



EPIC ONLINE TECHNOLOGY MEETING

Surface Structuring

2D & 3D vision-based surface scanning and metrology

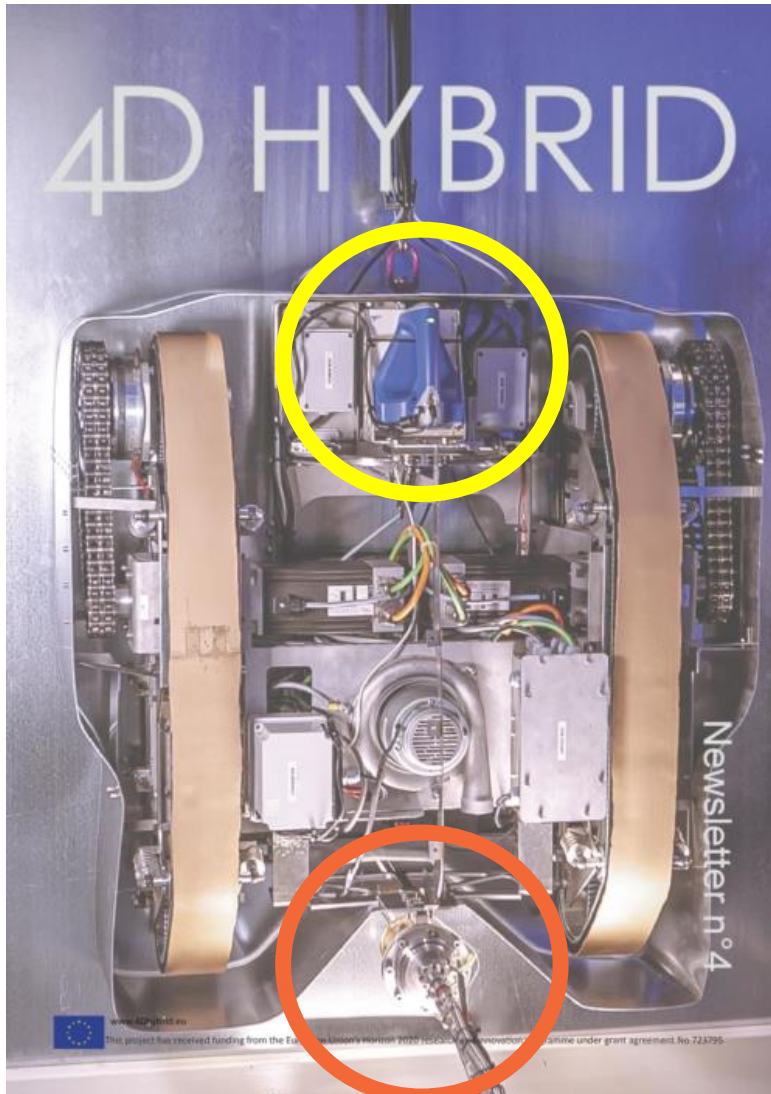
27 April 2020



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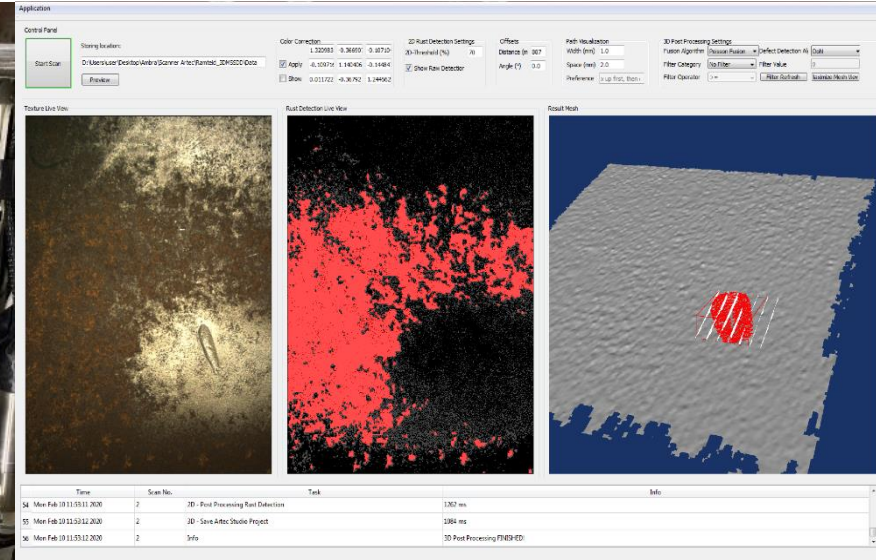
