

FRAUNHOFER IGD: THE INTERNATIONAL LEADING
INSTITUTE FOR APPLIED RESEARCH IN VISUAL COMPUTING

CONTACT

Pedro Santos

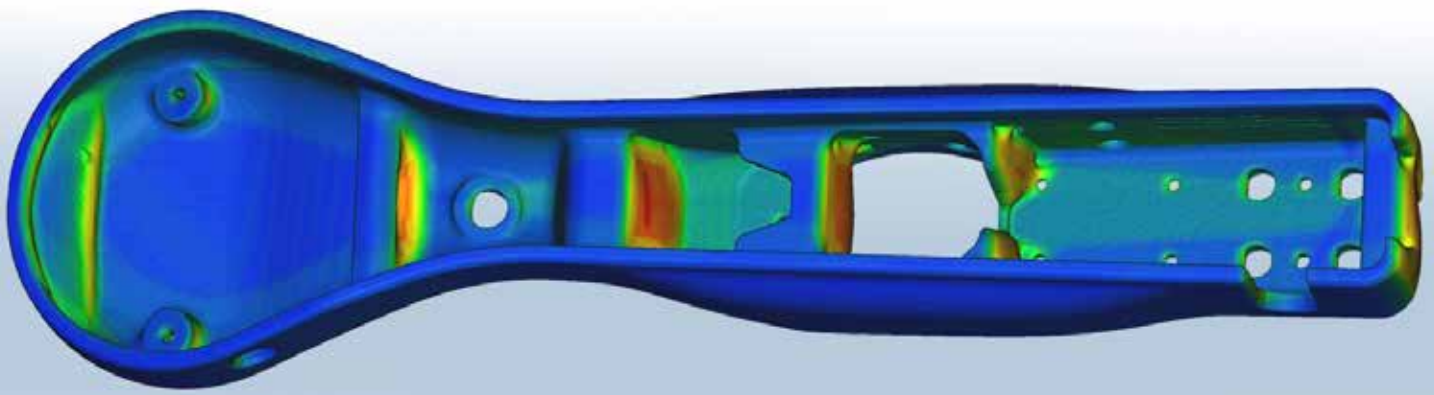
Head of Competence Center Cultural Heritage Digitization
Phone +49 6151 155-472
pedro.santos@igd.fraunhofer.de



<https://fh-igd.de/CHD>

CultArm3D





Short Description

CultArm3D is an autonomous laser scanner that rapidly captures the shape of objects in three dimensions – even when encountering them for the first time. In contrast to traditional technologies, the scanner decides for itself how to view a particular item. Based on an initial scan, sophisticated algorithms determine what further scans are required. This enables CultArm3D to collect information on an unknown object quickly, with just a few scans – and without human intervention, prior training or an CAD model. This degree of independence is unique, making the system ideal for deployment in manufacturing for mass customization.

Scanning is in real time, and can be performed at a variety of speeds and resolutions.

Applications

The CultArm3D captures objects up to 20cm (adjustable) in 3D and color for industrial reconstruction purposes and quality assessment.

Specialty

- Fast geometry acquisition mode >150Hz for fast scanning
- Precise geometry acquisition to capture details for quality assessment
- Reduced scanning time and automated process flow
- High robustness against shiny materials and interfering ambient light
- Immediate visual feedback and 3D postprocessing of the model
- Mobility and quick setup through self-calibration

Technical Properties

Type

Coarse and fast 3D geometry

Targeted precise geometry and color imaging

Set-Up

1 mono camera for geometry

1 camera for color imaging

1 line laser module

Measurement Volume

20 cm x 20 cm x 20 cm [length x width x height] (adjustable)

Resolution

400 µm depth in coarse scanning mode

50 µm depth in precise scanning mode

30 µm lateral resolution