



Neurala Vision Inspection Automation (VIA) Software Brings New Technology to Visual Inspection

	neurala VIA	Traditional Deep Learning	Machine Vision
TIME TO CONFIGURE	Easily integrate with existing hardware; fast training with low data	Significant training time, large amounts of data required	Custom development for each application, precise product fixturing often required
DATA REQUIREMENTS	Start with as little as 50 images of only good products	Large number of images for both good and bad products	Generally, examples of each likely outcome are required
HARDWARE REQUIREMENTS	Runs on specialized smart cameras and CPU/GPU	Training AI model requires GPU, inference run on GPU/CPU	Runs on smart cameras and CPU
EASE OF MODIFICATION	No AI experts required for initial build or modification	AI experts required to build or modify models	Any changes result in reprogramming by MV expert
TOTAL COST OF OWNERSHIP	Flexible hardware selection and self service model development/integration	Specific hardware, expensive software, specialized engineering	Large application engineering investment
UNIQUELY QUALIFIED TO SOLVE	Subjective quality assessments with limited defect data available	Subjective quality assessments with balanced/large datasets	Rules based problems, measurement

Our patented Lifelong-Deep Neural Network© (L-DNN) has significant advantages over machine vision and traditional deep learning technology.

Neurala VIA for Visual Quality Inspection

Neurala VIA software consists of two modules, Brain Builder and Inspector. It can be installed on any computer with a NVIDIA GPU or an Intel i3 or higher processor. Brain Builder enables creation of AI models, walking users (including those with little or no prior AI expertise required) through the steps to build a well-performing model. Once a model has been created in Brain Builder, Inspector integrates that model into the production line, connecting to any GigE camera and outputting the image analysis directly on industrial networks.

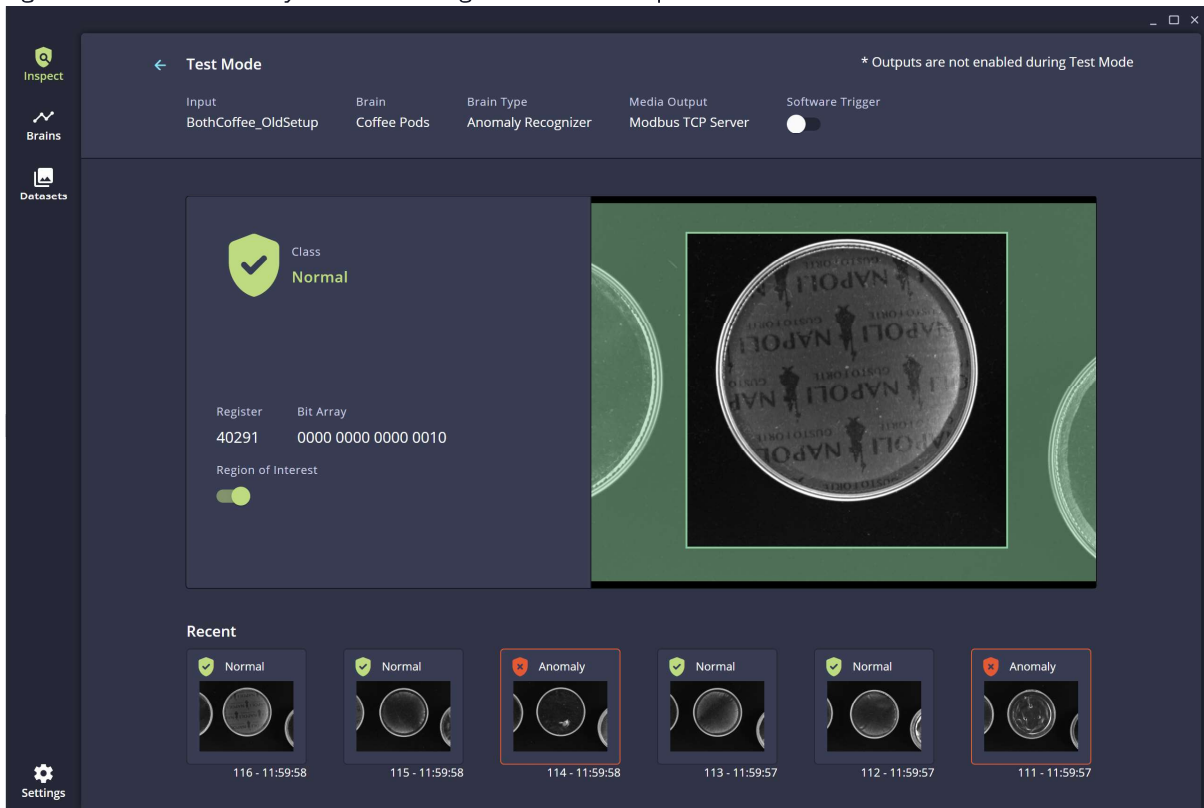
[DOWNLOAD PRODUCT BRIEF](#)

