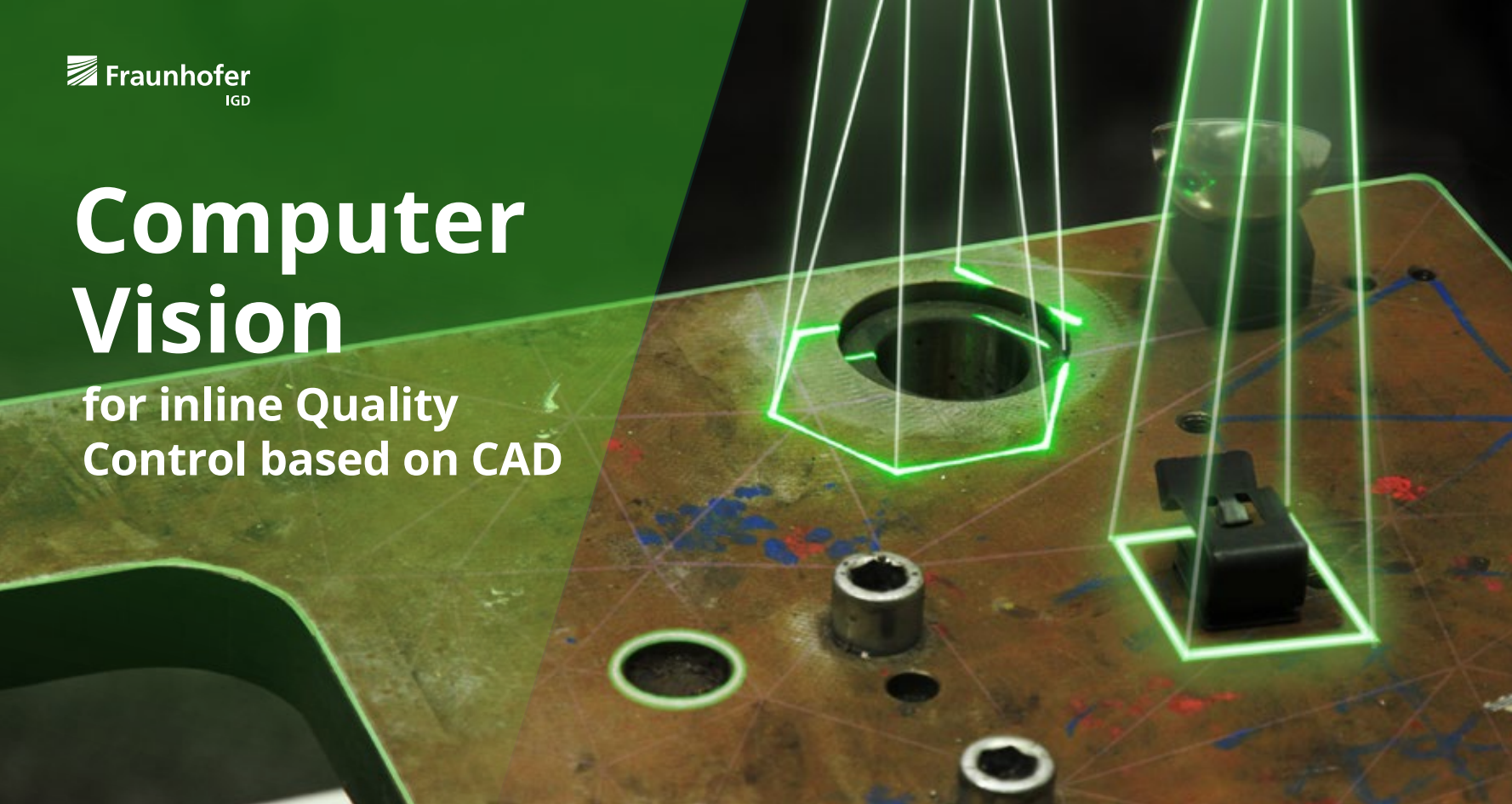


Computer Vision

for inline Quality
Control based on CAD



Computer Vision for inline Quality Control based on CAD

Computer vision based quality control has become a powerful and productive method in particular for complex inline production processes. Thereby, often problems have to be solved as "Is part "X" exactly placed as specified in the CAD?" or "Are all components of an assembled structure considered or are some elements missing?". To assure correct and complete assembly, camera arrays are installed around a production line capturing the assembly state of the products, with the aim to identify differences to the required target state.

Current systems often use machine learning techniques where exemplary IO/NIO-images are labeled and trained in order to establish reliable classifiers. However, this approach requires a lot of efforts for labeling and is very inflexible, as the complete process has to be repeated if any change in product design or a different product variant occurs.

To overcome this drawback Fraunhofer IGD is developing flexible quality control systems, which are ready for use with the very first product being assembled and that can be adapted to different product configurations and production processes.

The developed method uses a CAD-model-based optical tracking technique that aligns the captured real parts to its virtual counterparts in real time. Thus, high accurate tracking in multi camera arrays offers a broad application spectrum for inline quality control. The technology is deployed and approved in automotive industry but it can be extended to heterogeneous inspection tasks in various manufacturing industries.

Contact:
Dr. Ulrich Bockholt | Fraunhofer IGD
Fraunhoferstr. 5 | 64283 Darmstadt |
-Germany-

Phone and E-mail:
+49 6151 155 277
ulrich.bockholt@igd.fraunhofer.de

