Wednesday, September 24, 2025

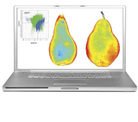
Vision spectra

Bimonthly newsletter from Photonics Media featuring the latest advancements in and applications for vision systems – from sensors to software. Manage your Photonics Media membership at Vision-Spectra.com/subscribe.

AI Is Driving Increased Deployment of Industrial Robots

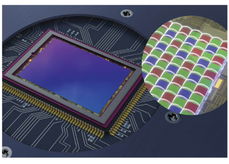
In established industrial landscapes, such as automotive manufacturing and warehouse logistics, vision-language-action models — which combine natural language understanding, computer vision scene understanding, and action command generation — offer the tentalizing possibility of dramatically enhanced robotic system flexibility.

Read Article



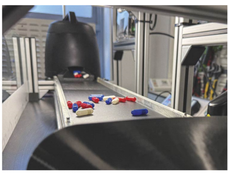
Automated Vision Systems Bolster Food Inspection

As the demand for quality food increases, producers are striving to hit the sweet spot of the market between nutrition and value. On top of this challenge, a variety of regulatory requirements associated with food production and sustainability must be met. Given all these market factors, food and beverage producers are implementing advanced vision systems to aid in the inspection and monitoring of products throughout the process, from the receipt of bulk product to packaging. Read Article



High-Resolution Image Sensors Set New Standards in Machine Vision

The transformation of digital imaging in recent years has had a profound impact on its applications in machine vision and even the life sciences. From the nascent days of CMOS image sensors capturing 10,000 pixels with pixel sizes of 20 to 30 µm, imaging has entered an era of high-resolution image sensors packing >200 million pixels, with pixel sizes now shrinking to <1 µm. Read Article



Choosing Between Monochrome, Color, and Specialty Cameras

In today's production landscape, industrial image processing is a proven and trusted procedure, serving as a cornerstone of inspection and quality control in modern manufacturing due to its precision and efficiency. Although factors such as lighting, optics, and resolution still require careful consideration for specific applications, the fundamental capabilities of machine vision are well established and validated. Read Article

Featured Products & Services

Smart Food Inspection with Alecs

Allied Vision

The Open Smart Camera Alecs enables efficient food inspection, improving product safety and reducing waste. This all-in-one machine vision solution offers advanced image processing capabilities and computational power, enabling it to run custom software solutions, including complex AI algorithms.

Visit Website | Request Info

Triton Smart Camera with On-Sensor AI

LUCID Vision Labs Inc.

The Triton Smart is a compact machine vision camera featuring Sony's IMX501 intelligent vision sensor with on-sensor AI processing. It enables efficient, real-time inference directly on the device — no external processing or cloud connectivity required. It delivers a power-efficient, self-contained solution that reduces system complexity and latency, making it ideal for object detection, automation, and vision-based decision making.

Visit Website | Request Info

Looking for something else? Check the Photonics Marketplace.

PHOTONICS marketplace®

In Case You Missed It

Pinhole Camera Offers High-Performance Imaging for MIR Wavelengths

An ancient, lens-free imaging technique provides the basis for a new mid-infrared (MIR) camera that can capture clear, wide-depth images over long distances, even under low light. The camera uses pinhole imaging, a method first described in the fourth century BC. The MIR pinhole camera, invented by a team at East China Normal University, overcomes some of the limitations of conventional lens-based systems, especially in the areas of depth of field, field of view, and optical aberrations. Read Article

Agate Sensors Raises $6.6M for Everyday Spectroscopy Tech

Agate Sensors, a spinout of Aalto University developing smart sensors for material analysis, has raised €5.6 million (~$6.6 million) to commercialize a research breakthrough that shrinks spectroscopy from suitcase-sized lab equipment to a single pixel smaller than a grain of sand — integrated into a chip compact enough to sit on the tip of a finger. Read Article

AI-Enabled System Uses Standard Security Cameras to Improve Fire Detection and Response Times

Fires claim thousands of lives in the U.S. yearly, with a contributing factor being the slow response of traditional smart detectors. A research group at NYU Tandon School of Engineering developed an AI system that uses ordinary security cameras to detect fires and smoke in real time. By utilizing the technology of the Internet of Things, they developed a method to detect fire and smoke with minimal latency and higher accuracy without the need for additional data Read Article

Next Issue

Features

OCT and Material Analysis, Vision-Guided Robotics, Embedded Vision

Photonics Media is currently seeking technical feature articles on a variety of topics for publication in our magazine *Vision Spectra*. Please submit an informal 100-word abstract to visionspectra@photonics.com, or use our online submission form www.photonics.com/submitfeature.aspx.

About *Vision Spectra*

Vision Spectra is a global resource geared for the vision community, with real-world case studies of vision in action, comprehensive feature articles, and columns from experts in the field examining the trends that enable Industry 4.0. Stay current with a FREE subscription to the digital or print edition.

Visit **Photonics.com/subscribe** to manage your Photonics Media membership.

View Digital Edition | Manage Subscription