

VISION SOFTWARE

POWER AND FLEXIBILITY FOR VISION APPLICATIONS

THE GLOBAL LEADER

IN MACHINE VISION AND INDUSTRIAL BARCODE READING

Cognex®, the leading supplier of machine vision and industrial barcode reading solutions.

With over 3 million systems installed in facilities around the world and over forty years of experience, Cognex is focused on industrial machine vision and image-based barcode reading technology. Deployed by the world's top manufacturers, suppliers and machine builders, Cognex products ensure that manufactured items meet the stringent quality requirements of each industry.

Cognex solutions help customers improve manufacturing quality and performance by eliminating defects, verifying assembly and tracking information at every stage of the production process. Smarter automation using Cognex vision and barcode reading systems means fewer production errors, which equates to lower manufacturing costs and higher customer satisfaction. With the widest range of solutions and largest network of global vision experts, Cognex is the best choice to help you **Build Your Vision.™**

**\$811
MILLION**
2020 REVENUE

OVER 40
YEARS IN THE BUSINESS

500+
CHANNEL PARTNERS

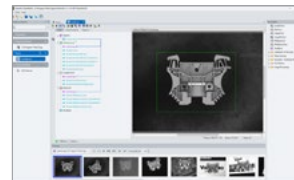
GLOBAL OFFICES IN
20+ COUNTRIES

3,000,000+
SYSTEMS SHIPPED

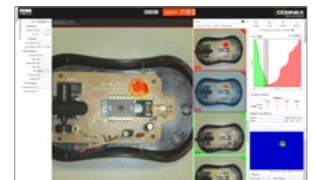


BUILD YOUR VISION

Cognex vision software provides the power and flexibility to solve your most challenging machine vision applications in a PC environment. In addition to a programmatic interface, VisionPro® offers an easy-to-use graphical interface to develop even the highest speed applications—all on the camera of your choice. With VisionPro Deep Learning, customers now have a combination of the best traditional and new deep learning vision libraries.



VisionPro



**VisionPro
Deep Learning**

Fast and flexible application development

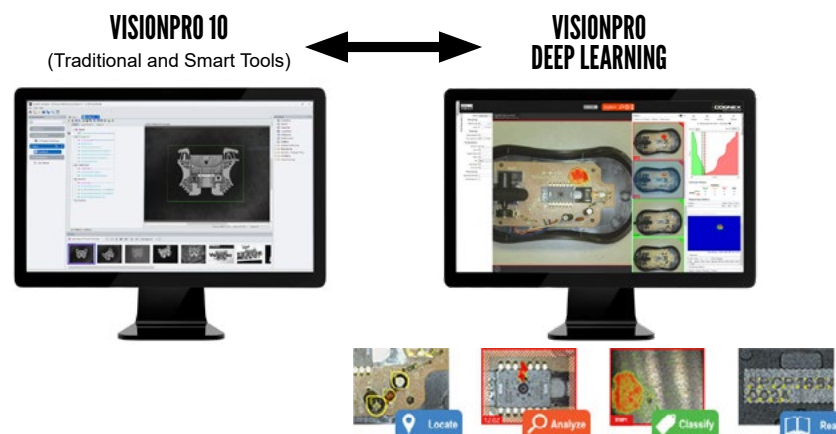
Whether you need vision for inspection or for robotic guidance, Cognex vision software stands apart from the competition with proven tools available in prototyping environments to support all modes of development. These tools, found only in the Cognex vision tool library, have made Cognex the industry's benchmark for vision performance.

Proven, reliable vision tools

A robust library of industry-leading pattern matching, alignment, inspection, ID, and optical character recognition (OCR) vision tools solve all of your vision application needs.

Total hardware independence

With a wide range of camera types and acquisition technology, users have the flexibility to select the camera and frame grabber that's right for their application.



