COGNEX

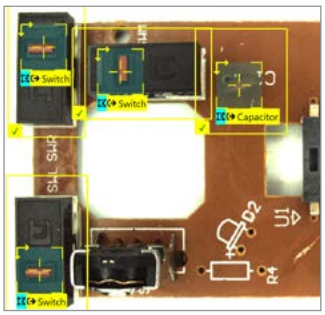
VISIONPRO ViDi

Graphical programming environment for deep learning-based industrial image analysis

VisionPro ViDi™ is the best-in-class deep learning-based image analysis software designed specifically for factory automation. It is a field-tested, optimized, and reliable software solution based on a state-of-the-art set of machine learning algorithms. Combining deep learning technology with VisionPro® software, VisionPro ViDi solves complex applications that are too difficult, time-consuming, or expensive for traditional machine vision systems.

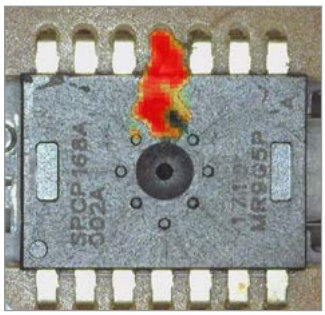
VisionPro ViDi combines a comprehensive machine vision tool library with advanced deep learning tools inside a common development and deployment framework. It simplifies the development of highly variable vision applications.

Part location and assembly verification



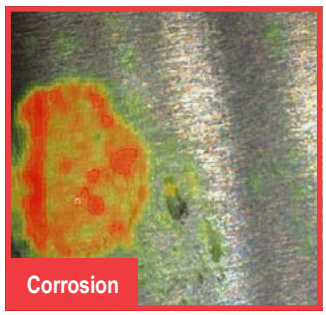
Locate

Defect detection



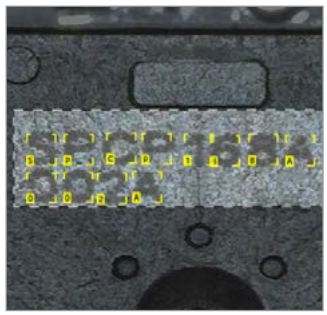
Analyze

Object and scene classification



Classify

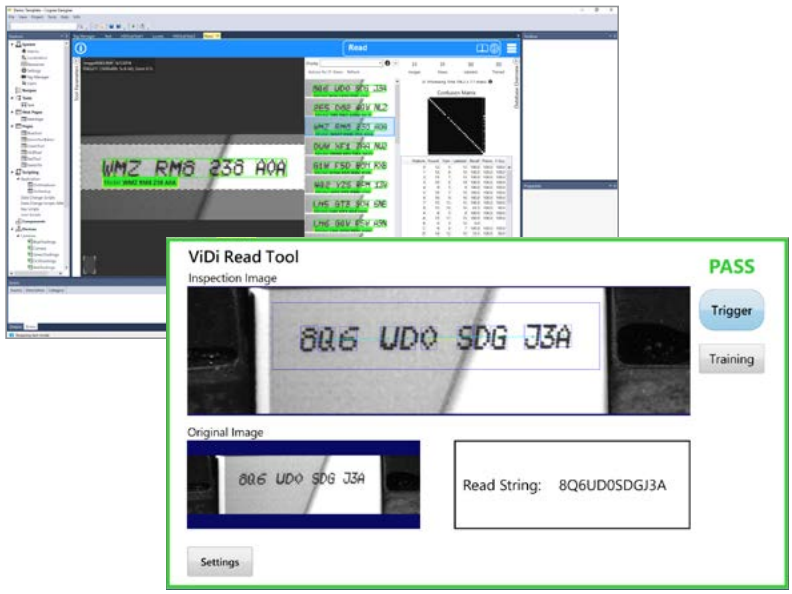
Character reading



Read

Flexible programming interface

Through a graphical programming environment, VisionPro ViDi allows engineers to build flexible, highly customized deep learning solutions tailored to their specific needs. By harnessing the power of a Windows-based PC with GPUs, the software can process hundreds of images per minute. Programmers can build end-to-end solutions to suit their individual requirements.

