HALCON

a product of MVTec

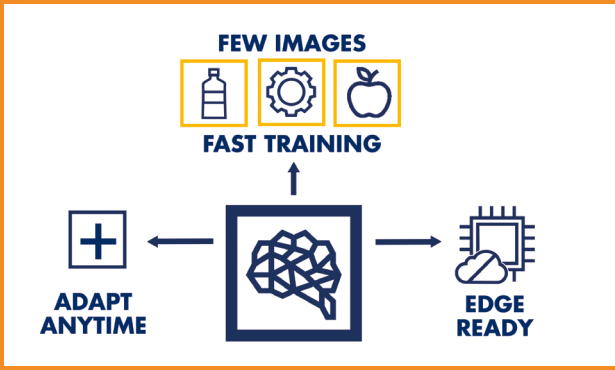
BENEFIT FROM SHORT RELEASE CYCLES WITH HALCON PROGRESS

EN

NEW VERSION 25.11

New features in HALCON 25.11

CONTINUAL LEARNING - CLASSIFICATION

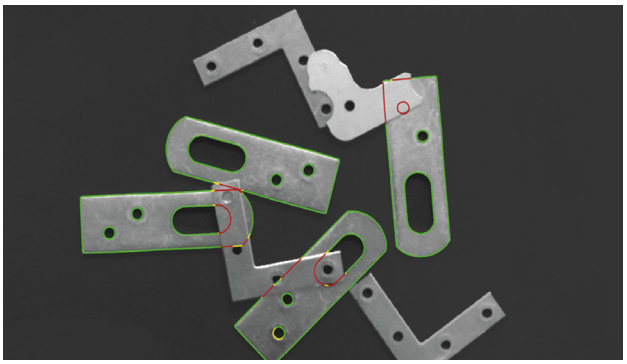


HALCON 25.11 introduces Continual Learning – Classification, a new technology that makes training and maintaining classification models faster and more flexible. Users can create models with only few images per class and adapt them at any time – for example, to refine existing classes or add new ones.

Unlike conventional deep learning, this approach prevents catastrophic forgetting and keeps maintenance effort low. Based on MVTec's pretrained models optimized for industrial scenarios, applications can be updated quickly without full retraining. Because the method requires minimal computing power, updates can even be performed directly on edge devices, eliminating the need for external training hardware while ensuring efficient, long-term operation.

SCORE VISUALIZATION FOR SHAPE MATCHING

With Score Visualization for Shape Matching in HALCON 25.11, users gain increased transparency when setting up shape matching applications. Instead of only returning an overall score, the feature provides a breakdown of how different model parts contribute to the final result. By configuring color-coded bins, users can immediately see which areas match well and which perform poorly, for example due to shadows or unwanted textures. This visual feedback makes it much easier to refine models, remove problematic parts, and optimize applications – a major usability advantage especially for non-expert users.



Contours that could be found are marked in red

OPTIMIZED DEEP OCR MODELS FOR FASTER, RESOURCE-EFFICIENT OCR

With new Deep OCR recognition models in HALCON 25.11, text reading becomes faster and more resource-efficient without compromising accuracy. The models deliver up to 50× faster inference on embedded devices. All models are pretrained by MVTec on industrial image data, and include the proven alignment preprocessing, which improves recognition when text varies in position or orientation. Thanks to their optimized architecture, they enable real-time OCR applications on low-power devices while maintaining high accuracy. This makes the models ideal for demanding inline applications such as serial number inspection, label verification, or lot tracking OCR tasks, across industries from logistics and packaging to pharmaceuticals, consumer goods, and medical technology.

MOBILENETV4 CLASSIFICATION MODELS

With HALCON 25.11, MVTec adds support for the MobileNetV4 series, an efficient new generation of deep learning models optimized for resource-constrained systems and edge devices. These models support both classification and object detection tasks and deliver high accuracy while maintaining low computational requirements. Users benefit from fast inference times, lower system costs, and straightforward integration into existing HALCON projects. All models are pretrained by MVTec, ensuring strong performance for various downstream tasks such as quality inspection, product classification, presence detection, and surface defect analysis. Typical industries include automation, electronics, packaging, food, and medical technology.

