XSIGHT

DIC SYSTEMS

DIC OPTICAL MEASURING SYSTEMS

XSIGHT

DIGITAL IMAGE CORRELATION

Key Features

- 3D and planar real-time contactless deformation measurements
- Easy set-up and quick system adjustment
- Assisted calibration procedure and large object calibration
- SW optimized for low latency and processing at high FPS
- Multiple stereo camera support for extended Field of View
- Wide scope of measurement probes
- Real-time value averaging and input/output to a multitude of connected devices or 3rd party applications:
  - Inputs transmitting data from testing machine sensors or other devices
  - Output D/A converters and other generic binary or digital outputs
- Custom script editor to make custom real-time computations and enhancements
- SW can be controlled via API commands and queries
- Time to Measured Value charts
- Post-process features:
  - Data playback and real-time tools
  - Computation of recorded data
  - Computed data browsing and evaluation
  - Rendering of color maps showing deformation
  - 3D VTK Export (generic export useful for any further data processing and import into CAE (CAD/FEM/CFD) systems
- The measurement set-up is compliant with ASTM E83 / ISO 9513 standard practice for verification and classification of extensometer systems.
- DIC analysis is applicable to natural as well as speckle patterns.

XSIGHT

MEASURING TOOLS

Extreme Line

Advanced probe for axial neck detection, provides an improved E-modulus reading.

ROD Line

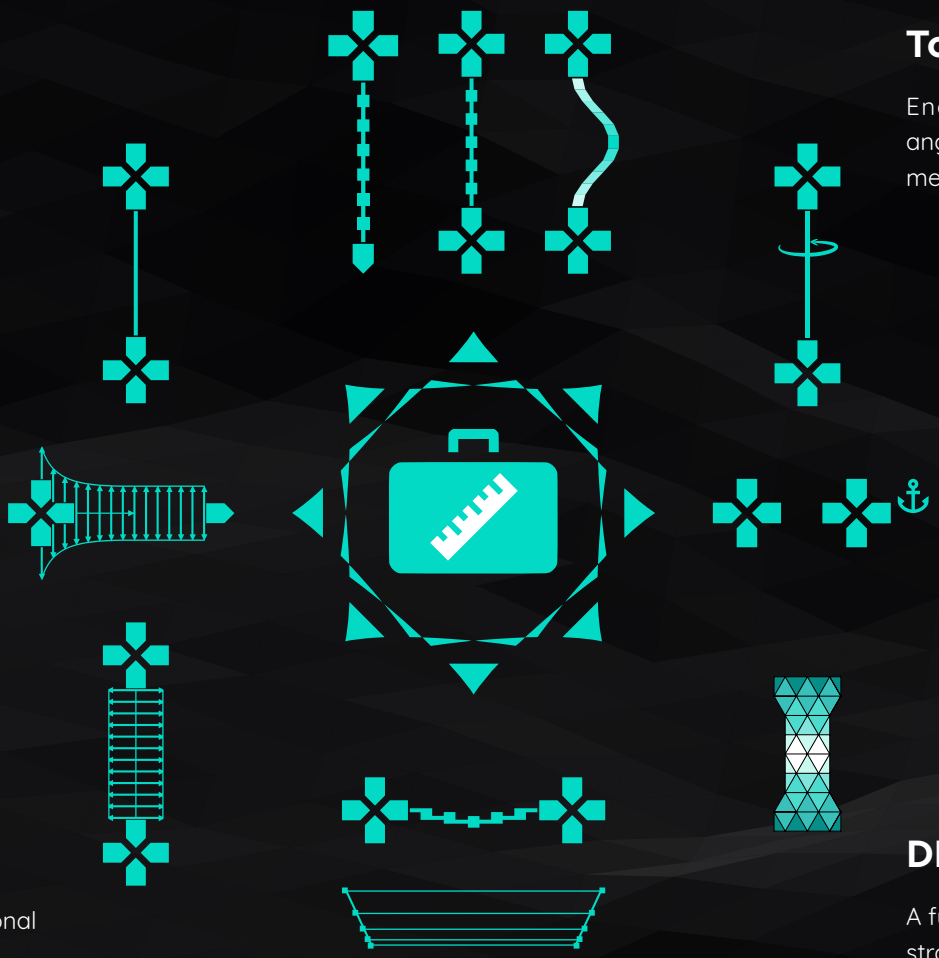
Advanced line measurement probe with axial neck detection feature for samples with oxide or rust layer.

