REVERSE ENGINEERING LABORATORY

Computer Vision and Reverse Engineering

The Computer Vision and Reverse Engineering laboratory is specialized in the Reverse Engineering pipeline for study, research and industrial applications: 3D devices calibration and characterization, 3D acquisition and processing, redrawing of CAD models based on 3D data. The 3D capturing equipment permits to acquire industrial components, structures, Cultural Heritage objects with a wide range of geometries, sizes and materials.

INSTRUMENTS & FACILITIES

3D SCANNERS

- Konica Minolta Vivid 9i
- GOM Atos
- NextEngine Ultra HD
- Artec Leo
- EviXscan 3D Heavy Duty Quadro 3D
- Structure Sensor

COORDINATE MEASURING SYSTEM

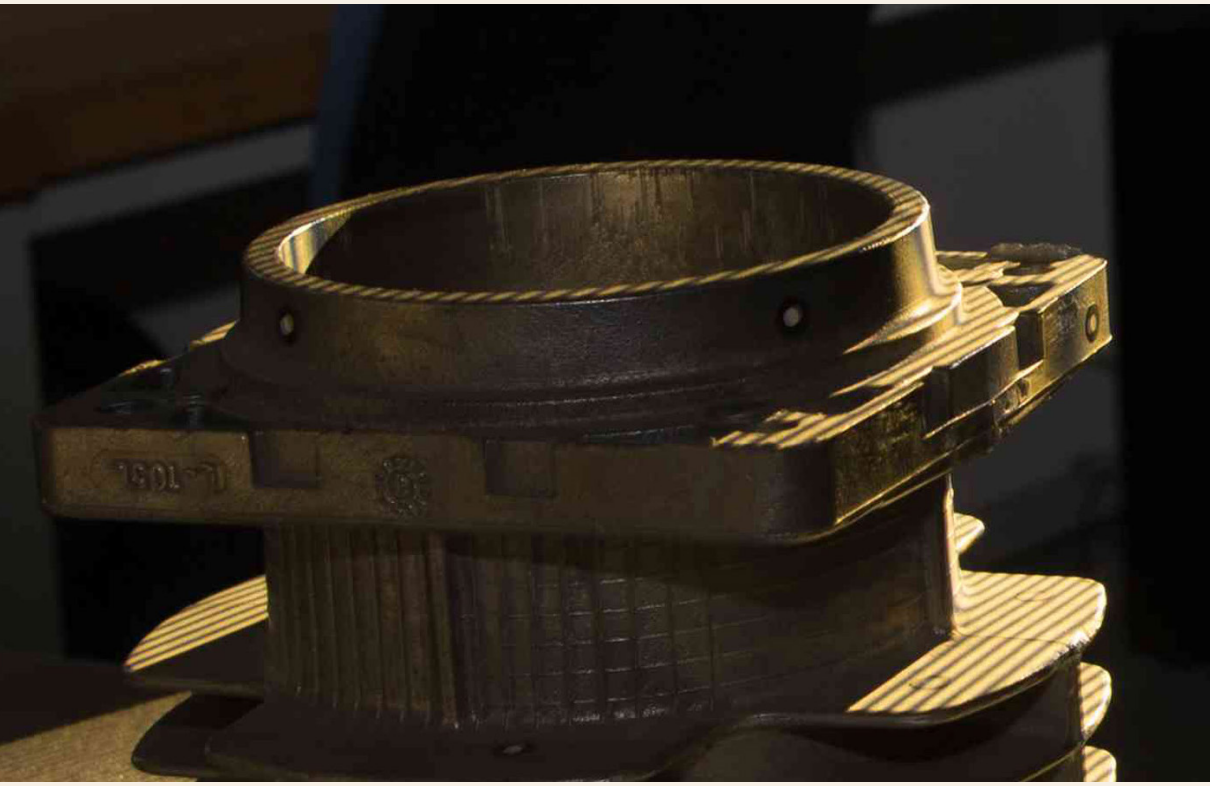
- Microscribe MX digitizer system

PROFESSIONAL CAMERAS

- Sony
- Canon

ACTIVITIES

CAMERA CALIBRATION FOR PHOTOGRAMMETRY AND 3D VISION	Radial distortions assessment
	Tangential distortion assessment
	Affine distortion assessment
3D ACQUISITION AND MODELLING BASED ON	Traditional photogrammetry with sparse clouds.
	SFM/Image matching with dense clouds/meshes
	Triangulation based laser scanning and dense mesh generation
	TOF/PS laser scanning and dense mesh generation
	CAD drawing on 3D data gathered manually or automatically
3D MODELS OPTIMIZATION FOR VIRTUAL NAVIGATION	Mesh optimization
	Texturing/Displacement mapping
	3D segmentation
ACTIVE 3D RANGE SENSORS CHARACTERIZATION (TRIANGULATION AND TOF/PS) ACCORDING TO COMMITTEE E57 DRAFT ASTM	Global uncertainty assessment
	Precision assessment
	Accuracy assessment



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