

# Vision spectra



Quarterly newsletter from Photonics Media featuring the latest advancements in and applications for vision systems – from sensors to software. Manage your Photonics Media membership at [Photonics.com/subscribe](https://www.photonics.com/subscribe).

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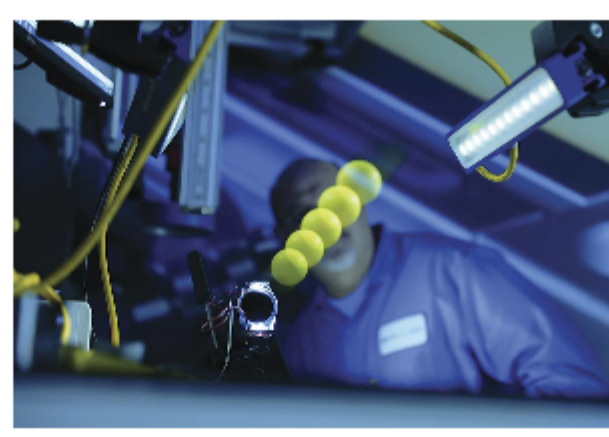
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## Intelligent Lighting Brings Machine Vision to New Heights

Machine vision lighting technology must constantly evolve to meet increasing demands and keep pace with advancing imaging technologies. Dynamic machine vision systems, the Industrial Internet of Things, and deep learning are areas in which lighting innovations have enabled previously unattainable factory applications while moving machine vision beyond the plant floor.

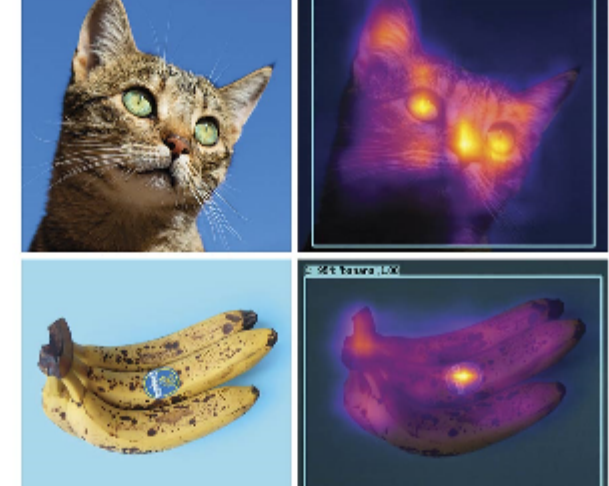
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## Running AI at the Edge

More robust computing power, coupled with recent optimizations in how AI networks are processed, has created new opportunities for the use of AI on edge devices, specifically by using convolutional neural networks to classify images into categories, detect objects in images, or find unexpected anomalies in images, such as damage on a produced part. Yet moving AI processing to the edge brings with it new challenges, including making AI systems user-friendly within a manufacturing environment.

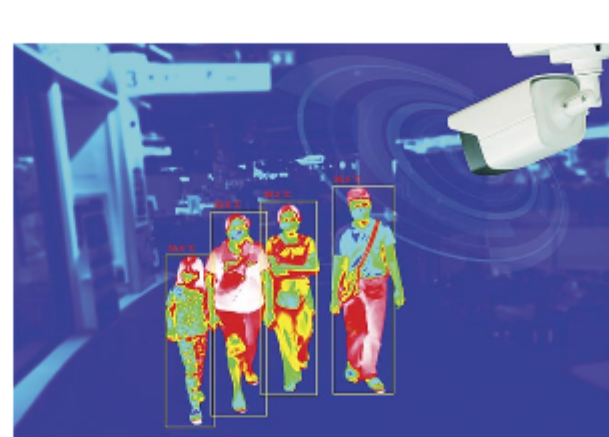
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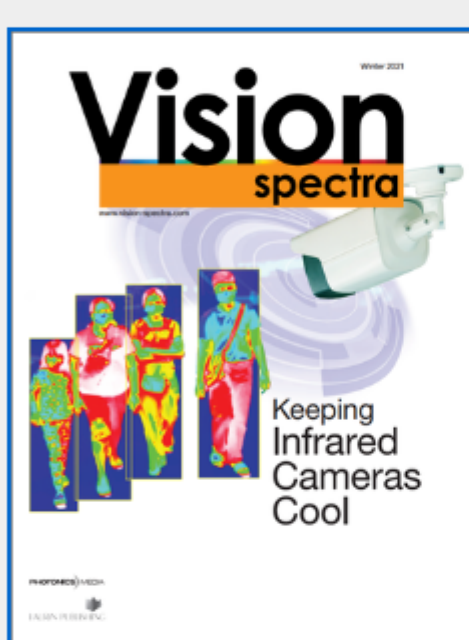
## Active Cooling Expands Design Options for Thermal Cameras