NEW

Neurala's Calibration Feature



Neurala simply regenerates the AI model locally to adjust for these changes so that the model can still perform well – without having to retrain the model using data that is representative of the new environment and saving both time and money in maintaining an AI model in production.



The Neurala VIA suite includes 2 applications: Brain Builder™ and Inspector



Rice Cakes

Dashboard

Train

Evaluate

Test

Deploy

Overall Performance

Accuracy	Precision	Recall
98.02%	96.37%	100%

Training Details

Last Trained: 01/04/2022 6:03:13 AM
 Training Images: 780
 Trained Classes: 1

Optimization Details

Last Optimized: 01/04/2022 7:14:22 PM
 Duration of Optimization: Thorough
 Occurrence of False Positives: Highest Average Accuracy
 Model Sizing: Optimized for dataset

[Optimize](#)

Validation Set Results

Individual Class Performance

	Accuracy	Precision	Recall	Validation Images	Training Images
Anomaly	98.43%	96.37%	100%	133	0
Normal	97.34%	97.23%	100%	120	780
Average	98.02%	95.34%	100%	Total: 253	Total: 780

Confusion Matrix

		Ground Truth	
		Anomaly	Normal
Predicted	Anomaly	TP - 133	FP - 5
	Normal	FN - 0	TN - 115

Adherence to Normal

Anomaly

 Normal

Skew Anomaly

Validation Images

Result: All Class: All

⏪
1 of 25
⏩

Normal

Normal

Normal

Normal

Anomaly

Normal

Normal

Normal

Normal

Normal

Normal

Normal

VIA Brain Builder™

Cloud-Based or On-Premise

Brain Builder™ is a cloud-based solution that enables rapid AI prototyping, allowing you to annotate and train at the same time. Because of L-DNN's accelerated learning speed, learning can occur as new image data becomes available, so precision gains are instantaneous. You can quickly iterate instead of having to wait hours, days or weeks to understand the results. This means you can easily test a proof of concept for a particular use case to gain a better understanding of the impact of adopting vision AI on any quality inspection process.



Input	Behaviors	Total Class Outputs	Regions of Interest	Total Inspection Count
Forming	1	2	1	36,374
Behavior Cake Form	Cake Form Anomaly Recognizer	Class Outputs 2	Normal 36,279	Anomaly 95
LIVE VIEW				
Oven	1	3	1	29,956
Behavior Bake Color	Bake Color Static Classifier	Class Outputs 3	Good 29,656	Underdone 81
LIVE VIEW				
Stacking	2	4	2	10,210
Behavior Stack 1	Stack 1 Anomaly Recognizer	Class Outputs 2	Normal 5,006	Anomaly 99
LIVE VIEW				
Behavior Stack 2	Top Third Anomaly Recognizer	Class Outputs 2	Normal 4,978	Anomaly 127
LIVE VIEW				
Packaging	1	4	1	9,984
Behavior Wrapping	Wrapping Learning Classifier	Class Outputs 4	Good 9,881	No Wrap 22
LIVE VIEW				

VIA Inspector

Local On-Premise

VIA Inspector allows for seamless integration of our software onto the factory floor, saving you time and money by allowing you to retrofit onto your existing production line. It collects images from virtually any GigEvision camera and provides outputs over an industrial network directly to the PLC controlling the applicable machine to run the vision AI models.



Our AI Only Requires "Good" Product Images

Neurala's AI can be trained with only acceptable, or good product images, unlike traditional DNNs that need both good and bad examples. Working with good samples only, L-DNN produces an anomaly signal when an abnormality occurs. This results in tremendous time savings since defective products appear infrequently and randomly on the production line, and it would take a long time to collect their image data.

Award-winning technology



Your choice of deployment options

Neurala VIA offers deployment options that fit your production environment. Whether you want to build and deploy your AI models in the cloud or on-premise, Neurala's visual quality inspection software lets you decide.



Request a demo

First Name*



Last Name*

Company*

Email Address*

Phone number

REQUEST DEMO

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