Line Value Distribution

Provides a colorful visualization of different value types when using probes based on segmented lines.

Line

An elementary measuring probe for strain and length determination.



Torsion Line

Enables dual position angular twist and strain measurement.

Crack Probe

Measures a crack length during static or dynamic tests.

Point

A basic measuring probe for displacement determination.

Anchor Point

Allows to isolate displacements of other probes.

Trans Line

Used for multi-positional transversal measurement with averaged and max/min width functions.

DIC Area

A full-field probe for strain and displacement distribution mapping. Supports evenly triangulated mesh as well as mesh based on user-defined points.

Bend Line

A probe designed to be used during bending tests. Measures strain over a curved shape and enables the visualization of the strain distribution in real-time.

Bridge Tool

A series of consecutive rectangles placed on repeating patterns of measured objects of known dimensions. Allows measuring deflection and sway.

X-SIGHT 3D DIC SYSTEM

The X-Sight 3D DIC optical measuring system is versatile, complex, and easy to operate. X-Sight 3D is an adaptable system for sophisticated and varied stereoscopic strain analysis involving out-of-plane deformations and motion measurements. Its high accuracy and reliability guarantee robust data outputs for various applications, including high-speed imaging. The system can also be used as the most advanced customized optical extensometer.

With comprehensive post-processing analytic functionality, the system provides an effective way to validate FEM results, verify CAD models, and perform structural deformation analyses. X-Sight 3D can be equipped with a large variety of cameras, lenses, lights, and further optical accessories.

X-SIGHT 3D

TECHNICAL SPECIFICATIONS

3D System Model	Resolution [MPX]	Frame rate @ full res [Hz]	Interface	Measurement length [mm]		
				Class 0.5 *	Class 1 *	Class 2 *
X-SIGHT 3D-M5	2 × 5.0	75	USB 3.0	130 × 110	260 × 220	520 × 440
X-SIGHT 3D-M16	2 × 16.1	23		330 × 180	660 × 360	1320 × 750
X-SIGHT 3D-M24	2 × 24.5	15		330 × 285	660 × 570	1320 × 1140

* compliant to ISO 9513

- In-Plane subpixel resolution: < 0.008%
- Out-of-Plane subpixel resolution: 0.016%
- Strain resolution 50 microstrains
  - 10 microstrains with time averaging
  - 5 microstrain in optical extensometer mode
- Strain range from 0.005% to > 2000%
- Measuring area (specimen size) range from 1 mm to 100 m
  - < 10 mm specimen must be measured with a special microscope
  - > 10 m specimen can only be calibrated using the LOCF (Large Object Calibration Function)
- DIC of natural patterns, speckle patterns, image features and markers

SYSTEM COMPONENTS

- 2 × low-noise camera
- calibration grids & speckle kit
- camera mount
- standard lenses of chosen focal length
- battery LED lighting
- transport box, cables and power sources
- converter – 4-channel A/D, 2-channel D/A
- USB license dongle with installation SW
- installation assistance and training
- 24 hrs of engineering support over 12 months

X-SIGHT

X-SIGHT 2D DIC SYSTEM

The X-Sight 2D DIC system is a straightforward single- or multi-camera measuring device suitable for experimental validation of your designs, calculations, and numerical simulations. It is ideal for assessing various mechanical characteristics of your machines, assemblies, and structures.

Equipped with advanced digital image correlation software, X-Sight 2D DIC provides precise and accurate real-time strain and deformation measurement and delivers results with nanometric resolution. Software postprocessing allows for comfortable browsing and reassessment of stored data from previous measurements.

