**Machine vision: MVTec sets new standards with HALCON 20.11**

* **Users benefit from a balanced set of features**
* **Release on November 20, 2020**
* **Optimized core technologies / New feature: Deep OCR for deep-learning-based character recognition**

**Munich, October 14, 2020** – MVTec Software GmbH ([www.mvtec.com](https://www.mvtec.com/)), a leading international provider of machine vision software, will publish a new release of its standard software HALCON (version 20.11) on November 20, 2020. Thanks to many new and updated features, users can improve the efficiency of their machine vision processes. The consistent further development of all included technologies emphasizes HALCON's role as a leading standard library and software for machine vision. The new release will be available in both a Steady and a Progress edition. This means that the full range of new Progress features is now also available to HALCON Steady customers.

The MVTec experts have optimized a number of core technologies in HALCON 20.11. A new 2D code type known as DotCode has been added. It is based on a matrix of dots and can be printed very fast, which makes it especially suitable for high-speed applications, for instance in the tobacco industry. With another new feature called Deep OCR, MVTec introduces a holistic deep-learning-based approach for optical character recognition (OCR). Deep OCR can localize numbers and letters much more robustly, regardless of their orientation, font type, and polarity. The ability to group characters automatically allows the identification of whole words. This improves the recognition performance significantly and avoids the misinterpretation of characters with similar appearances.

**Improved user-friendliness and faster 3D matching**

The core technology shape-based matching was also optimized in HALCON 20.11. More parameters are now estimated automatically, which improves both user-friendliness and the matching rate in low contrast and high noise situations. The new release demonstrates significant improvements in the 3D environment as well. Edge-supported, surface-based 3D matching is now significantly faster for 3D scenes with many objects and edges. Usability has also been improved by removing the need to set a viewpoint.

HALCON 20.11 makes things much easier not only for users but also for developers. A new language interface enables programmers who work with Python to seamlessly access HALCON's powerful operator set. In addition, the integrated development environment HDevelop has been given a facelift. It now offers more options for individual configuration, such as a modern window docking concept. Moreover, themes are now available to improve visual ergonomics and adapt HDevelop to personal preferences.

**Precise edge detection with deep learning**

HALCON 20.11 includes a new and unique method for robustly extracting edges with the aid of deep learning. Especially for scenarios where a large number of edges are visible in an image, the deep-learning-based edge extraction function can be trained with only a few images to reliably extract only the desired edges. This greatly reduces the programming effort for processes of this type. Out of the box, the pretrained network is able to robustly detect edges in low contrast and high noise situations. This makes it possible to also extract edges that cannot be identified with conventional edge detection filters. In addition, “Pruning for Deep Learning” now enables users to subsequently optimize a fully trained deep learning network. They can now control the priority of the parameters speed, storage, and accuracy and thus modify the network precisely according to application-specific requirements.

"With this new release, we are raising HALCON's core technologies to the next level. Users benefit from numerous sophisticated, mature, and field-proven features. As a result, we once again emphasize HALCON's role as leading standard machine vision software," says Mario Bohnacker, Technical Product Manager HALCON at MVTec.

“Users of our Deep Learning Tool may be excited as well”, reveals Christian Eckstein, Product Manager Deep Learning Tool at MVTec. “Close to the release of HALCON 20.11, there will also be a new version of the MVTec Deep Learning Tool. With this, users will be able to evaluate their trained network directly in the tool. With this addition, the Deep Learning Tool now covers the entire deep learning workflow for the first time”.

**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.com](http://www.mvtec.com)

**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®-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. More information: [www.halcon.com](http://www.halcon.com), [www.embedded-vision-software.com](http://www.embedded-vision-software.com)

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