

New version of MVTec HALCON: Machine vision software now also fully digitally accessible for cloud users

- **Cloud users benefit from new licensing option**
- **New version includes numerous new features and improvements**
- **Release on November 14, 2023**

Munich, Germany, October 12, 2023 - MVTec Software GmbH (www.mvtec.com), a leading international software manufacturer for machine vision, will launch version 23.11 of the standard machine vision software HALCON on November 14, 2023. HALCON's biannual release cycle always includes new features and numerous improvements to existing methods. For the first time, it is possible to license MVTec HALCON cloud environments without a hardware dongle. "The License Server Cloud Ready enables our customers to digitally license HALCON in public but also in private cloud environments. With this, we now open up the opportunity for even more customers to access HALCON and benefit from the possibilities HALCON offers as a powerful machine vision software," says Jan Gärtner, Product Manager HALCON at MVTec.

Machine vision in the cloud offers numerous advantages

The fact that HALCON can now also be operated fully digitally in the cloud creates numerous new application possibilities. These can be setting up new business models, such as offering machine vision services in the cloud, training deep learning models in a computationally intensive way, or enabling cloud-based CI/CD processes.

In addition, there are further new features and enhancements in HALCON 23.11. The most significant enhancement is 3D reconstruction based on structured light. This enables precise 3D reconstruction for diffuse surfaces in short cycle. The most important innovation in Deep Learning Technology is the multi-label classification. The new deep learning method recognizes different classes in an image. "We pursue the goal that our customers always work with current technologies and sophisticated methods. We ensure this with the short release cycles of half a year," explains Jan Gärtner.

MVTec License Server Cloud Ready

With HALCON 23.11, customers have an additional "cloud-ready" variant of the license server at their disposal. This now makes it possible to license HALCON in the environments of commercial cloud providers as well as in enterprise-owned cloud setups without the need for a hardware dongle, solely through a network connection. This means that HALCON can now be easily licensed across all cloud solutions. By using HALCON in the cloud, customers can easily benefit from the new possibilities offered by machine vision in the cloud.

Structured Light 3D Reconstruction

In HALCON 23.11, the structured light model has been enhanced: besides deflectometry, it now also provides precise 3D reconstruction for diffuse surfaces in short cycle times. This enhancement gives users the flexibility to develop their own application-specific 3D reconstruction systems using a pattern projector and a 2D camera. The feature is particularly suitable for applications where precise spatial representations are required. As a result, the technology is suitable for the optimization of manufacturing processes, quality control, and the precise measurement of various surfaces.

Multi-Label Classification

In the new HALCON version, customers now have access to "multi-label classification", a new deep learning method that allows the recognition of multiple different classes on a single image. Such classes can encompass various properties of the objects within the image, for example defect types, color, or structure. In practice, this method can, for instance, reveal the presence of different types of defects in an image, allowing a more detailed classification. Compared to other methods, this deep learning method is faster in processing and the effort for labeling is also lower.

Further Improvements

In HALCON 23.11, a number of improvements for existing methods and technologies were implemented. For Global Context Anomaly Detection, a method for detecting complex anomalies, the underlying neural network has been further optimized. This improves the accuracy of anomaly detection without increasing hardware requirements or execution time.

In addition, HALCON now utilizes the latest NVIDIA CUDA toolkit. This provides users with the opportunity to choose from an even greater range of AI accelerators. For example, the new NVIDIA Jetson Orin modules are now supported as well.

Finally, several performance optimizations of HALCON's core technologies have been implemented in HALCON 23.11. For example, template matching operators (NCC Matching) now run up to 80% faster on Arm-based systems.

About MVTec Software GmbH

MVTec is a leading manufacturer of standard software for machine vision. MVTec products are used in a wide range of industries, such as semiconductor and electronics manufacturing, battery production, agriculture and food, as well as logistics. They enable applications like surface inspection, optical quality control, robot guidance, identification, measurement, classification, and more. 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, France and China, as well as an established network of international distributors, MVTec is represented in more than 35 countries worldwide.

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