The system can also be used as the most advanced customized optical extensometer and can be easily upgraded to X-Sight 3D DIC.

X-SIGHT 2D

TECHNICAL SPECIFICATIONS

2D System Model	Resolution [MPX]	Frame rate @ full res [Hz]	Interface	Measurement length [mm]		
				Class 0.5 *	Class 1 *	Class 2 *
X-SIGHT 2D-M5	5.0	75	USB 3.0	130 × 110	260 × 220	520 × 440
X-SIGHT 2D-M16	16.1	23		330 × 180	660 × 360	1320 × 750
X-SIGHT 2D-M24	24.5	15		330 × 285	660 × 570	1320 × 1140

* compliant to ISO 9513

- In-Plane subpixel resolution: < 0.008%
- Out-of-Plane movement reduced by special lens type (optional)
- Strain resolution 50 microstrains
  - 10 microstrains with time averaging
  - 5 microstrain in optical extensometer mode
- Strain range from 0.005% to > 2000%
- Measuring area (specimen size) range from 1 mm to 100 m
  - < 5 mm specimen must be measured with a special microscope
  - > 10 m specimen can only be calibrated using the LOCF (Large Object Calibration Function)
- DIC of natural patterns, speckle patterns, image features and markers

SYSTEM COMPONENTS

- 2 × low-noise camera
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2D ➡ 3D DIC UPGRADE

- Additional camera & stereobar mount
- 3D DIC software module

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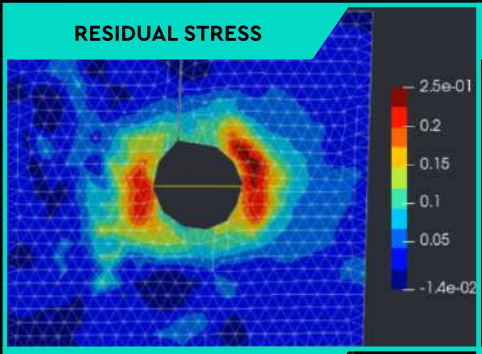
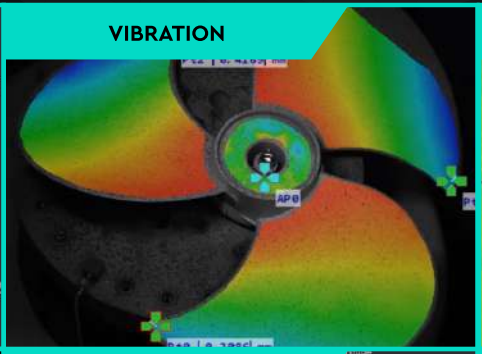
APPLICATIONS