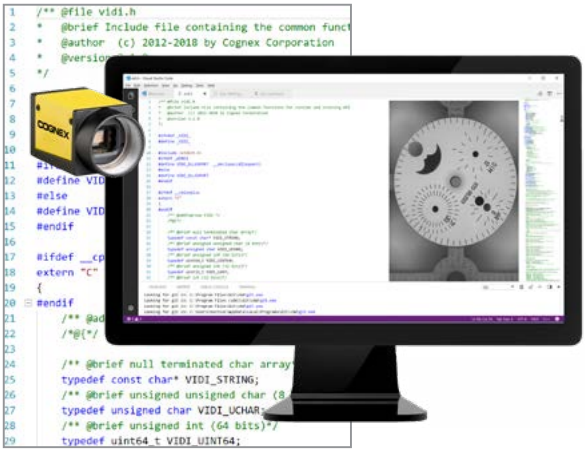


Simplified integration in a common environment

Users can take advantage of the extensive selection of traditional machine vision tools alongside innovative deep learning tools. VisionPro ViDi provides access to both VisionPro and ViDi toolsets through programmatic integration, as well as through the Cognex Designer™ graphical development interface. From low-level machine integration to deploying an application-specific HMI using Cognex Designer, VisionPro ViDi provides flexibility in how you develop and integrate the vision inspection to your production environment.

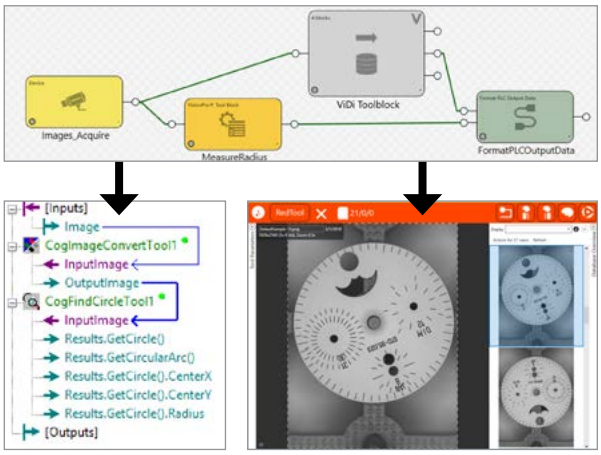
Programmatic Integration

Automatic conversion of images, graphics & results between VisionPro & ViDi



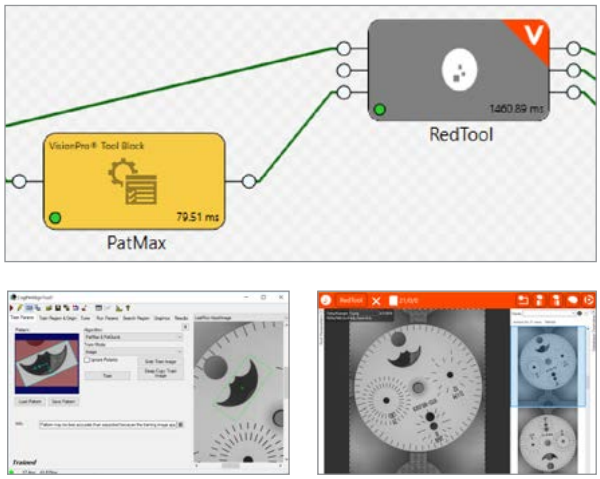
Graphical Prototyping

Quickly configure & save VisionPro ToolBlocks and ViDi workspaces from a common environment