Machine Vision Software Continuum

The Cognex VisionPro software continuum offers a comprehensive set of machine vision tools inside a common development framework. This fully integrated VisionPro combines the benefits of deep learning with the simple training of traditional machine vision, making it the ideal solution for a range of applications and skill levels. Compatible across Cognex's extended product family, users have the flexibility to choose from rule-based programming, hybrid smart tools, and deep learning functionality.

VISIONPRO

PC-BASED VISION SOFTWARE FOR THE MOST CHALLENGING VISION APPLICATIONS

Cognex VisionPro offers a development environment powerful enough to tackle any vision challenge. Extensive tool prototyping allows you to visually define and tune your application, using either traditional rule-based vision or deep learning-enabled smart tools. VisionPro's seamlessly integrated programming interface enables the deployment of highly-customizable applications on your PC platform.

Fast and flexible application development with QuickBuild

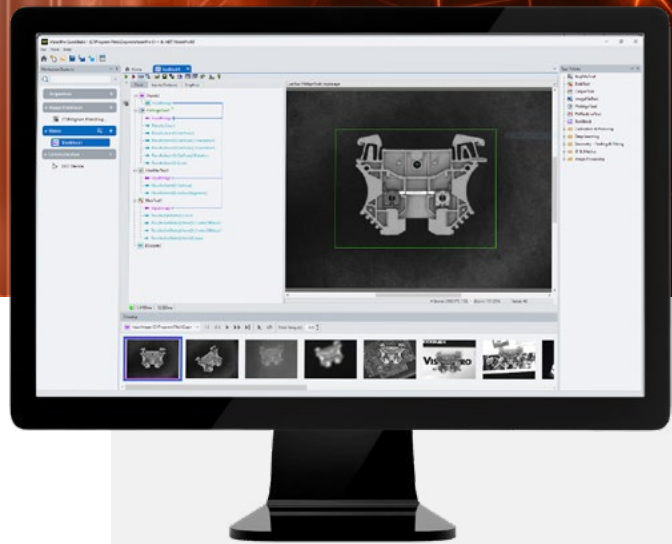
The VisionPro QuickBuild prototyping environment combines the power and flexibility of programming with the ease of development of a graphical interface. Configure acquisition, select and optimize vision tools, and make pass/fail decisions—all without the need for programming. Modular tool blocks also allow the user to easily create and reuse components, simplifying and shortening the development process.

Programming flexibility

VisionPro provides both .NET C# and C++ programming interfaces that allow programmatic access to all tools for the efficient development of customized vision solutions.

Easy Integration of Deep Learning Tools

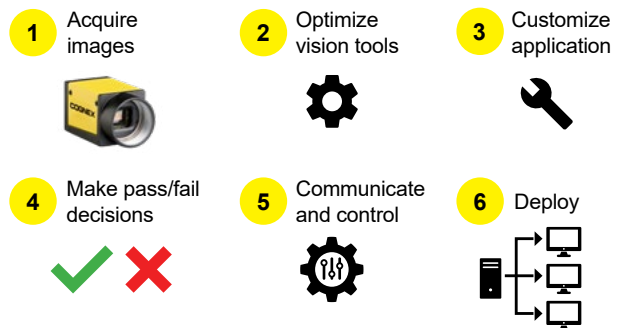
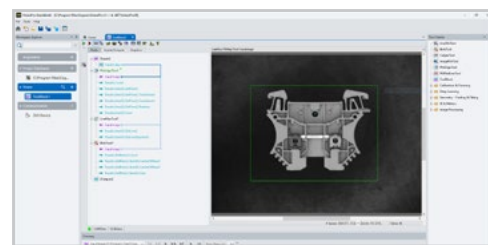
VisionPro enables easy integration of Cognex's deep learning technology. From the intuitive, drag-and-drop interface within QuickBuild, users can load a trained VisionPro Deep Learning workspace and link it with any VisionPro tool for pre- or post-processing. Integration into a common development environment streamlines application deployment and gives users greater flexibility in building custom solutions.



