

NeuralVision

Self-Teaching Machine Vision System

Learns from experience, like humans, to separate good from bad

- Picking
- Volume
- Height
- Barcode Scanning
- Bottle Inspection
- Can Inspection
- Boxes
- Produce Inspection
- Meat Inspection
- Electronic Parts
- Welds
- Vehicles
- Body Scan
- Positioning
- Automated Inspection
- Toiletries
- Tools
- Baked Goods
- Plastic Molding
- Boats
- Auto Parts
- Cell Phones
- Batteries
- Pill Packs
- Circuit Boards
- Sports Equipment
- Cartridges
- Packaged Food
- Lumber
- Contamination
- Character Recognition
- Medical Instruments
- Linen Inspection
- Orientation



NeuralVision can learn to recognize good and bad products just as we do.

CONFIGURE YOUR VISION INSPECTION IN LESS TIME WITHOUT PROGRAMMING!

NeuralVision is a machine vision platform designed to allow an operator or supervisor with no previous experience to develop an inspection and measurement routine for their products.

The operator need only provide as many examples of each type as possible for the system to scan.

NeuralVision is the first such processing system to work with any type of camera or image including 2D grayscale or color, plus 3D and infrared images.

SEND US YOUR SAMPLES!

NeuralVision is useful for orientating parts, determining volumes, measuring quality, and more. Send us your samples to see what we can do for you.

cyth
systems
WWW.CYTH.COM

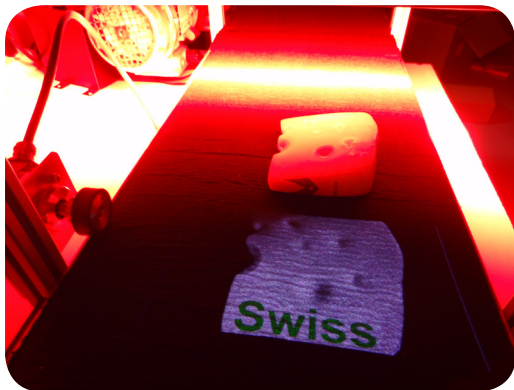
NO EXPERIENCE REQUIRED

DESIGNED FOR THOSE WITH NO MACHINE VISION EXPERIENCE

NeuralVision from Cyth Systems was designed to allow a person with no machine vision experience to inspect and classify products. Machine vision systems traditionally work by having an experienced programmer choose one of many analysis algorithms to apply to an image. A programmer might use hole detection, temperature analysis, or width measurement to inspect an image and determine good or bad parts.

NeuralVision applies these same operations in millions of ways looking for any recurring pattern or key measurements that identifies a good or a bad product. The system can recognize the shape and temperature of cooked bacon, or the proper height and shape of croissants, even in cases where human eyes or programming may not be able to define a product's key parameters.

Teaching the system is done with the help of a wizard and can be done in orders of magnitude less than traditional teaching time. When complete, the system uses what it has learned to inspect parts and record the values of the most important characteristics.



Training of NeuralVision is done by showing the system plenty of good products as well as a variety of defects.

HOW DOES IT WORK?

It works the same way we learn to recognize an apple from an orange. Some characteristics are obvious and easy to learn, such as size, and color. So a reusable vision system could be taught, for example, to measure a spot of color in the center of an object, it could classify many kinds of fruit. But that's only the beginning.

Next, the software could be taught to always measure height, width, and circularity of an object. From that it could then recognize the difference between a red strawberry and a red apple. From the circularity it could detect the difference between a green apple and a green pear. As the list of characteristics grows, so does the ability to detect and classify products from one another.

The same would be true for a good apple versus an apple with a bruise or a mark on it. Given plenty of examples of the variations in color of apple skins, the software would begin to recognize apple skin

variations, with varying shades of red and even brown speckles. The system would learn that any sharp variation in color was classified by the operator during training. So a standardized vision system that always measures sharp changes in color can begin to learn what a defective apple looks like.

Programming this kind of logic would require expertise and would be very time consuming. Yet a system that did all these measurements out-of-the-box would be able to do all this without programming. This logic is the heart of NeuralVision's software components.

THE 3RD DIMENSION

NeuralVision is the first artificial intelligence technology to include analysis of 3D images. Scans are taken by a laser that contours around the shape of the image, and the camera records differences in height as brightness or color representation. NeuralVision doesn't notice the difference because it uses every aspect it can to define a product. Therefore the software can detect the darkness of a spot in a 3D image and determine the depth of a hole that should (or should not) exist in the product.

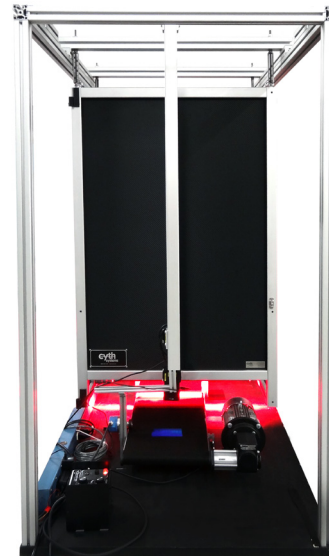


NeuralVision can see images in 3D and color at the same time and can recognize features including height and depth of holes.

NEURAL VISION STARTER KIT

No single fixture, camera, or light can fit every application but NeuralVision Starter Kit includes the baseline requirements of every project plus a range of products to choose from to achieve an endless combination of measurement and defect inspection options.

For example, to inspect bacon and hamburgers on the same production line, perhaps a 3D and IR camera is the best choice, whereas the standard fixture can be used to attach the system above the conveyers.



NeuralVision includes configurable hardware and software to meet the needs of any application.

Training interfaces requires zero machine vision knowledge

- No machine vision knowledge required
- Wizard asks only relevant questions about the product
- Training information projected directly into conveyor during train time, allowing quicker training of products

Projector-guided training eases train time

- Instructions and progress are projected directly onto conveyor
- Product orientation and side are projected as they need to be fed into the system

What's included

- All hardware and software to undertake product inspection
- Two-day training course to familiarize yourself with equipment being used on your product



3D imaging setup

ABOUT CYTH SYSTEMS

Cyth Systems is a leading integration and engineering firm with a proven track record of success designing and building automated test and embedded control systems. Our goal is to help you develop quality products with minimized schedule, risk, and cost. Our unique approach allows for systems that are maintainable, flexible, reliable, and achievable within time and budget constraints.

For more information about Cyth Systems NeuralVision, visit www.cyth.com/neuralvision

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