

Analysis of Deformable Shapes for Industrial 3D Quality Inspection

shapeQuality^{3D}

Software Competence

Center Hagenberg (SCCH, Austria)



Project Details

Project coordinator	SCCH
Other applicants	Research Center for Non-Destructive Testing (Recendt; Austria)
Sector	Non-destructive quality inspection
Call of Interest	EraSME
Proposal summary:	While for rigid registration it suffices to reason about the quality by evaluating local deviations, for non-rigid registration also the resulting transformation parameter has to be taken into account. This project aims at adopting and developing methods that allow the description, interpretation and quantification of also structural defective deviations in volumetric deformable structures.
Advantages for SMEs, trade or industry:	This research will enable higher standards in quality control also for non-rigid structures as e.g. encountered in material science, production, and medical applications. Examples: analysis of microstructures in material science; analysis of thermal effects of injection moulding; quality inspection of ceramic teeth;
Profile of partners sought:	Manufacturer of 3D inspection systems (OCT, X-ray, laser-based); Developer of software framework for 3D inspection.

What technology and/or application field is addressed?

- Non-rigid registration (3D point-clouds; CAD models)
- Artificial Intelligence and Machine Learning (reasoning about quality)
- Range imaging systems (Laser based, OCT, variable focus etc)

What are the major objectives and outcomes of the project?

- Quality reasoning software library for 3D inspection systems
 - that allows model-based fitting of non-rigid volumetric data
 - that allows description, interpretation and quantification of the fitting

Who are the actors of the project?

- Mathematicians (registration), Artificial Intelligence Researcher (quality description / interpretation), domain experts of range imaging systems (3D data)

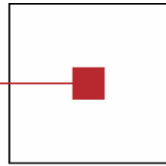
What is the benefit for participating SMEs/Associations?

- Getting access to powerful tools for quality inspection
for tough problems, enabling potentially new market niches

What are the estimated costs and duration of the project?

- Estimated costs: 600,000 €
- Project duration: 2 years

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