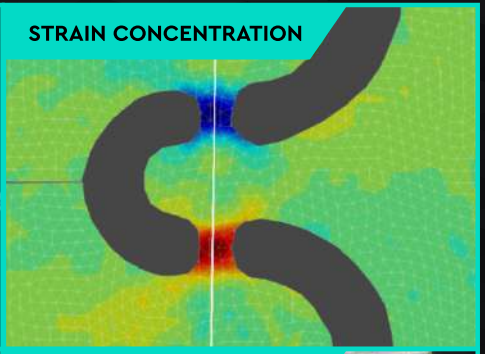
RESIDUAL STRESS



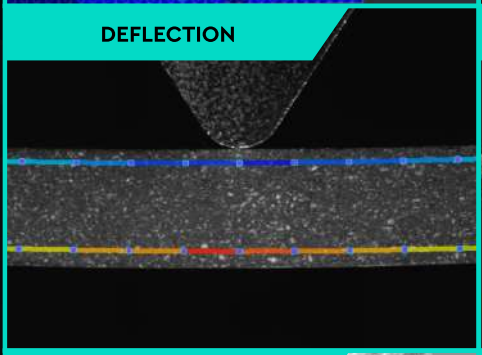
VIBRATION



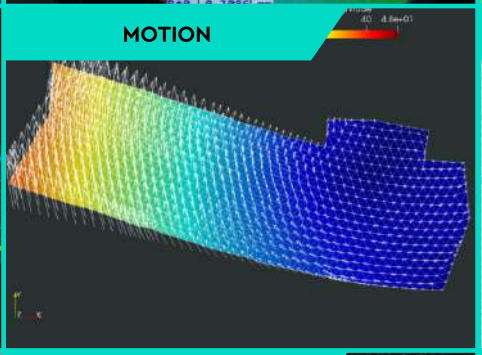
STRAIN CONCENTRATION