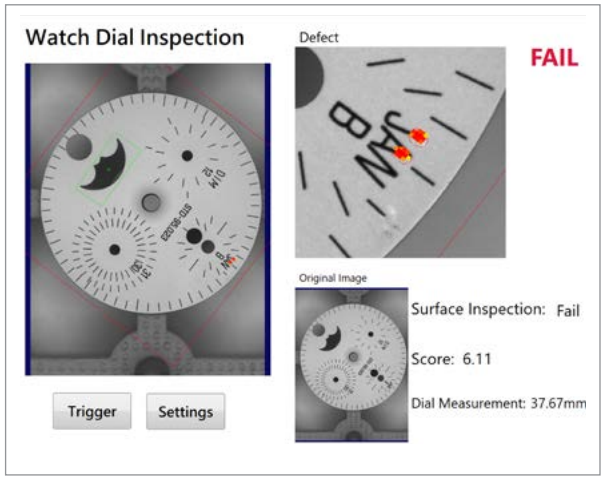
PatMax Fixturing for ViDi

Combine PatMax accuracy and one-step training with ViDi's inspection, classification and OCR tools



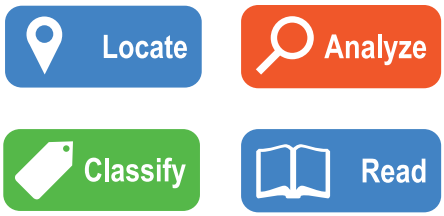
Fully Deployable Application

Create & deploy VisionPro + ViDi applications using Cognex Designer



ViDi Toolset

VisionPro ViDi provides traditional vision users access to examples-based deep learning tools. These tools are optimized for factory automation vision inspections and require smaller image sets for quicker training. The user-friendly GUI also provides a simple environment to manage and develop your applications. Choose between Blue-Locate, Red-Analyze, Green-Classify, and Blue-Read tools to solve applications that are too complex for traditional rules-based machine vision approaches.

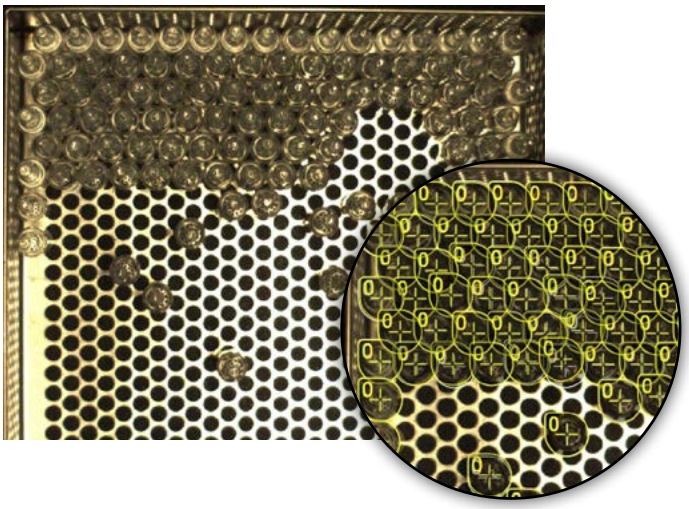


Locate ViDi Blue-Locate for Feature Location and Assembly Verification

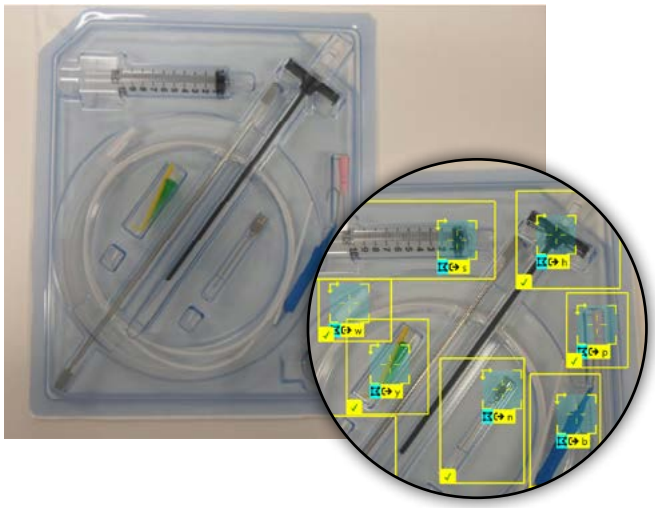
The ViDi Blue-Locate tool finds complex features and objects within a field of view. It detects features on noisy backgrounds, in poorly lit environments, on low contrast parts, and even parts that flex or change shape. ViDi Blue-Locate locates parts despite variations in perspective, orientation, luminance, glare and color by learning from the samples provided by the user.

