.

**Contact us and make an appointment for an initial consultation with our experts.**

**Sandra Halscheidt**
Mobil +49 170 217 98 04
sandra.halscheidt@iais.fraunhofer.de

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