Key benefits

- Intuitive drag-and-drop graphical interface easily chains tools together.
- Modular design blocks simplify and shorten the development cycle.
- Optimized for multi-core and multi-threaded processors for maximum performance.
- Supports Microsoft Windows® operating system, which combines the simplicity of graphical prototyping with the power and flexibility of programming.
- Access VisionPro Deep Learning, breakthrough deep learning-based image analysis, via API and QuickBuild.

QuickBuild workflow



VISIONPRO DEEP LEARNING

DEEP LEARNING-BASED SOFTWARE FOR COMPLEX COSMETIC INSPECTION, LOCATION, CLASSIFICATION, AND CHARACTER RECOGNITION

VisionPro Deep Learning is a best-in-class, deep learning-based image analysis software designed specifically for factory automation. It solves complex applications that are too complicated and time-consuming to program and maintain with traditional machine vision rules-based algorithms. VisionPro Deep Learning simplifies the development of highly variable vision applications.

A breakthrough in complex inspection, part location, classification, and OCR

Deep learning-based software tolerates deviation and unpredictable defects and is ideal for:

- Defect detection and segmentation
- Texture and material classification
- Assembly verification and deformed part location
- Character reading, including distorted print

Human-like, powerful, and fast

VisionPro Deep Learning combines the specificity and flexibility of human visual inspection with the reliability, repeatability, and power of a computerized system—all in an easy-to-use interface.

Optimized for factory automation

VisionPro Deep Learning's algorithms are optimized for real-world industrial image analysis, requiring vastly smaller image sets and shorter training and validation periods. Non-vision experts can train applications and solve inspections in minutes. It delivers fast, accurate results and saves images for process control.

Unique application flexibility

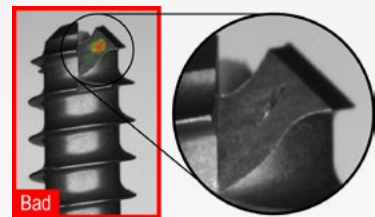
Green Classify and Red Analyze tools can be used on two different settings: focused mode or high detail mode, respectively for simpler applications where robust results are needed quickly, or challenging and complex applications demanding maximum accuracy.



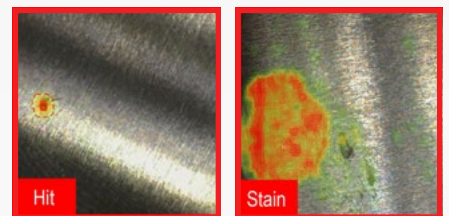
Locate Finds and counts complex features and objects



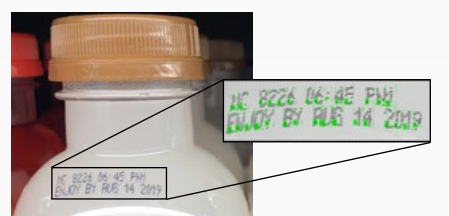
Analyze Detects anomalies and cosmetic defects



