



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.



Traditional Machine Vision Can Be Adapted to Achieve Hyperspectral Results

Imaging beyond the visible wavelength, such as capturing data across the hyperspectral range, has become an increasingly popular tool in industries such as agriculture, food and beverage processing (opening image), and electronics and semiconductor manufacturing. Hyperspectral imaging, an advanced 3D technique that uses hundreds of spectral bands across the ultraviolet, visible, near-infrared, and shortwave-infrared regions of the electromagnetic spectrum, provides an incredible amount of spatial and spectral information. This capability enables a machine vision system — composed of

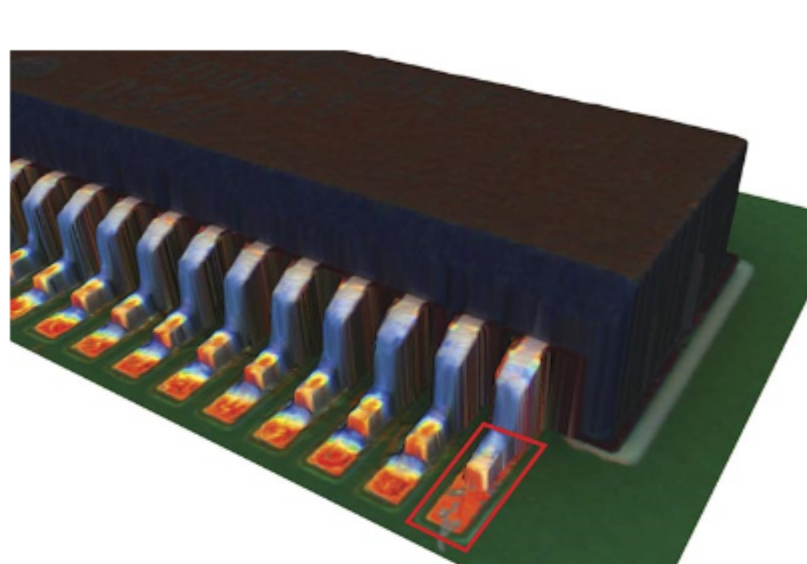
specially configured filters, lighting, and cameras — to identify and differentiate virtually any material. [Read Article](#)



Hyperspectral Imaging Provides Real-Time 3D Visualization

With recent breakthroughs in computational power and real-time processing, hyperspectral imaging — long a cornerstone of remote sensing — is entering a new era where data analysis and visualization occur simultaneously. This technology, which captures a continuous spectrum of light across hundreds of narrow bands, has transformed industries such as mining, agriculture, defense, and environmental monitoring. Now, critical information and actionable intelligence can be

produced in real time directly from the hyperspectral sensor that is on board small UAVs, which can be shared with users or used by other autonomous systems. This capability enables faster decision-making and operational efficiency, unlocking possibilities for real-time situational awareness and automated responses. [Read Article](#)



Advancements in 3D Vision Help Sort Inspection Tasks

For industrial applications, 3D vision systems have been improved in recent years, designed with greater inspection capabilities and enhanced performance in dynamic range, frame rate, and image quality. This increased capacity has resulted from upgrades in components and image processing software. A solder joint on a circuit board undergoing 3D vision inspection using colored illumination to indicate flat areas (red), moderate-angle areas (green), and steep-angle

areas (blue). The solder joint highlighted by the box is defective. On the hardware side, CMOS sensor refinements have helped to produce consistent images in diverse contexts while global shutter — where all pixels on the sensor are exposed to light simultaneously — eliminates artifacts, resulting in precise depth measurements in high-speed settings and other challenging conditions. [Read Article](#)



Featured Products & Services



Achieve 100% Quality Inspection

Teledyne DALSA, Machine Vision OEM Components

BOA3 is Teledyne's next

generation AI-powered smart camera designed to meet the needs of the most complex, demanding machine vision applications. BOA3 includes a full toolkit of algorithms and preprocessors with support for AI Classification and AI Object Detection.

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Alecs – Open Smart Camera

Allied Vision

Enough computational power to develop and deploy

sophisticated software and AI

algorithms with ease: The Allied Vision Embedded Camera Solution Alecs combines the feature-rich Alvim camera platform with the powerful NVIDIA Orin NX™ SoM in a robust IP67 housing.

