

MVTec further expands HALCON functionality with new deep learning features

- **New version 23.05 extends HALCON's comprehensive software library**
- **New Deep Counting feature for counting large quantities**
- **Release on May 23, 2023**

Munich, Germany, April 13, 2023 - MVTec Software GmbH (www.mvtec.com), a leading international software manufacturer for machine vision worldwide, will launch version 23.05 of the standard machine vision software HALCON on May 23, 2023. The focus of the new release is deep learning methods. The main feature here is Deep Counting, a deep-learning-based method that can robustly count large quantities of objects. In addition, improvements for the training of the deep learning technologies 3D Gripping Point Detection as well as Deep OCR have been integrated into the new HALCON version. With HALCON 23.05, it is now possible to further optimize the underlying deep learning networks, which are already pre-trained on industry-related images, for the user's own application. This allows even more robust recognition rates for Deep OCR applications as well as an even more reliable detection of suitable gripping surfaces for applications using 3D Gripping Point Detection technology. In addition, there are many other helpful improvements, such as the fact that external code can now be integrated into HALCON more easily.

"We are seeing a significant increase in interest among our customers in integrating deep learning methods into their own solutions. When developing the new HALCON version, we oriented ourselves exactly to this. The outcome are new deep learning technologies and further developments that enable customers to achieve even more precise results," explains Jan Gärtner, Product Manager HALCON at MVTec.

Deep Counting

With Deep Counting, a feature is available to customers as of HALCON 23.05 that can be used to count a large number of objects quickly and robustly as well as to detect their position. The deep-learning-based technology offers significant advantages over existing machine vision methods: The feature can be deployed very quickly, since only very few objects need to be labeled and trained – both steps can be easily done within HALCON. The technology provides reliable results even for objects of highly reflective and amorphous material. With Deep Counting large numbers of objects such as glass bottles, tree trunks, or food can be counted.

Training for Deep OCR

Deep OCR reads texts in a very robust way, even regardless of their orientation and font. For this purpose, the technology first detects the relevant text within the image and then reads it. With HALCON 23.05, it's now also possible to fine-tune the text detection by retraining the pretrained network with application-specific images. This provides even more robust results and opens new application possibilities. For example: the detection of text with arbitrary printing type or unseen character types as well as an improved readability in noisy, low contrast environments.

Training for 3D Gripping Point Detection

3D Gripping Point Detection can be used to robustly detect surfaces on any object that is suitable for gripping with suction. In HALCON 23.05 there is now the possibility to retrain the pretrained model with own application-specific image data. The grippable surfaces are thus recognized even more robustly. The necessary labeling is done easily and efficiently via the MVTec Deep Learning Tool.

Easy Extensions Interface

With the help of HALCON extension packages the integration of external programming languages is possible. The advantage for customers: Functionalities that go beyond pure image processing can thus be covered by HALCON. In HALCON 23.05, the integration of external code has become much easier with the Easy Extensions Interface. This allows users to make their own functions written in .NET code usable in HDevelop and HDevEngine in just a few steps, while benefiting from the wide range of functionalities offered by the .NET framework. Even the data types and HALCON operators known from the HALCON/.NET language interface can be used. This increases both the flexibility and the application possibilities of HALCON.

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.

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Press release



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