Classify Classifies and sorts objects and complete scenes



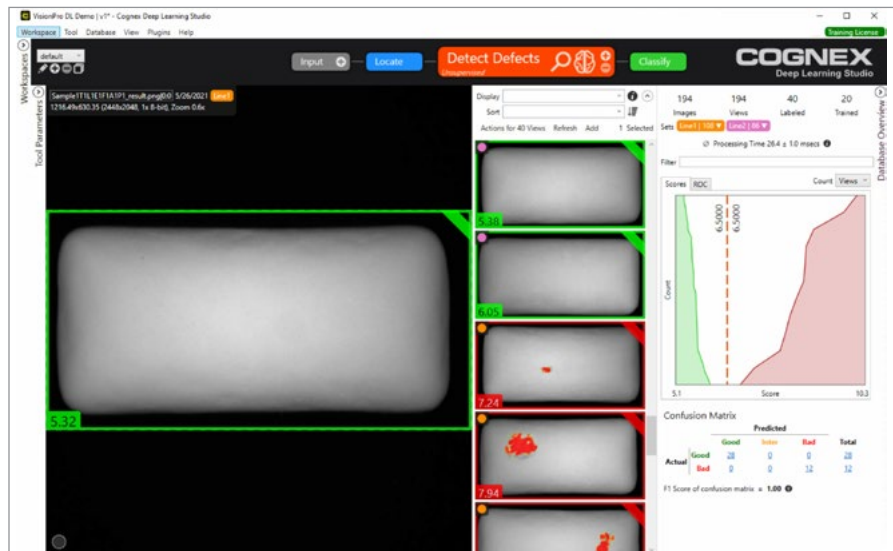
Read Reads challenging, deformed characters



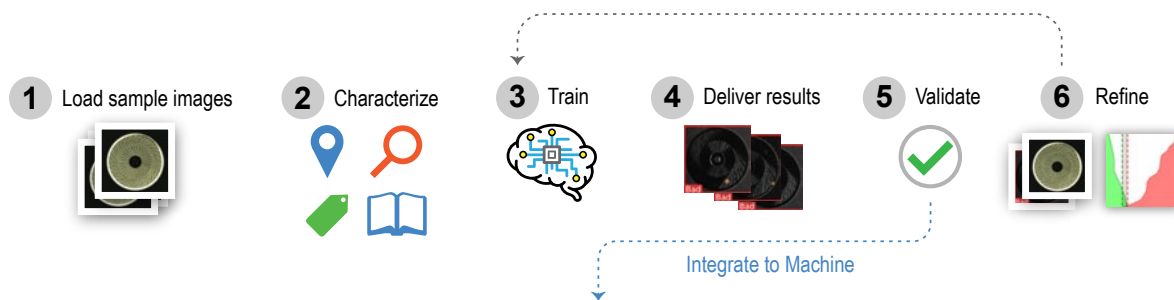
VISIONPRO DEEP LEARNING

INTUITIVE AND GRAPHICAL TRAINING

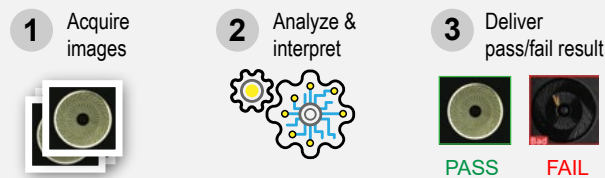
VisionPro Deep Learning's graphical training interface simplifies the task of collecting images, training the neural network, and testing it on a variety of image sets.



DEEP LEARNING TRAINING PHASE



DEPLOYMENT PHASE



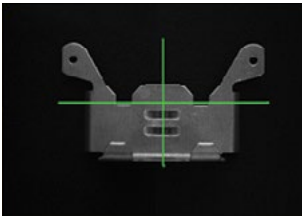
VISION TOOLS

THE INDUSTRY'S LEADING VISION TOOLSET

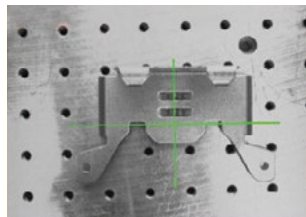
From inspection to robotic guidance, Cognex vision software offers the most proven and reliable vision tools.

PatMax

The industry standard for part and feature location.



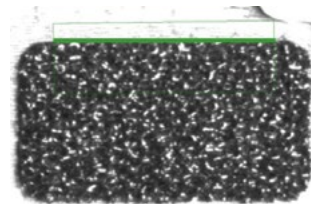
Trained image



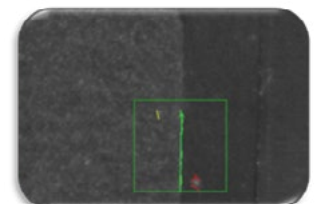
Confusing background

LineMax

Advanced line finding under low contrast and noisy conditions.