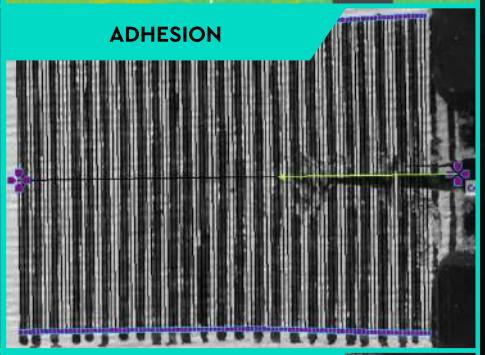
DEFLECTION



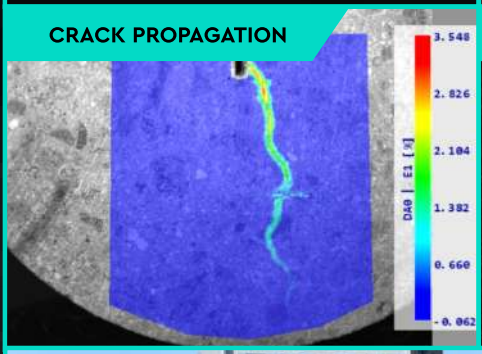
MOTION



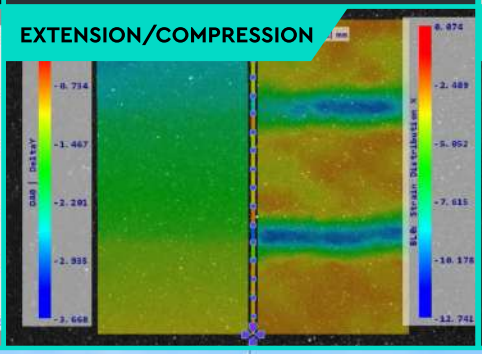
ADHESION