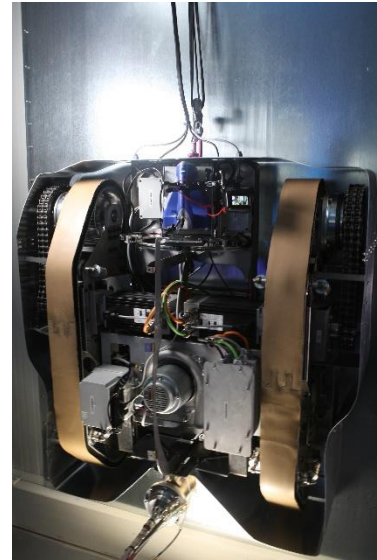
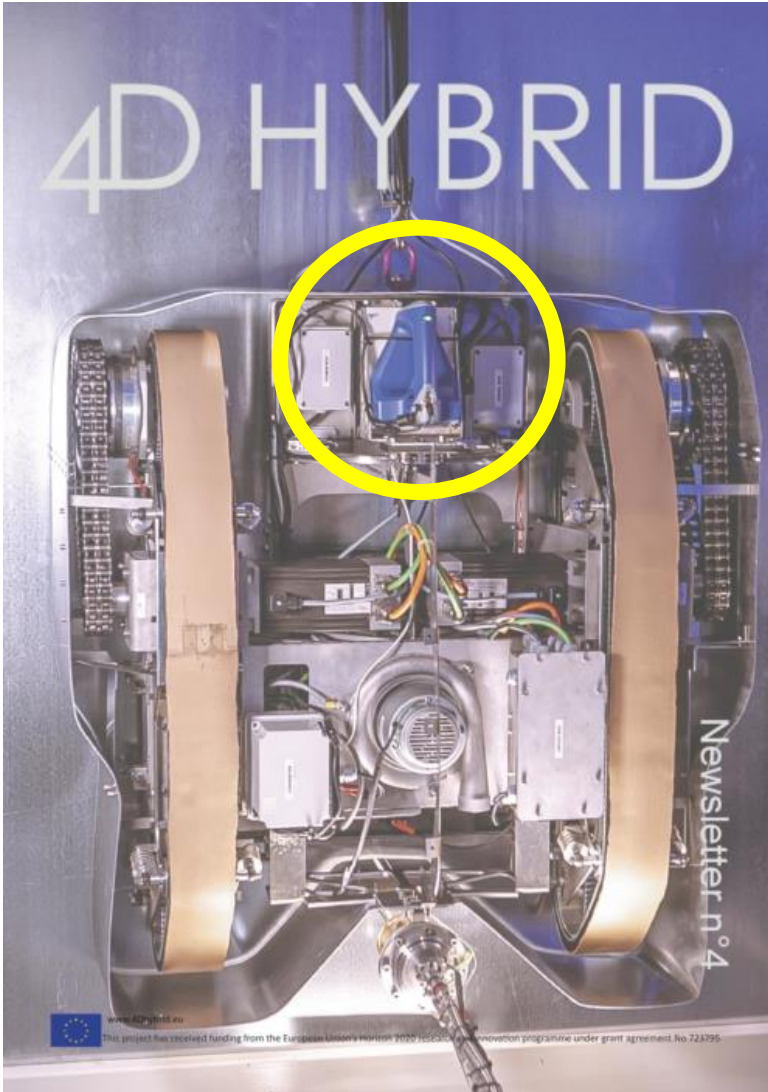
EU H2020 project **4D Hybrid** (finished 12/2019)

Mobile robot platform for vertical inspection of large flat surfaces (e.g. ship hulls) in harsh environments