Noisy background

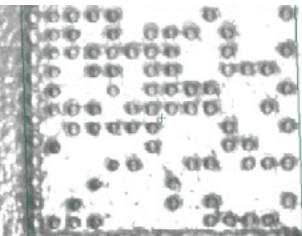


Low contrast

Identification and Verification

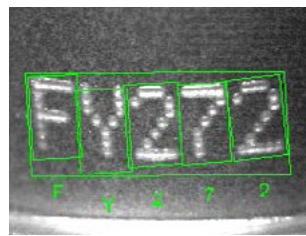
Achieve optimum ID reading and character verification.

IDMax®



Degraded DataMatrix codes

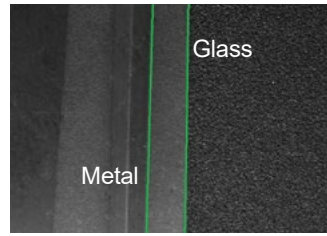
OCVMax



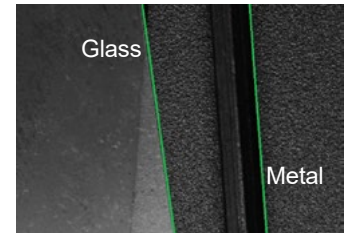
Vertical shift dot-matrix font

Smart Tools

Combining the best features of rule-based vision and deep learning technologies.

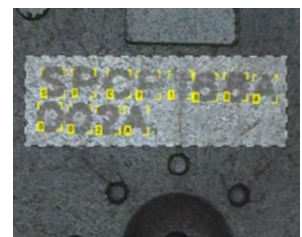
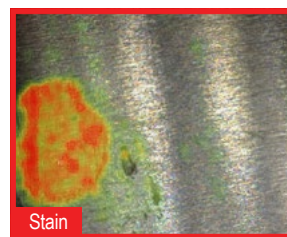
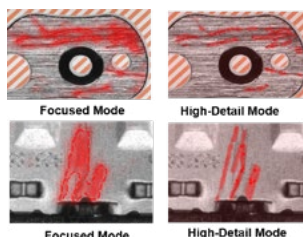
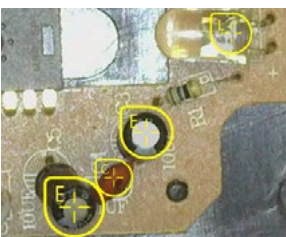


SmartLine line detection tool



VisionPro Deep Learning

A best-in-class, deep learning-based image analysis software for factory automation.



VISION ACCESSORIES

Cognex vision accessories easily integrate with VisionPro software and include a wide selection of industrial cameras, frame grabbers, and I/O cards to meet your system requirements. Cognex offers a variety of industrial cameras in area scan and line scan formats, ranging from value solutions to high-performance hardware.

Cognex Industrial Cameras (CIC)

Cognex Industrial Cameras are designed to easily integrate with Cognex vision software. These small, lightweight cameras in signature Cognex black and yellow show that your system has the leading machine vision technology inside.



GigE Vision Frame Grabber

Compatible with high-speed and high-resolution cameras from many manufacturers.

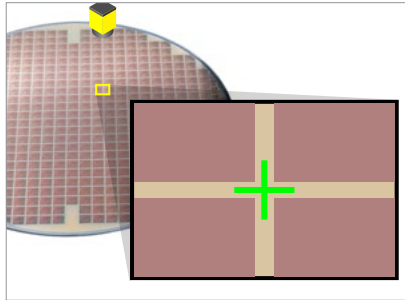
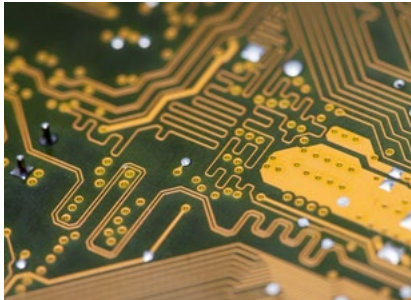


CC24 I/O Card

I/O cards connect to factory devices using industrial protocols.



