

V-POI

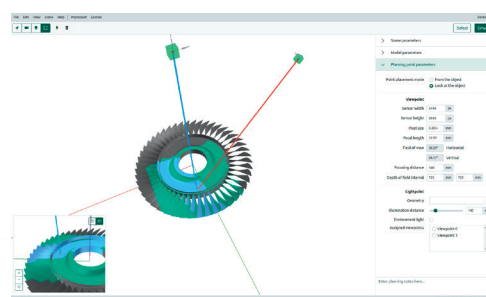
Assess Visual Inspection Feasibility Before Committing to a Large Investment

Plan your next visual inspection system as an adaptive inline production line component. Visual inspection planning can be performed virtually, providing you with a possibility to configure the image acquisition, model surface defects, simulate photorealistic inspection images and generate fully annotated training datasets.

Automated quality inspection is a desirable component of every modern production line. However, its development is a challenging task. Requirements such as, freeform surfaces, highly reflective materials and customizable production lines pressure manufacturers to invest into rigid, highly specialized inspection systems which are almost impossible to adapt to a new product or defect variation.

By introducing an interactive inspection planning environment, V-POI helps inspection experts to design more reliable inspection

systems faster and streamline the adaptation of an existing inspection system configuration.



Above: V-POI uses a 3D model to simulate multilayered texture and defects on it, which are further used to generate an automatically annotated dataset.

Below: V-POI inspection planning editor for a blisk object with two viewpoints (camera positions)



Plan

- Use inspection planning editor to place camera and illumination devices into the scene, choose appropriate device parameters and obtain geometrical coverage information.
- Load a pre-existing inspection configuration and adapt as necessary.
- Export the inspection plan and use the planned positions to construct a physical system or guide a manipulator to those positions.

Simulation results for three objects: blisk, gear and clutch, with modeled defects (scratches and dents)

Simulate

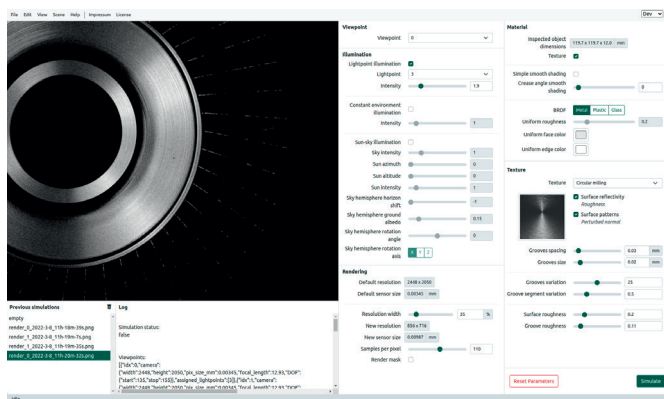
- Model the surface defects and their parameter variation.
- Embed defects into the object geometry.
- Model the surface texture pattern
- Obtain photorealistic simulation of the inspection image.
- Use the simulated images to determine defect visibility and evaluate acquisition quality

Train

- Automatically generate pixel precision annotated synthetic training datasets.
- Train the system to perform under edge-case scenarios.
- Stress-test the inspection system to establish its quality and robustness.

Development of automated visual inspection systems of today is reaching its limits. With V-POI and virtual inspection planning, it is possible to overcome limitations, reliably develop adaptive inspection systems which can meet the requirements of Industry 4.0 and pave the way towards Inspection 4.0.

Contact us to discuss how it can fit your workflow and explore partnership options.



V-POI simulation editor showing the simulation of the blisk object when imaged from above using ring light illumination (see highlighted viewpoint on the previous page).

Contact

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