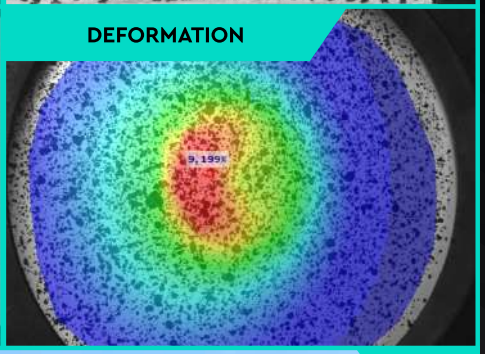
CRACK PROPAGATION

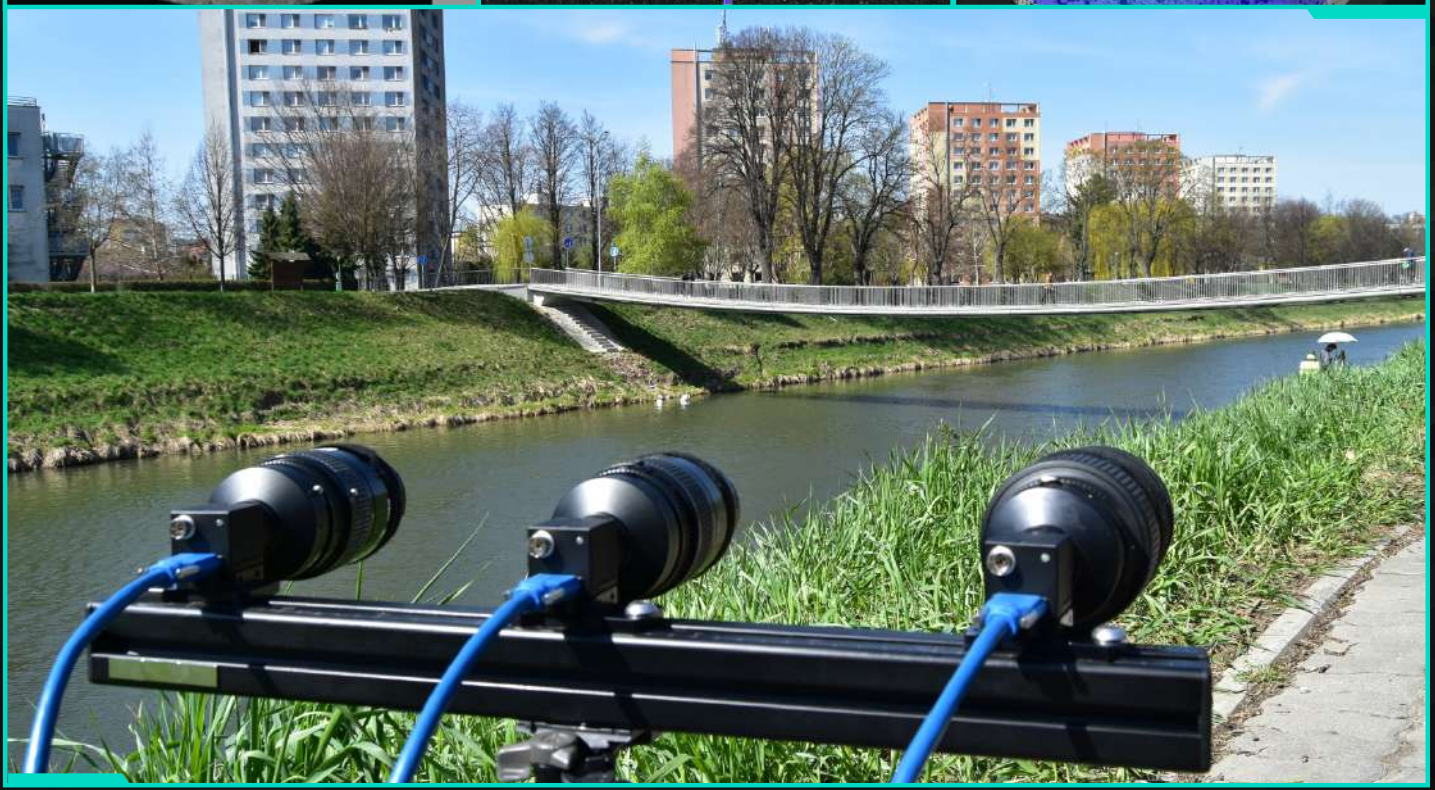


EXTENSION/COMPRESSION



DEFORMATION





