

# FlexInspect

## FAST AND PRECISE IMAGE RECTIFICATION

### GENERAL

“FlexInspect” is an innovative method for fast and highly precise image registration. FlexInspect allows a quick and very accurate correction of geometric image distortions taking place in the optical quality inspection. Only then it is possible to perform detailed comparison against a “target template” in order to detect any undesirable production deviations.



Figure 1: master image

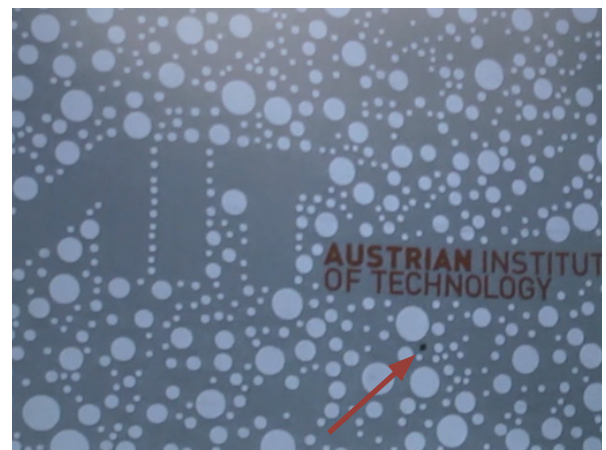


Figure 2: Inspected object, with local distortions and print failure (black spot under Technology)

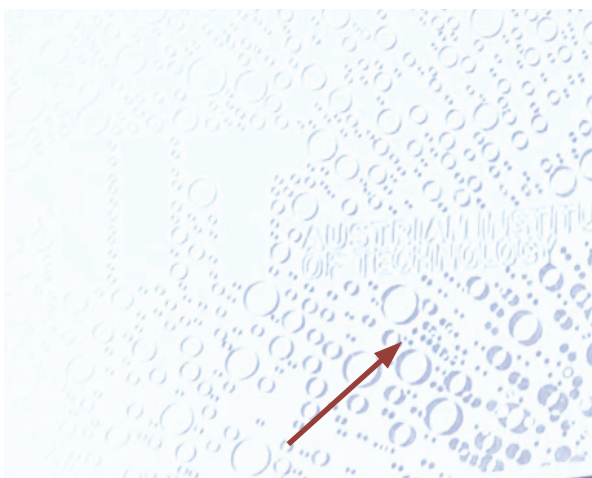


Figure 3: Distortions of the inspected object lead to false failure detections. Printing defect (black spot) can't be identified.



Figure 4: FlexInspect provides a distortion-free image alignment and thus ensures optimal inspection performance. Small printing defects can be detected.

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### FEATURES

- ▶ High accuracy: overcoming any (even non-linear) local image distortions
- ▶ High speed: suitable for real-time systems
- ▶ High robustness: local image distortions have no longer a global effect on the rectification
- ▶ Fully automatic: no user input required
- ▶ Lens distortion (caused by the camera lenses) are also corrected
- ▶ Suitable for parallel hardware architectures (DSP, GPGPU, multicore PC, ...)
- ▶ Method is covered by three patents

Extremely high speed is characteristic of modern industrial production systems. These machines produce a vast number of products at ever-increasing speed. It is no longer imaginable to perform a manual visual inspection of the quality for each individual product. A camera-assisted computer system must take over this task.

Experts in high-performance image processing from AIT Austrian Institute of Technology are dealing successfully for many years with solutions to these ever-increasing challenges. The focus on practical problems of industries enables them to develop leading-edge technologies for high-performance inspection systems that are success at both national as well as international level.

Constantly increasing production rates make a perfect distortion-free positioning of every inspected product in front of the camera difficult. But for automatic inspection of products such as paper or plastic films it is essential to rectify distortions (due to flutter effects and of the material itself) to avoid random artifacts and pseudo-defects.

“FlexInspect” is a key technology for reliable optical inspection at high speeds and high resolutions.

### CONTACT

AIT Austrian Institute of Technology  
Digital Safety & Security Department  
Donau-City-Straße 1, 1220 Wien | Austria

### DI DOROTHEA HEISS

Business Development  
Phone: +43(0) 50550 - 3162  
Fax: +43(0) 50550 - 2813  
E-mail: [dorothea.heiss@ait.ac.at](mailto:dorothea.heiss@ait.ac.at)  
Web: [www.ait.ac.at/hpv](http://www.ait.ac.at/hpv)