THE MOST INDUSTRY EXPERIENCE



Semiconductor

- Wafer and die alignment
- Wafer and IC package ID
- Semiconductor and PCBA inspection
- Fiducial alignment



Consumer Electronics

- Pre-assembly component check
- Robot guidance and alignment
- Touch panel assembly and alignment
- Barcode reading



Medical

- Medical device ID and traceability
- Weld and adhesive inspection
- Surface defect detection
- Optical character recognition



Pharmaceutical

- Package and tablet inspections
- Safety seal presence and verification
- 1D, 2D, date and lot code reading
- Label presence and verification



Automotive

- Part inspection
- Part orientation and presence detection
- Part and assembly inspections
- DPM code reading

COGNEX GLOBAL SERVICES

Customers get more than software when they purchase from Cognex. They get a company focused exclusively on machine vision, with the most comprehensive application experience. Add direct, high-quality worldwide service and support, and it's easy to see why Cognex is the machine vision company that industries rely on.

Technical Support
Product Training
Hardware Programs
Product Lifecycle

When it comes to protecting your machine vision investment, Cognex understands that responsive, expert service is an expectation all customers should have. Cognex serves an international customer base from offices located throughout the Americas, Europe, and Asia and through a global network of highly-trained partners, system integrators, and distributors.

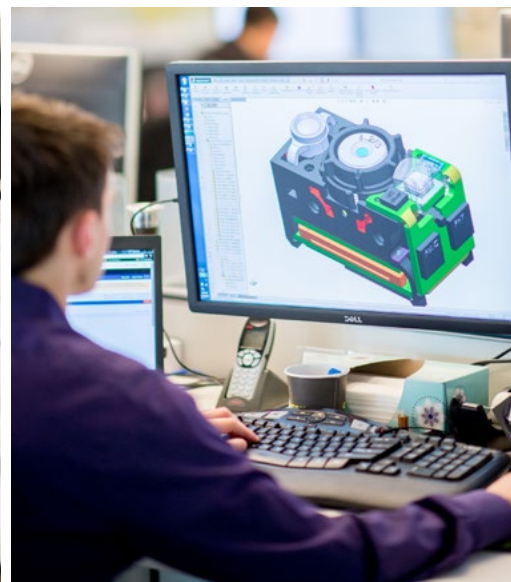
From development to deployment, Cognex is there to help you get your vision systems up and running as fast as possible. Whether you're considering machine vision for the first time or are already an expert user, Cognex global services provide the expertise to help your organization succeed.

cognex.com/support/Cognex-services



OFFICES IN **20+** **COUNTRIES**

500+ **GLOBAL PARTNERS**
IN 30 COUNTRIES



BUILD YOUR VISION

2D VISION SYSTEMS

Cognex machine vision systems are unmatched in their ability to inspect, identify and guide parts. They are easy to deploy and provide reliable, repeatable performance for the most challenging applications.

www.cognex.com/machine-vision



3D VISION SYSTEMS

Cognex In-Sight® 3D vision systems provide ultimate ease of use, power and flexibility to achieve reliable and accurate measurement results for the most challenging 3D applications.

www.cognex.com/3D-vision-systems



VISION SOFTWARE

Cognex vision software provides industry leading vision technologies, from traditional machine vision to deep learning-based image analysis, to meet any development needs.

www.cognex.com/vision-software



BARCODE READERS

Cognex industrial barcode readers and mobile terminals with patented algorithms provide the highest read rates for 1D, 2D and DPM codes regardless of the barcode symbology, size, quality, printing method or surface.

www.cognex.com/barcodereaders



COGNEX

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

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