ViDi Blue-Locate is also a reliable solution for automated assembly verification. The tool can be trained to find a variety of components, even if they appear different or vary in size, to create an extensive component library. By creating layouts based on the product being inspected, the tool checks multiple feature locations and component types simultaneously, while adjusting to varying layouts.

Counts translucent glass medical vials



Ensures kits are assembled correctly

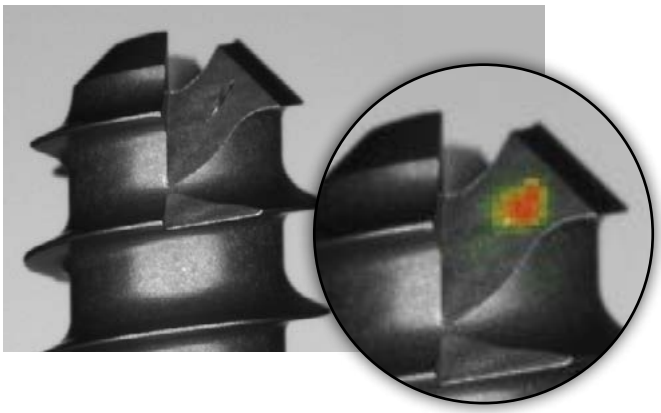


Analyze ViDi Red-Analyze for Defect Detection and Segmentation

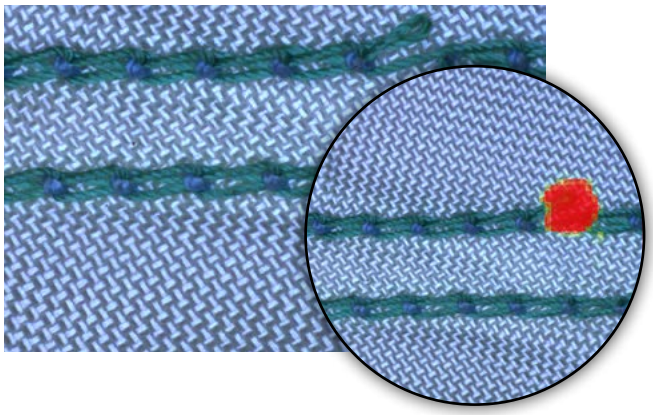
The ViDi Red-Analyze tool detects defects on complex parts and surfaces. Using a sample set of good images and bad images with labeled defects, it tolerates normal part variations, while detecting true anomalies. For situations where it is difficult to collect images of defects, or if failure modes are unknown, ViDi Red-Analyze can learn the normal condition from just good images in Unsupervised mode and identify images that stray from this normal appearance.

ViDi Red-Analyze can also be used to segment specific areas of an image. By teaching it areas of interest across the sample set, the tool learns to identify and highlight these areas. This can be used as a dynamic region of interest or mask, providing a unique method to simplify the vision solution.