Corrosion (2D/colour) and Deformation (3D) defect detection based on commercial **3D Scanner**

Path planning for repair operations performed with on-board custom developed **Cold Spray Gun**

Additive and subtractive surface treatment

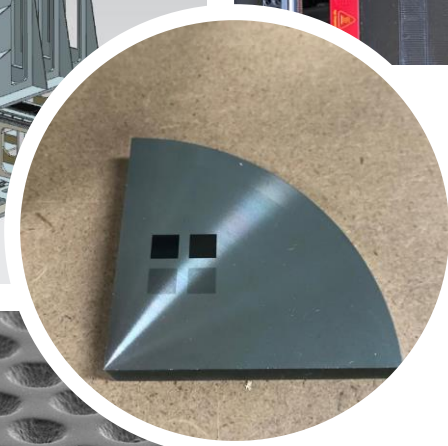
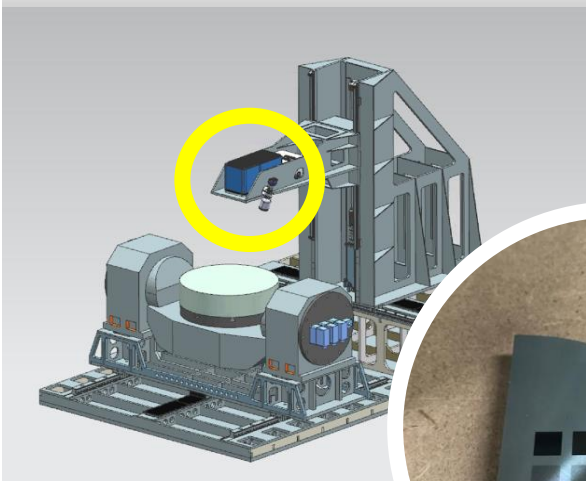
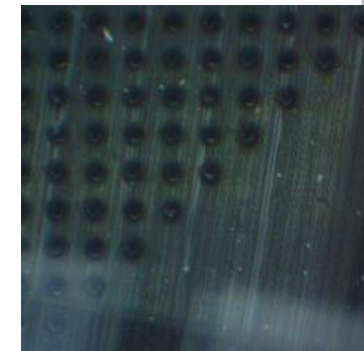
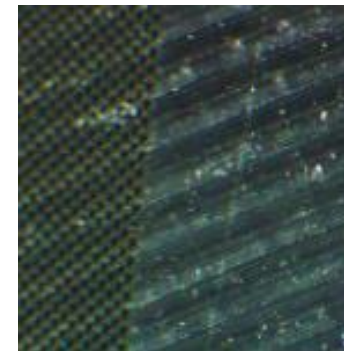
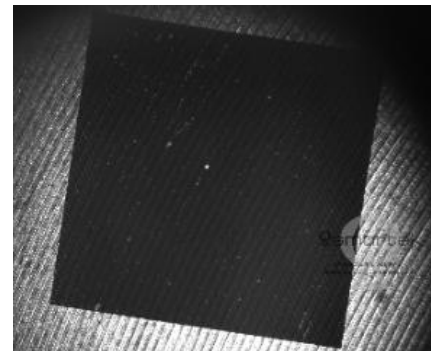
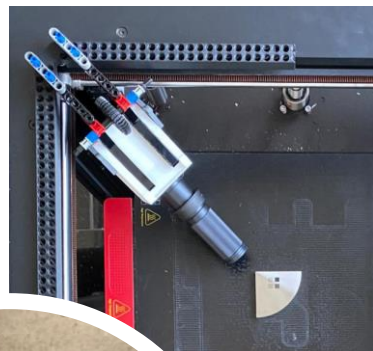


2D & 3D Surface Defect Detection

Field of View: 100 x 100 x 50 mm³
 Precision: up to 50 μm
 Resolution: up to 100 μm
 3D Defects: better than 0.5 mm