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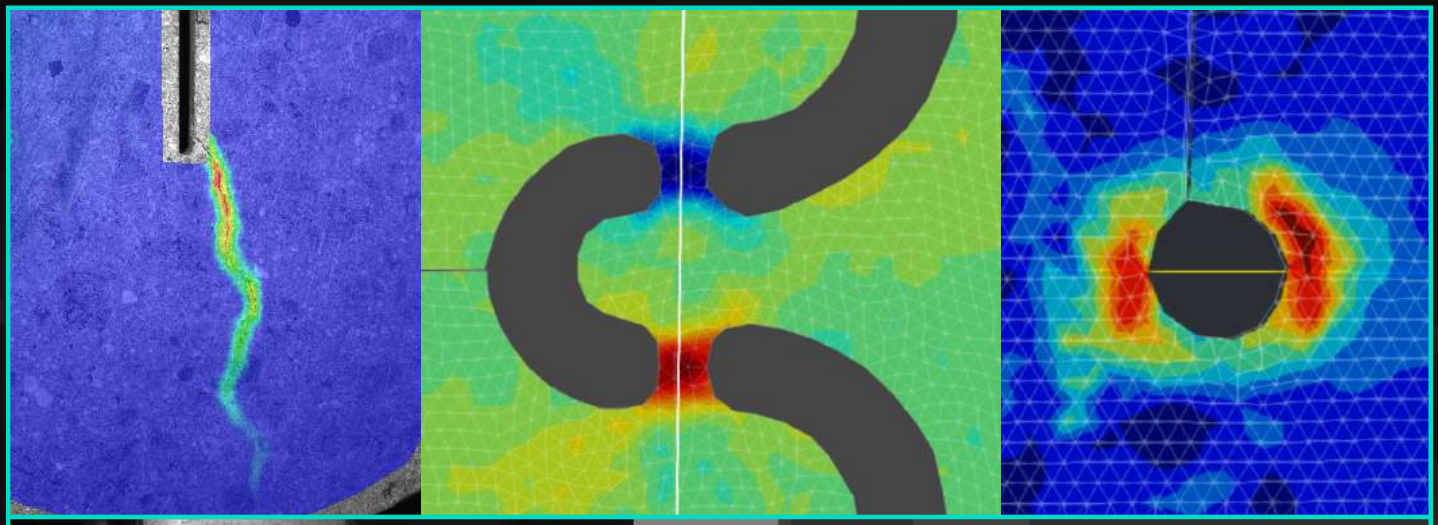
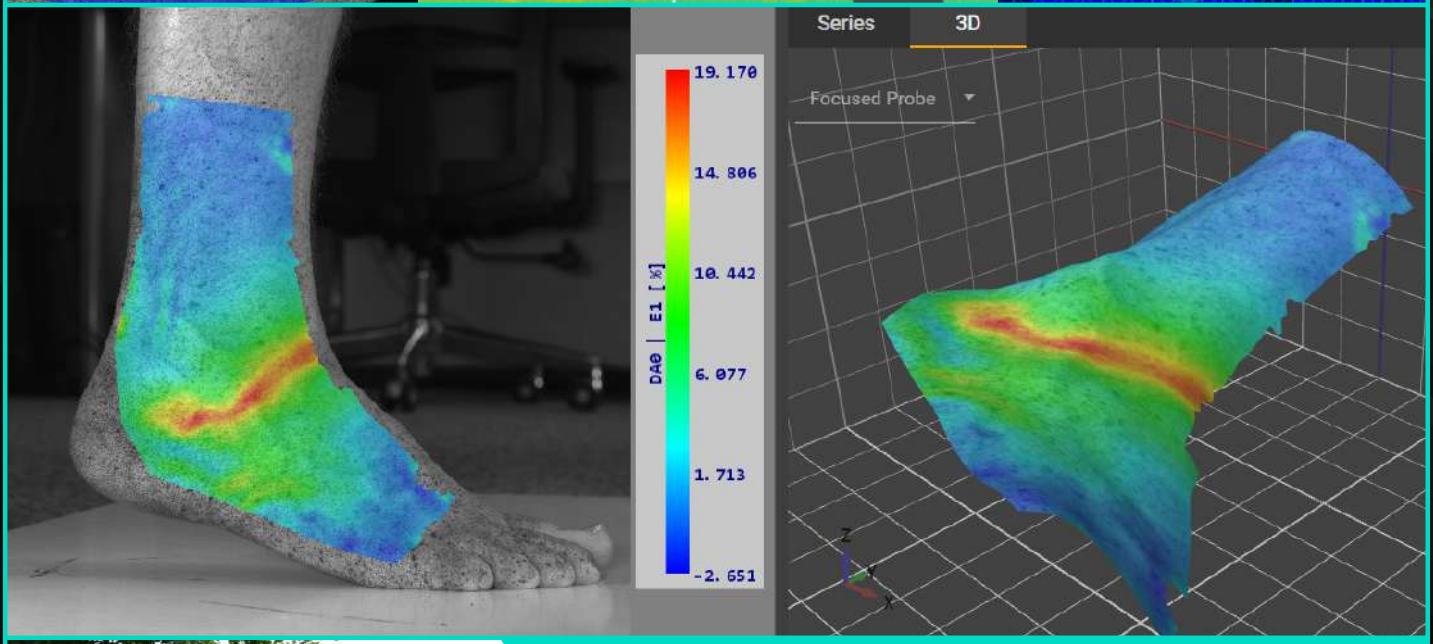
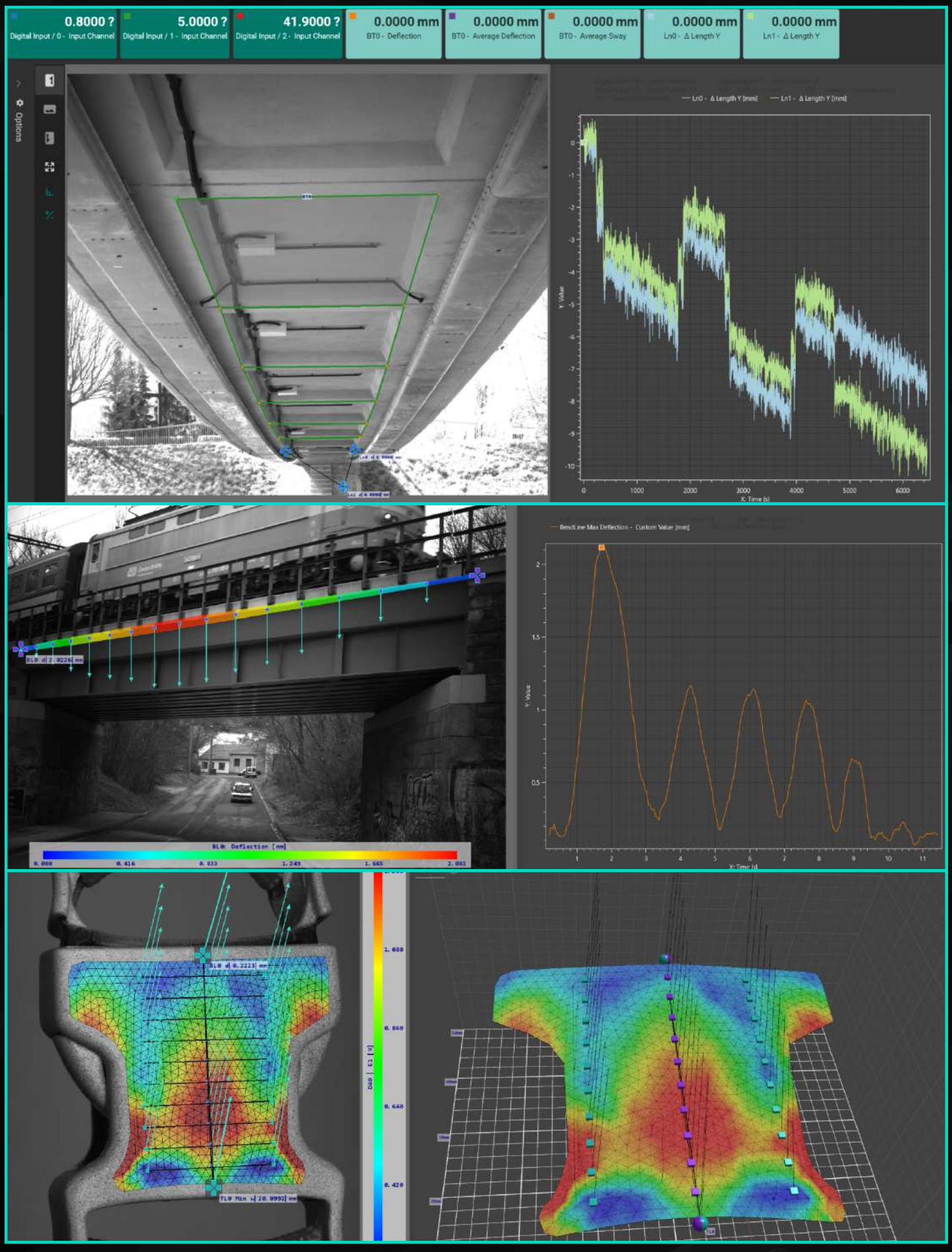
APPLICATIONS