Detects imperfections on medical screws



Isolates weaving problems in textiles

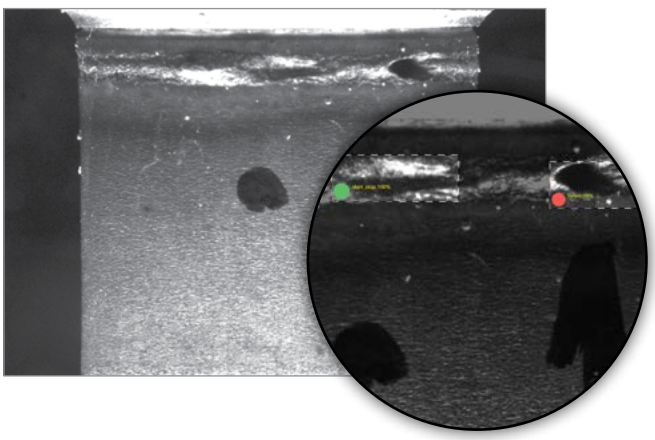


Classify ViDi Green-Classify for Object and Scene Classification

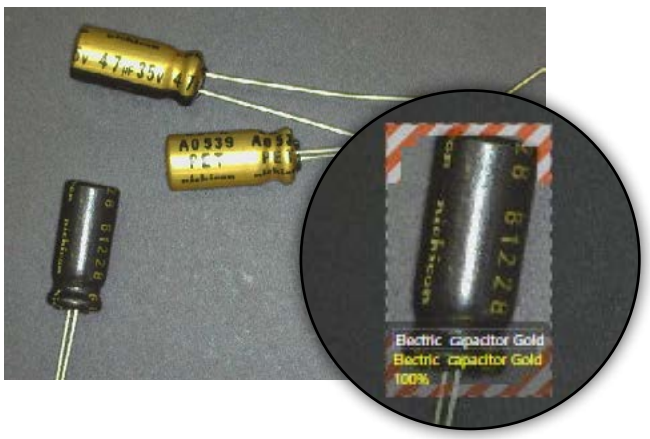
The ViDi Green-Classify tool is a robust classifier that can be used to distinguish between different types of objects, identify defect types, and even inspect images. Learning from a collection of labeled images, ViDi Green-Classify identifies and sorts products into classes based on their common characteristics such as color, texture, materials, packaging, and defect type.

The tool tolerates natural deviation within the same class and reliably distinguishes acceptable variation from different classes. ViDi Green-Classify solves complex classification tasks very quickly, eliminating complicated and time-consuming programming.

Classifies weld seams defects by type



Classifies electrical components by size and color

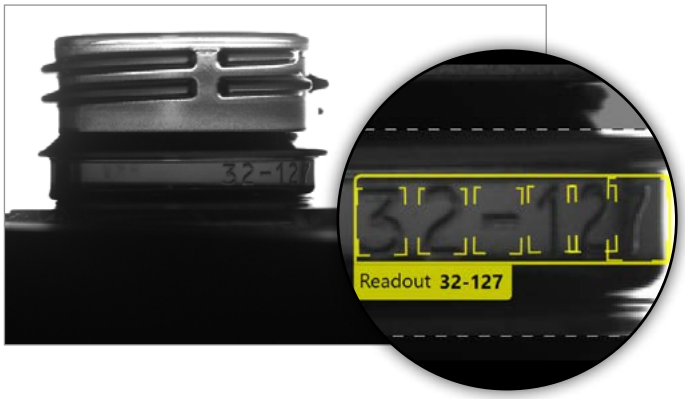


Read ViDi Blue-Read for Text and Character Reading

The ViDi Blue-Read tool deciphers badly deformed, skewed, and poorly etched codes using optical character recognition (OCR). ViDi Blue-Read works right out of the box, dramatically reducing development time, thanks to the deep-learning pretrained font library.

The easy-to-use interface eliminates complex programming. Simply define the region of interest, set the character size, and label the characters in the image set. In just a few steps, without vision expertise, the robust tool can be retrained to read application-specific codes that traditional OCR tools are not able to decode. Plus, the visual debug feature identifies mis-reads that can be easily corrected.

Reads embossed characters on injection molded products



Reads label-based codes on packaging

SPECIFICATIONS

Graphical & application programming interfaces		Windows based graphical user interface (GUI) with plugin support C library (Windows DLL) for runtime and/or training Microsoft .NET library (Wrapper for C library and WPF GUI components)
Hardware & OS Requirements	CPU	Intel Core i5 (minimum), Intel Core i7/Xeon (recommended)
	GPU	NVIDIA graphics card (CUDA compute capability of 3.0 or higher required. To use Low Precision mode, compute capability of 6.1 or higher required.) For training purposes, a minimum of 3 GB graphic memory is recommended. Note: VisionPro ViDi performance — in terms of processing time — will depend on hardware selection.
	RAM Memory	4 GB (minimum), 8 GB (recommended)
	USB	1 free USB port (for the license dongle)
	OS	Windows 10 64-bit Windows Server 2016 64-bit
Supported image file formats		PNG, BMP, TIFF, JPEG
Supported image properties		1–4 channels, 8 or 16 bits

COGNEX

Companies around the world rely on Cognex vision and barcode reading solutions to optimize quality, drive down costs and control traceability.

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