

MVTec sets new standards with expanded deep-learning-based anomaly detection in HALCON 22.05

- **Innovative anomaly detection extends the deep learning product range**
- **Useful new features, particularly for quality assurance**
- **HALCON 22.05 to be released on May 25, 2022**

Munich, April 12, 2022 – MVTec Software GmbH (www.mvtec.com), a leading international provider of machine vision software, will release the new version (22.05) of its HALCON machine vision software on May 25, 2022. The highlight is the new technology "Global Context Anomaly Detection", which is available in HALCON 22.05 in this form as a world's first. As an expansion of the long-established anomaly detection technology, this new feature raises deep-learning-based fault detection to a whole new level. The new release also includes significant expansions such as new features as well as new improvements to HALCON's core technologies. As a result, the software now enables the practical implementation of software solutions for even more demanding applications across a wide range of industries. Companies using this machine vision software benefit from more efficient production, especially in application areas like quality assurance.

"With Global Context Anomaly Detection, we're providing an impressive demonstration of our technological market leadership in the field of machine vision software. The new technology provides our customers with brand-new possibilities, such as for inspection activities. We've also added a deep-learning-based training option to the Deep OCR feature. With HALCON 22.05, we've once again managed to implement new features as well as useful enhancements of existing technologies," explains Mario Bohnacker, Technical Product Manager for HALCON at MVTec Software GmbH.

Understanding an image's logical content

By detecting logical anomalies in images, HALCON 22.05 opens up completely new application areas and represents a further development of the deep learning technology of anomaly detection. Until now, it has only been possible to detect structural anomalies strictly on a local level. The new Global Context Anomaly Detection feature is currently the only technology that can "understand" the logical content of the entire image. Like the existing anomaly detection in HALCON, Global Context Anomaly Detection requires only "good images" for training. The training data does not need to be labeled. The technology can thus detect completely new anomaly variants, such as missing, deformed, or incorrectly arranged components of an assembly, for example. This opens up possibilities in brand-new areas, such as the inspection of printed circuit boards in semiconductor manufacturing or the verification of printing.

Individualized training for OCR applications

Using HALCON's Deep OCR, users can efficiently address OCR applications for a variety of application areas. The release of version 22.05 now expands this technology to include a training function that allows users to perform individualized training based on their own application dataset. This makes it possible to handle even the most complex applications, such as reading text with poor contrast (on tires, for example). As a further benefit, it is possible to train special characters and print styles that are very rarely used. Ultimately, training for Deep OCR significantly improves performance and user-friendliness and makes applications even more robust.

Optimized print quality inspection of ECC200 codes

HALCON supports various standards for evaluating the print quality of 1D and 2D codes. This ensures that all readers will have no trouble reading the printed code in actual practice. Version 22.05 brings further improvements to the print quality inspection (PQI) of bar codes and data codes, making the determination of the module grid for the print quality inspection of the ECC200 code much more robust. Moreover, the PQI of 2D data codes is now up to 150 percent faster. And finally, the user-friendliness of the PQI of 2D data codes has been improved through the addition of a new method for calculating the evaluations.

Additional improvements, thanks to new operators

HALCON 22.05 offers still more improvements – for example, a new operator that helps to optimize image contrast locally. Another new operator permits image smoothing with randomly shaped regions.

About MVTec Software GmbH

MVTec is a leading manufacturer of standard software for machine vision. MVTec products are used in all demanding areas of imaging: semiconductor industry, surface inspection, automatic optical inspection systems, quality control, metrology, as well as medicine and surveillance. By providing modern technologies such as 3D vision, deep learning, and embedded vision, software by MVTec also enables new automation solutions for the Industrial Internet of Things aka Industry 4.0. With locations in Germany, the USA, and China, as well as an established network of international distributors, MVTec is represented in more than 35 countries worldwide. www.mvtec.de

About MVTec HALCON

MVTec HALCON is the comprehensive standard software for machine vision with an integrated development environment (HDevelop) that is used worldwide. It enables cost savings and improved time to market. HALCON's flexible architecture facilitates rapid development of any kind of machine vision application. MVTec HALCON provides outstanding performance and a comprehensive support of multi-core platforms, special instruction sets like AVX2 and NEON, as well as GPU acceleration. It serves all industries, with a library used in hundreds of thousands of installations in all areas of imaging like blob analysis, morphology, matching, measuring, and identification. The software provides the latest state-of-the-art machine vision technologies, such as comprehensive 3D vision and deep learning algorithms. The software secures your investment by supporting a wide range of operating systems and providing interfaces to hundreds of industrial cameras and frame grabbers, in particular by supporting standards like GenICam, GigE Vision, and USB3 Vision. By default, MVTec HALCON runs on Arm®-

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based embedded vision platforms. It can also be ported to various target platforms. Thus, the software is ideally suited for the use within embedded and customized systems. www.halcon.com, www.embedded-vision-software.com

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