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EROS is the Smallest 10GigE Camera

Emergent Vision

Technologies Inc.

EROS is the lowest power, smallest 10 GigE area scan camera in the world. Its small 29 × 29 mm dimensions compare with leading GigE cameras that run at lower speeds. It uses only 4.8 W RJ45 with PoE, 4 W RJ45 without PoE, and 3 W SFP+ single-mode fiber. EROS can auto-negotiate down to 5, 2.5, and 1 GigE.

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FantoVision Edge Computers

Gidel

FantoVision is an ultra-compact, modular Machine Vision edge computer for high-bandwidth applications. It supports up to 40Gb image acquisition with real-time processing and/or compression. Powered by Nvidia Jetson™, it offers optional FPGA-based processing and compression for superior performance.

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Photonics Spectra Reference Chart

Photonics Media

This full-color, 29.5 × 20.5-inch poster of the photonics spectrum displays the major commercial laser lines, detectors, and optical materials in the ultraviolet to the far-infrared and beyond. The convenient format makes it easy to quickly find the information you need.

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High-Fidelity 3D Profile Sensors

Zebra Technologies Inc.

Zebra Altiz is a series of high-fidelity 3D profile sensors. Each sensor features a dual-camera single-laser design that greatly lessens the scanning gaps often encountered at critical surface junctures because of optical occlusions.

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In Case You Missed It

RealSense Completes Spinout from Intel, Raises \$50M

RealSense, a developer of AI-powered computer vision, has completed its spinout from Intel Corporation and closed \$50 million in series A funding. The company is a provider of depth cameras and vision technology used in autonomous mobile robots, access control, industrial automation, healthcare, and more. The capital infusion will fuel RealSense's expansion into adjacent markets while scaling its manufacturing, sales, and go-to-market global presence. According to CEO Nadav Orbach, the company's newfound independence will allow it to move faster and innovate more boldly in response to changing market dynamics. [Read Article](#)

Perovskite Emerges as Alternative to Silicon in Image Sensors

Most image sensors are made of silicon; this material normally absorbs light over the entire visible spectrum. To manufacture it into RGB image sensors, the incoming light must be filtered. Pixels for red contain filters that block (and waste) green and blue, and so on. Each pixel in a silicon image sensor therefore only receives around a third of the available light. Now, researchers have proposed a solution to this problem, which allows them to utilize every photon of light for color recognition. [Read Article](#)

Prophesee and Tobii Partner on Smart Eyewear

Prophesee, an event-based neuromorphic vision technology company, has partnered with Tobii, an eye tracking and attention computing company, to develop an event-based eye tracking solution for AR/VR and smart eyewear. Through the collaboration, the companies aim to develop a fast and power-efficient eye-tracking solution that is compact and battery-constrained smart eyewear, combines Tobii's platform with Prophesee's event-based sensor technology. Tobii's experience in eye-tracking spans the development of advanced systems for a range of devices and platforms, including for gaming, extended reality, healthcare, and automotive. Prophesee's technology is used in applications such as vision assistance, contextual awareness, enhanced user interaction, and well-being monitoring. [Read Article](#)

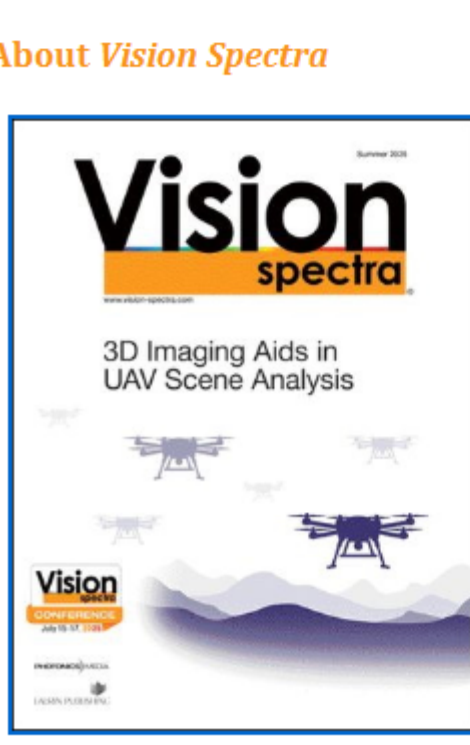
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Features

Machine Vision, Sensors, Aerial & Digital Imaging

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