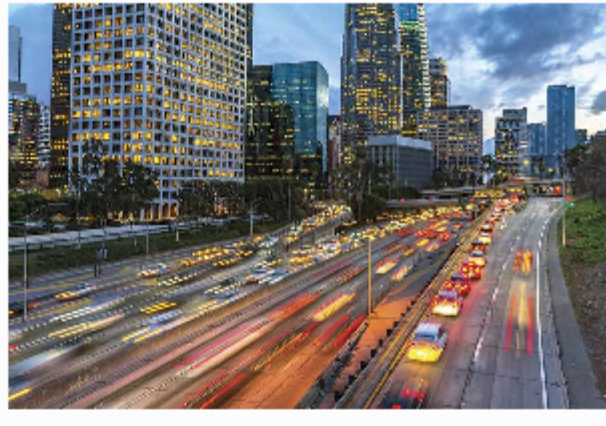


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Vision Systems Regulate Traffic, Improve Safety

On the roads at any given moment, there are traffic accidents, stopped vehicles, and drivers going the wrong way on one-way streets. All of these incidents adversely affect traffic flow and lead to congestion, delays, and, sometimes even secondary accidents. These realities have given rise to the intelligent transportation system (ITS), which involves a host of communication, control, sensing, and imaging technologies working in tandem to improve efficiency and safety.



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Machine Vision Makes the Move to IoT

One of the most hyped technologies in recent years has been the Internet of Things (IoT), a trend that has entered our consumer lives via home monitoring systems, wearable devices, connected cars, and remote health care. These advancements have been, in large part, attributed to two factors: the expansion of networking capabilities and the availability of lower-cost devices. In the vision market, by comparison, these same factors have been key challenges that have instead slowed the adoption of IoT.



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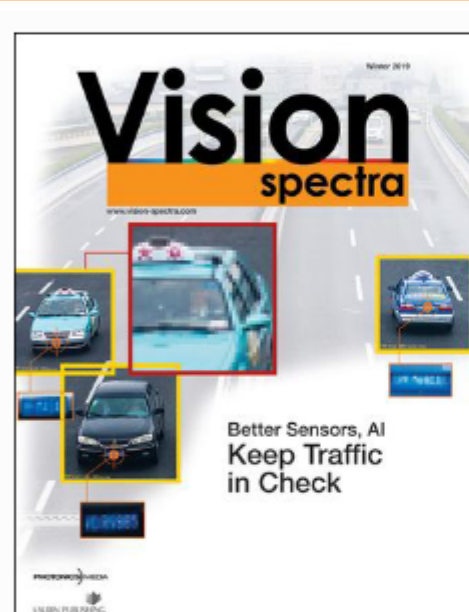
Hyperspectral Imaging Finds Its Niche

Hyperspectral imaging has a long history of successful applications in the field of remote sensing, but only recently has it matured enough to find success in industrial settings, including applications in pharmaceuticals, food production, manufacturing, and recycling. Although it was developed decades ago, hyperspectral imaging is not as widely adopted or as represented in literature as is conventional spectroscopy, which has achieved widespread commercial acceptance with an annual market of approximately \$10 billion.



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Vision Spectra - Winter 2019



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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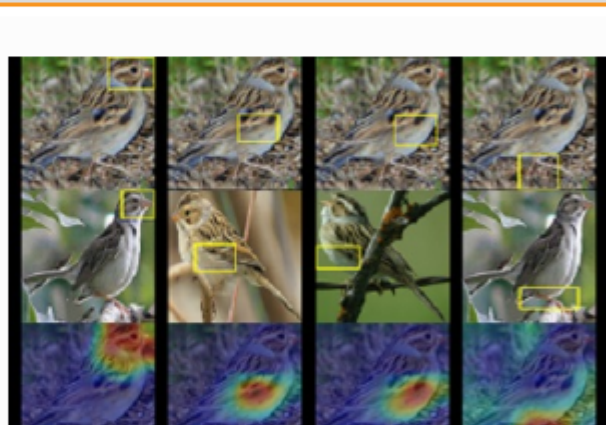
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More Vision News

Birdwatching with AI: How a Computer Identifies Species

Researchers at Duke University have trained a computer to identify bird species through deep learning and show its reasoning. The innovation may prove useful in medical diagnostics. The team trained their deep neural network — algorithms based on the way the brain works — by feeding it 11,788 photos of 200 bird species to learn from, ranging from swimming ducks to hovering hummingbirds.



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New System Uses Shadows to Detect Peripheral Movement in Autonomous Vehicles

Engineers at MIT have developed a system that can detect minute changes in shadows on the ground to determine if there's a moving object rounding a corner. The technique is showing promise as a safety feature for autonomous vehicles. When sensing and stopping for an approaching vehicle, the system beat traditional lidar — which is only able to detect visible objects — by more than half a second.

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IR Drone Imaging Keeps Vessels Shipshape

The UAV launches straight up from the deck of the USS Midway, its operator carefully maneuvering it in front of the ship's air traffic control tower. Along its predetermined flight path, the UAV captures lidar data and IR imagery for a few minutes before descending back to its landing pad. Topside Drone is a product of a corrosion/IR imagery detection sensor payload and processing scheme, outfitted to a commercial off-the-shelf UAV. The technology inspects and detects material defects, corrosion, warping, and other conditions that can plague naval vessels. The drone flies around the area of inspection taking photographs and measurements to determine if corrosion exists, and, if so, how severe it is.

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