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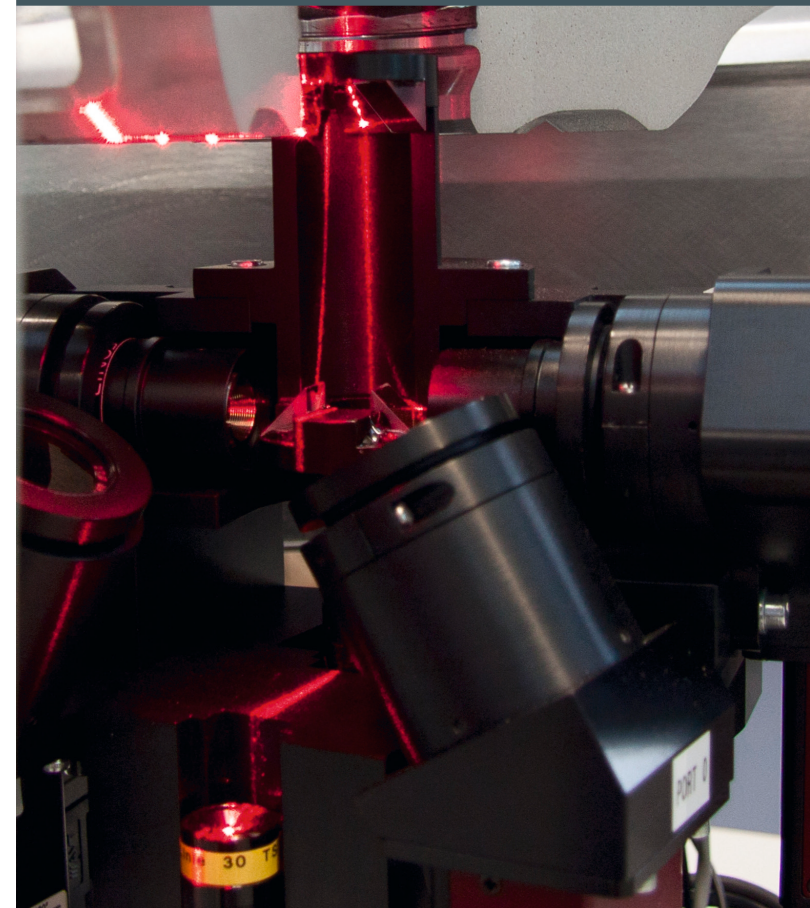
Project Management
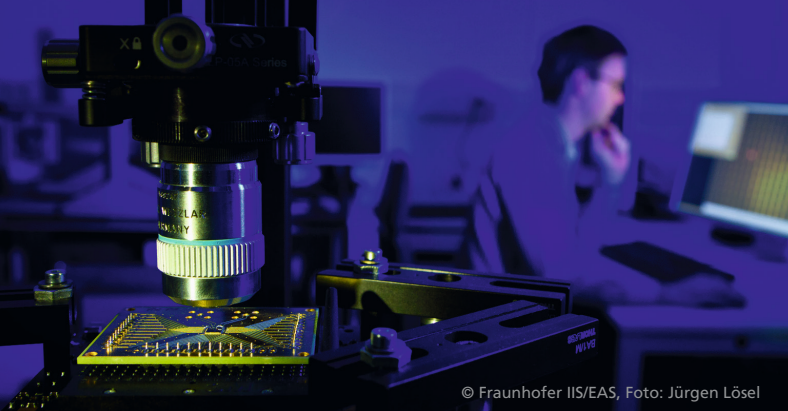Franziska Kowalewski
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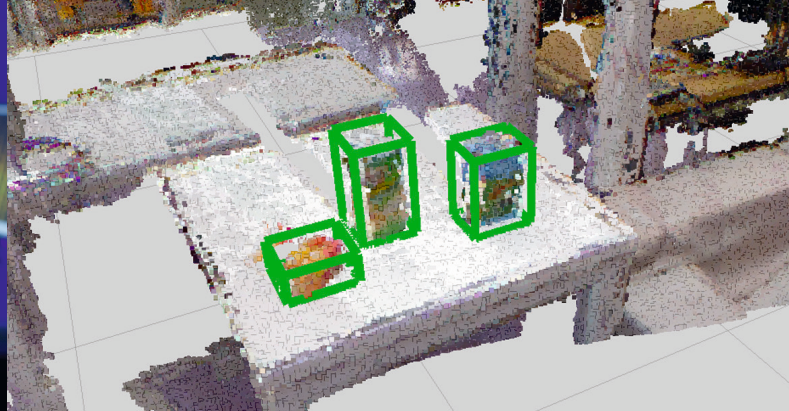Hansastrasse 27 c
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VISION 2014 | NOVEMBER 4–6, 2014
MESSE STUTTGART | HALL 1 | BOOTH G 42

VISION
BECOMES REALITY

VISION BECOMES REALITY

Six Fraunhofer Institutes present research results and current high-lights. The innovative exhibits include improved imaging sensors, novel illumination and projection systems as well as extensive software packages that provide algorithms for considerably faster, more robust and more precise measurements and data processing capabilities.

As the miniaturization of VISION components continues, the visitors can take a look at cameras, optical elements, illumination and projection systems as well as data processing units with substantially smaller footprints that allow for new applications in 2D and 3D measurement and testing technologies.

By means of various application systems in, among other fields of application, color and surface inspection, 2D image processing, 3D object recognition and 3D metrology, the visitors can appreciate complex VISION systems becoming reality.

The visitors are offered the opportunity to get to know the VISION-related research areas of Fraunhofer and discuss current VISION challenges with our experts.

Surface Inspection and Optical 2D Image Processing

– Robot-assisted surface inspection of industrial components
– Inspection of invisible product markings with invisible paint and special illumination
– Adaptive inspection of damaged surfaces
– Inspection of defective electronic components by detection of hotspots with thermography
– 2D Image Processing Tools with data fusion of different cameras and wavelengths, combined evaluation and direct control of the inspection machine
– Rapid prototyping for image processing using the graphical user-interface ToolIP
– Polarization camera for the assessment of residual stress in glass containers
– Development services for embedded image processing platforms

Optical Components and Microsystems

– Super-slim LED illumination systems using micro optics
– Low-power presence detection system based on an image sensor SoC with multimodal texture analysis

Optical 3D metrology and 3D Object Recognition

– Fringe projection and structured illumination
– High speed 3D measurement technique by LED based multi aperture pattern projection
– Inline 3D measurement for quality assurance, process control and defect detection on free-form parts
– High speed 3D point cloud processing library OptoInspect Invent for inline metrology solutions
– Non-destructive inspection of fibre-reinforced plastics based on Computer Tomography (CT)
– Automated evaluation tools of CT volume data and point clouds
– Fast and flexible object recognition software which is based on best fitting of geometric primitives or STL object models
– 3D obstacle map for collision avoidance with segmentation of the scene into geometric primitives and scene interpretation through recognition of objects and surfaces
– Object identification and pose estimation with intuitive teach-in of new objects by the user
– Non-contact geometric quality testing with dimensional determination of size, shape and position errors
– Objective test for completeness and accuracy with use of synthetic reference data from a CAD model