No matter the camera technology implemented, it is critical that the operating temperature of sensitive imaging components is maintained below the maximum limit during use to ensure high-quality images. An IR sensor in surveillance cameras, for example, captures infrared light to measure radiation (heat) in the target object and converts it into a visual image. To obtain maximum image quality, IR sensors must be cooled to subzero temperatures to minimize thermal noise, which is the difference between the target object and its surrounding environment. Thermal noise will disrupt and distort the image quality.

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## 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.

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## Featured Products

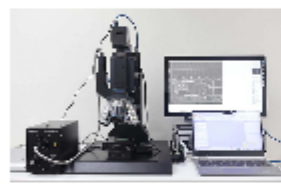


### Alluxa Ultra Series Filters and Coatings

**Alluxa**  
Alluxa Ultra Series Filters, including Narrowband, Dichroic, UV, IR, and Notch filters, provide the highest performance optical thin film solutions available today. For example, the Ultra Series Flat Top Narrowband filters offer the narrowest bandwidths and squarest filter profiles in the industry.

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### Fully Automated IR Microscope

**Seiwa Optical America Inc.**

Seiwa Optical's fully automated IR microscope allows the user to inspect sub-surface images including MEMS devices, 3D stacks, incoming wafers, photovoltaic and wafer-level CSP's. New features allow you to take stitching images with different extended exposure, 3D views and measurements.

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### Baumer AX. AI Ready Smart Camera with NVIDIA Jetson Modules

**Baumer Optronic GmbH**  
Baumer presents the AX smart cameras, its first industrial-grade smart cameras that combine the market-leading NVIDIA Jetson modules with powerful Sony CMOS sensors to create a compact, flexible, and freely programmable image processing platform for AI applications.

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### Theia's Ultra-Wide No Distortion Lenses

**Theia Technologies**

Lenses made with Theia's patented Linear Optical Technology® are designed to cover wide areas without distortion. This innovative technology offers an ultra-wide field of view while using all optical distortion correction to remove barrel distortion without using software...

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### Machine Vision

**Photonics Media**

Machine Vision is a book for anyone designing or selecting machine vision systems, and implementing or considering the use of machine vision for a specific application. This engaging overview is a resource for designers, engineers, researchers, marketers and students looking for a broad survey of advancements in systems,...

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### Mini Lenses for Robotic Precision

**Marshall Electronics Inc.,**

**Optical Systems**  
Marshall Electronics' Optical miniature lenses provide precise robotic, machine vision positioning X, Y, Z. Robotic and machine vision products cannot perform to specification without high and consistent optical performance. Our high quality glass element aluminum housing lenses, with and without glass filter produced in...

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## More Vision News

### Visual Sensors, in Info Sharing Units, Help Cooperative Perception Tech Ensure Pedestrian Safety

Australian researchers have developed technology that can allow autonomous vehicles to track running pedestrians behind buildings and cyclists that may be obscured by other vehicles. The vision technology, which the researchers liken to "X-Ray"-style vision, is capable of penetrating through to pedestrians in blind spots and detecting those who may be otherwise obscured.

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### Allied Motion Makes Second Acquisition in Three Days, Snaps Up ALIO Industries

Allied Motion Technologies, a designer and manufacturer of precision and specialty controlled motion products, acquired ALIO Industries, a manufacturer of advanced linear and rotary motion systems for nano-precision applications. The purchase price of \$20 million consisted of \$15 million in cash and \$5 million in common stock. In addition, there are potential earn-out payments over the next three years based on ALIO achieving certain annual EBITDA targets.

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### Teledyne FLIR to Develop AR Tech to Display Chem-Bio Threats

Teledyne FLIR has won a development contract worth up to \$15.7 million with the U.S. Defense Threat Reduction Agency's Joint Science and Technology Office (DTRA JSTO) to develop battlefield threat-mapping and visualization tools. The technology will allow the capability to digitally map hazardous material threats from sensor data.

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## Next Issue:

### Features

Emerging Sensor Tech, Computational Imaging, Line Scan Cameras, and more.

**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](mailto:visionspectra@photonics.com), or use our online submission form [www.photonics.com/submitfeature.aspx](https://www.photonics.com/submitfeature.aspx).



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