VARIOUS CODE READING AND PRINT QUALITY INSPECTION IMPROVEMENTS

HALCON 25.11 makes code reading and print quality inspection (PQI) more robust. QR code detection was improved for difficult cases like curved or deformed surfaces, with faster runtime in standard scenarios. The bar code reader is more tolerant of irregular bar widths in Code 128 and GS1-128. HALCON also supports the latest PQI standards ISO/IEC 15415:2024 and ISO/IEC 29158:2025, ensuring up-to-date compliance in industries such as logistics, food, and pharma.
Together, these enhancements provide compliance, long-term process stability, and higher robustness across a wide range of industrial code reading applications.

BUILT-IN SBOMS FOR EASIER COMPLIANCE

HALCON 25.11 delivers Software Bills of Materials (SBOMs), giving users transparency into included software components. SBOMs are increasingly required under regulations such as the EU Cyber Resilience Act. Provided as SPDX JSON files, they simplify compliance, support vulnerability and license checks, and reduce effort and long-term cost.

New preview version of HDevelopEVO

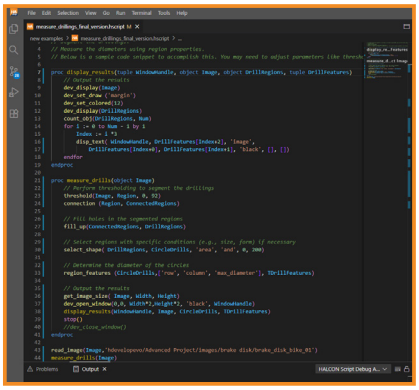
With the latest preview version of HDevelopEVO – the future successor to HDevelop – we're delivering new content and enhancements for our next-generation development environment. The update further improves usability and functionality, bringing you one step closer to the full release.

HALCON SCRIPT ENGINE AND C++ API

With HDevelopEVO 25.11, MVTec introduces the first preview of the HALCON Script Engine, the successor to the HDevEngine. It provides a runtime environment for executing HALCON Script files created in HDevelopEVO. The HALCON Script Engine can initially be integrated into applications via a C++ API. Further interfaces such as .NET and Python are planned for future releases. This bridges the gap between prototyping in HDevelopEVO and productive use in custom solutions.
As a preview version, the HALCON Script Engine already enables embedding HALCON Scripts into applications. While not all language features are supported yet, these will follow in future releases. In the meantime, users can try it out and gain early experience with the new workflow.

SYNTAX HIGHLIGHTING FOR HALCON SCRIPT FILES

HDevelopEVO 25.11 introduces redesigned syntax highlighting for HALCON Script files, making code easier to read, navigate, and maintain. Instead of uniform coloring, operators, variables, and comments are now displayed in distinct colors, giving scripts a clear visual structure.
This improves orientation in the code, reduces errors, and speeds up debugging and refactoring – resulting in a more efficient workflow and a smoother development experience.



TRY HDEVELOPEVO NOW

You can try the current preview right now.
Download it via the MVTec Software Manager (SOM) using your existing HALCON license. The preview is included in the HALCON 25.11 Progress package.

FIND THESE AND MANY MORE IMPROVEMENTS ON OUR WEBSITE:

HALCON

TRY HALCON FOR FREE!

Download HALCON and contact your sales partner 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. Beyond that HALCON comes with free support by the highly experienced experts at MVTec.

What is HALCON Progress?

HALCON Progress is the fast track to the latest features. With new releases approximately every six months, it gives you access to the newest features quicker and more frequently than ever before. HALCON Progress development licenses are exclusively available via an annual subscription. A valid HALCON Progress development license grants access to all Progress releases within the subscription period. For more information about our licensing models, please visit www.halcon.com/editions

Why HALCON?

HALCON secures your investment by supporting the operating systems Windows and Linux. The full library can be accessed from common programming languages like C, C++, Python, 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. By default, MVTec HALCON runs on Arm®-based smart cameras and other embedded vision platforms. It can also be ported to various microprocessors / DSPs, operating systems, and compilers. Thus, the software is ideally suited for the use within embedded systems.