FEMTO SURF



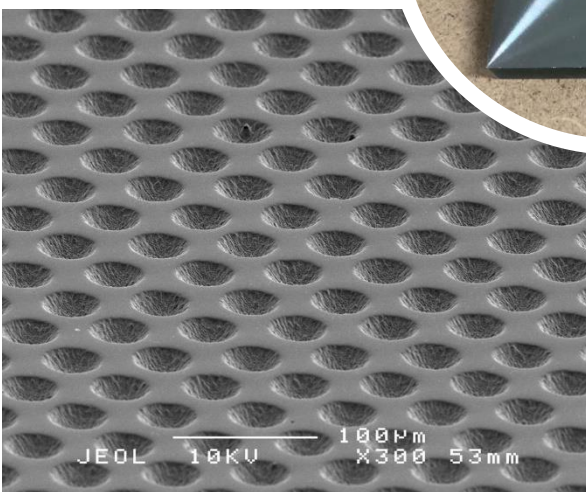
EU H2020 project **Femt surf** (running)

Multi camera set-up: 4x-6x 12 MP monochrome
10 GBit/s GigEVision

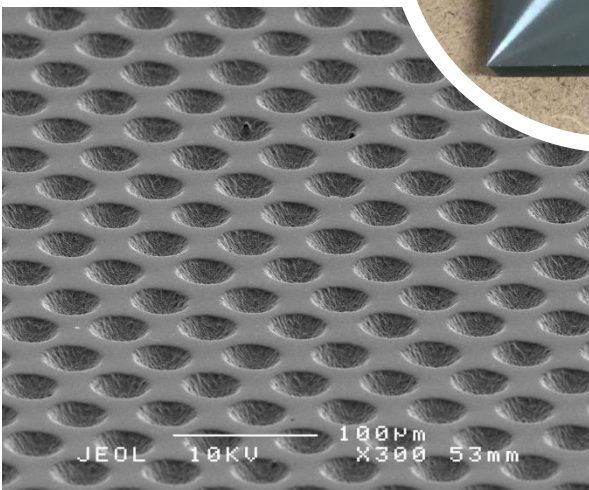
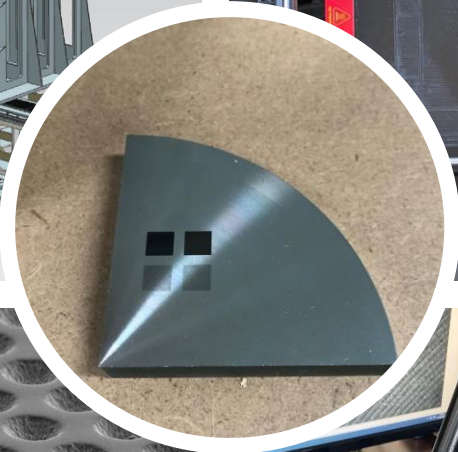
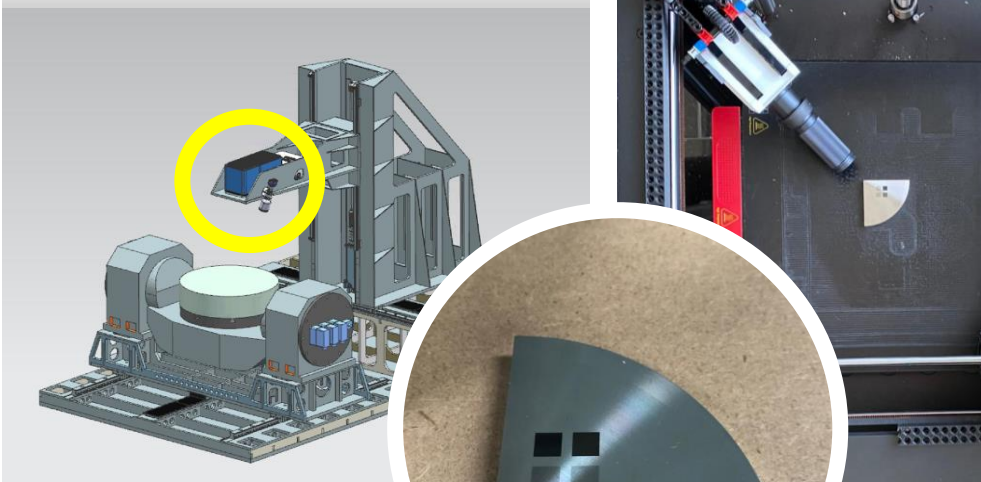
Dynamic calibration of camera pairs for stereography

