PRESS RELEASE

Highlights at VISION 2018 trade fair: Multispectral imaging systems and optical 3D-live-scanners

Multispectral sensors are increasingly utilized in Smart Farming or production monitoring for the food industry. The special requirements of these fields include simultaneous imaging of spectral and spatial information, but also the need for miniaturization of these systems, especially in drone-based use.
The Fraunhofer IOF presents such an imaging system at the joint Fraunhofer stand in hall 1, booth 1G42.

Experts at Fraunhofer-Institute for Applied Optics and Precision Engineering IOF have developed a compact, multispectral imaging system (200g, 60x60x28mm³) for VIS/NIR, which enables the acquisition of extended scenes with a high spectral and spatial resolution in a single shot.

The special requirement of multispectral camera systems lies in the simultaneous capturing of spectral and spatial information. Conventional solutions are often based on scanning systems with bulky setups. To overcome these restrictions, the multispectral camera presented by Fraunhofer IOF is based on a multi-aperture-approach with a customized microlens array combined with a slanted linear variable spectral filter.

This setup allows the snapshot acquisition of 66 spectral channels with a linear spectral sampling of about 6 nm over a broadened wavelength range of 450 - 850 nm. The compact system with a size of only 60 x 60 x 28 mm³ covers a large field of view of 68° and a spatial sampling of 400 x 400 pixels per channel.

Prospective fields of applications include environmental and agriculture monitoring, industrial surveillance and sorting as well as biomedical imaging.

Optical 3D-measurement-processes for quality control processes

Furthermore, Fraunhofer IOF presents the use and implementation of a 3D-Live-scanner (NIR) in an industrial environment. The exhibit showcases the improvement and acceleration of the quality control process in production by complementing human capabilities with machine-based analysis.

The presented live-scanner enables irritation free projection of patterns for 3D-measurement technology in the near infrared spectral range. The advantage of this is that the human eye will not be blinded while using it and persons involved will not notice the measurement process.

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At a 3D-rate of up to 36 Hz, highly resolved 3D data (> 1 Mio. Data points) is generated. Due to the ultra-fast real-time measurement, the system is suited e.g. for testing components in direct interaction with humans. The system allows to show the measurement values of the test piece instantly after measurement.

We welcome you at the VISION trade fair in Stuttgart from **November 6 to 8**, at the joint Fraunhofer stand **(hall 1, booth 1G42)**. Our colleagues are looking forward to your visit!

Image appendix

Image 1: Highly compact, multispectral imaging system for the VIS/NIR range. (©Fraunhofer IOF)

The Fraunhofer-Gesellschaft is the leading organization for applied research in Europe. Its research activities are conducted by 69 institutes and research units at locations throughout Germany. The Fraunhofer-Gesellschaft employs a staff of 24,500, who work with an annual research budget totaling 2.1 billion euros. Of this sum, 1.9 billion euros is generated through contract research. More than 70 percent of the Fraunhofer-Gesellschaft's contract research revenue is derived from contracts with industry and from publicly financed research projects. International collaborations with excellent research partners and innovative companies around the world ensure direct access to regions of the greatest importance to present and future scientific progress and economic development.