TREE SAFETY

XSIGHT SOFTWARE



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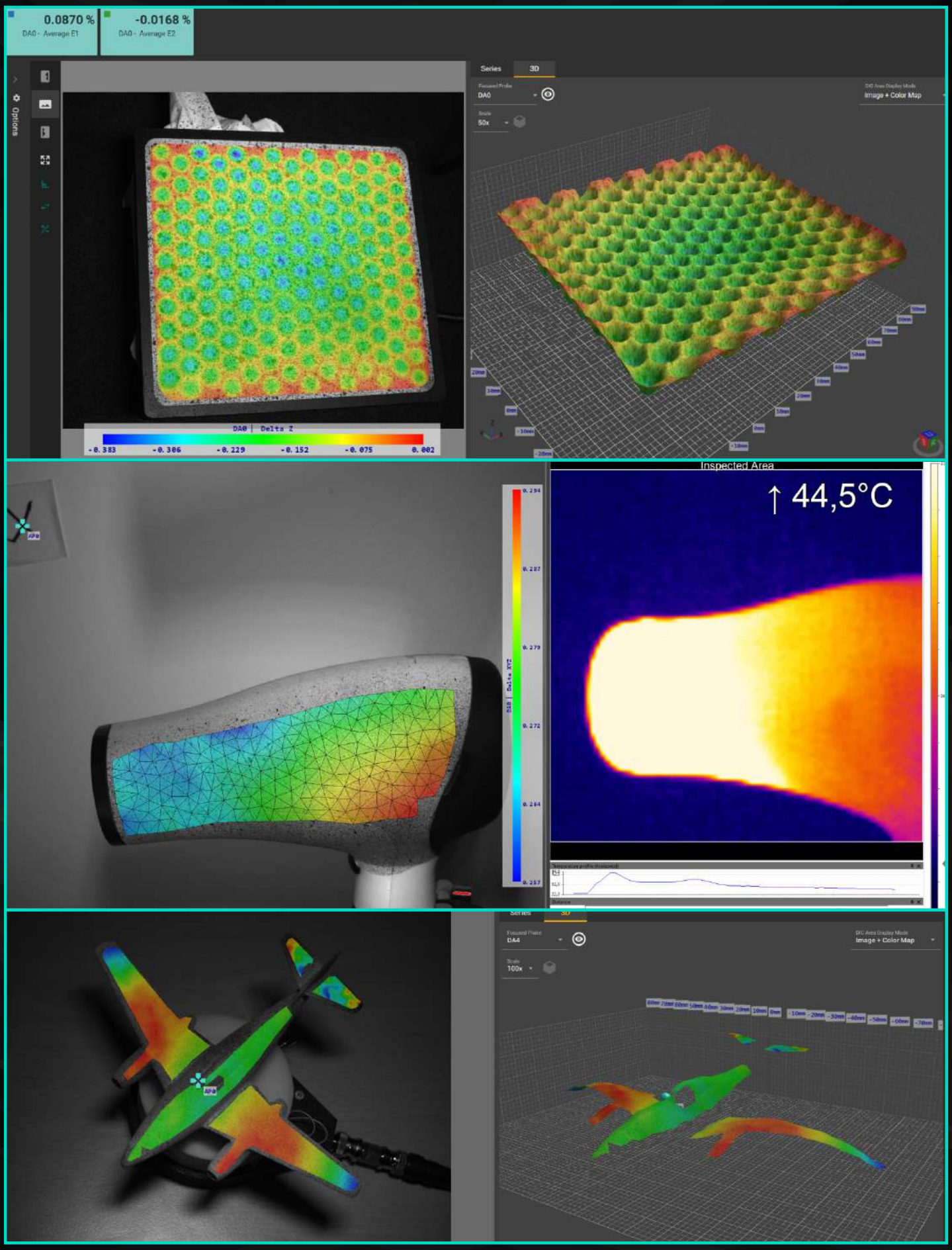

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www.xsight.eu

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