Single-shot point-cloud generation and fusion

Color surface images through RGB illumination

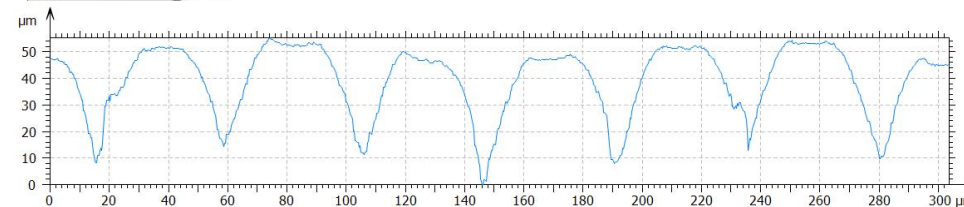
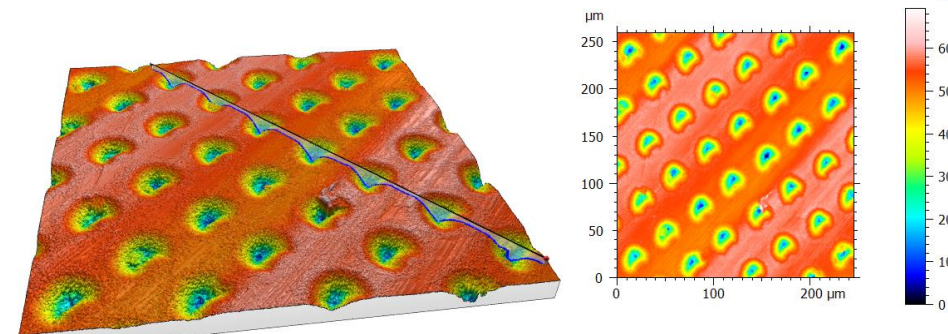
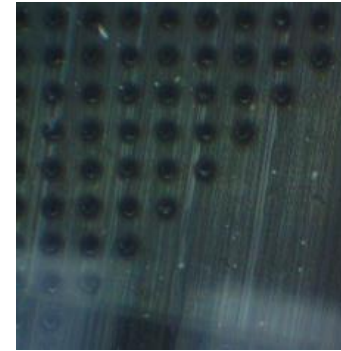


FEMTO SURF



3D Topology Meso-Scale Scanning

Cameras: 4-6 monochrome high-speed + high-res.
Field of View: 10 x 10 x (1-2) mm³
Precision: up to 3-4 µm
Resolution: up to 10 µm





whiteR

White room based on Reconfigurable robotic Island for optoelectronics.



FP7 (GA No. 609228)
www.whiterproject.eu
September 2013 – August 2016

BOREALIS

The 3A energy class Flexible Machine for the new Additive and Subtractive Manufacturing on next generation of complex 3D metal parts.



H2020 (GA No. 636992)
January 2015 – Dezember 2017

Symbionica

Reconfigurable Machine for the new Additive and Subtractive Manufacturing of next generation fully personalized bionics and smart prosthetics.



H2020 (GA No. 678144)
www.symbionicaproject.eu
Oktober 2015 – September 2018

4D HYBRID

Novel ALL-IN-ONE machines, robots and systems for affordable, worldwide and lifetime Distributed 3D hybrid manufacturing and repair operations.



H2020 (GA No. 723795)
www.4dhybrid.eu
January 2017 – December 2019

FEMTO SURF

Surface treatments using ultra-short pulse femtosecond laser.



H2020 (GA No. 825512)
www.femtosurf.eu
January 2019 – December 2021

MAIA

Mutualistic Human-Artificial Intelligence Symbiosis for Advancing (De-)Manufacturing in Europe.



H2020
Application for new project

Your vision-based metrology experts for novel projects



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4D HYBRID

Novel All-In-One robots for 3D hybrid manufacturing and repair operations



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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 723795





FEMTO SURF

Surface treatments using ultra-short pulse femtosecond laser



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