HALCON

a product of MVTec

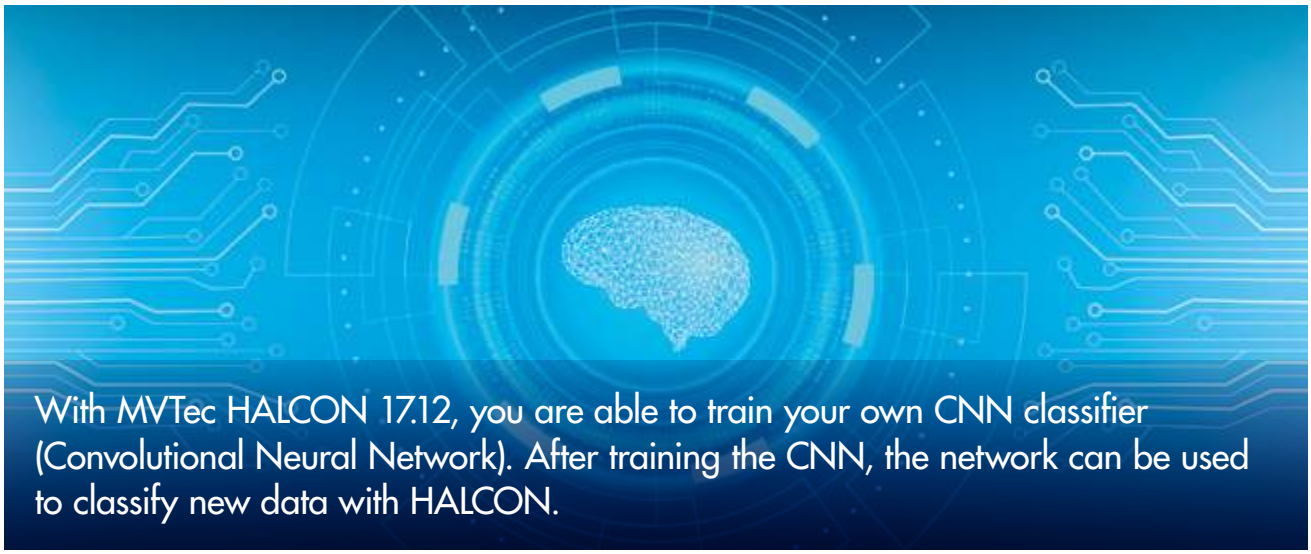
EN

EXPERIENCE THE POWER OF DEEP LEARNING WITH MVTEC HALCON

NEW VERSION 17.12

HALCON

Features – 17.12 Progress
Deep Learning



With MVTec HALCON 17.12, you are able to train your own CNN classifier (Convolutional Neural Network). After training the CNN, the network can be used to classify new data with HALCON.

As this technology is fully integrated into an industry proven product, you benefit from advantages such as continuous development, improvements, maintenance, bug fixes, and support.

Optimized for Industrial Imaging Applications

HALCON comes with pretrained networks, which are highly optimized for industrial applications. MVTec engineers have conducted extensive research to select the best foundational data set, which results in outstanding classification results. Additionally, this pretraining allows you to massively speed up the overall training process and retrieve a network optimized for your application – both essential aspects for a short time to market.

Easy Training and Retraining of Custom Networks

To train a CNN for a specific task, you only need to provide HALCON with labeled training images, which means they must be pre-assigned to different categories by defect or status. For maximum flexibility, it is possible to retrain the network with additional images after the initial training to add new error classes.

Automatic Feature Extraction

During training, HALCON analyzes the labeled training images and automatically learns which features can be used to identify the desired classes. This is a big advantage compared to all previous classification methods, where relevant patterns have to be "handcrafted" by the user – a complex and cumbersome undertaking that requires skilled engineers with programming and machine vision knowledge.

Powerful Image Classification with Inference

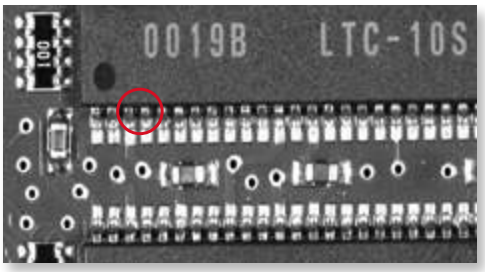
When applying a trained network to new image data, the network is able to infer the corresponding class. Applications using inference can analyze large quantities of image data belonging to hardly distinguishable classes. Thus, utilizing deep learning, MVTec HALCON paves the way for applications whose classification power surpasses even the capabilities of human perception.

Seamless Integration Into the Powerful HALCON Library

Deep learning is seamlessly integrated into the MVTec HALCON library, blending in with the comprehensive selection of operators currently available, thus granting you maximum flexibility while building your applications. A HALCON Progress subscription will come with deep learning capabilities out-of-the-box, allowing you to start with your vision task immediately.

Application Areas

When looking for industrial applications, CNNs can, for example, be used for defect classification (e.g., on circuit boards), or for object classification (e.g., identifying the type of fruit from one single image).



Solder inspection

Checking pill blisters

Identifying types of fruit

Additional Features

DEFLECTOMETRY

In order to address the special challenges imposed by inspecting specular reflecting surfaces for defects like dents and scratches, HALCON now enables you to apply the principle of deflectometry. This method uses specular reflections by observing mirror images of known patterns and their deformations on the surface.

Deflectometry

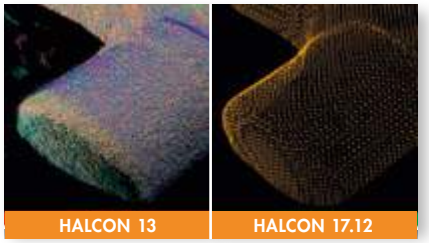
AUTOMATIC TEXT READER

HALCON 17.12 features an improved version of the automatic text reader, which now detects and separates touching characters more robustly.

Automatic text reader

SURFACE FUSION FOR MULTIPLE 3D POINT CLOUDS

HALCON now offers a new method that fuses multiple 3D point clouds into one watertight surface. This new method is able to combine data from various 3D sensors, even from different types like a stereo camera, a time of flight camera, and fringe projection. This technology is especially useful for reverse engineering.



Surface fusion

HDEVENGINE IMPROVEMENTS

With the new HDevelop library export included in HALCON 17.12, calling HDevelop procedures from C++ is as easy and intuitive as calling any other C++ function. This new library export also generates CMake projects, which can easily be configured to output project files for many popular IDEs, such as Visual Studio.

HALCON

Try HALCON FOR FREE!

Download HALCON and contact a distributor for a free evaluation license or use our free application evaluation service.

www.halcon.com/now

What Is HALCON?

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.

What Is Included?

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.

Why HALCON?

HALCON secures your investment by supporting the operating systems Windows, Linux, and macOS. The full library can be accessed from common programming languages like C, C++, and .NET languages like C# or VB.NET. HALCON guarantees hardware independence by providing interfaces to hundreds of industrial cameras and frame grabbers, in particular by supporting standards like GenICam, GigE Vision, and USB3 Vision.

What Is HALCON Progress?

HALCON Progress is the fast track to the newest features. With new releases approximately every six months, it gives you access to the newest features quicker and more frequently than ever before. To enable these short release cycles, HALCON Progress will be available via annual subscription only.

Your Distributor

Licensing: *HALCON Progress SDKs are exclusively available via an annual subscription. A valid HALCON Progress SDK license grants access to all Progress releases within the subscription period. For more information about our licensing models, please visit www.halcon.com/editions*