Thursday, July 1, 2021

This Week in PHOTONICS

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.: Top Stories

Thin-Film Approach and Monochromatic Laser Light Set Mark for Photovoltaic Cell Efficiency
Researchers at Fraunhofer Institute for Solar Energy Systems ISE have achieved a conversion efficiency of 68.9% for a III-V semiconductor photovoltaic cell based on gallium arsenide (GaAs) exposed to laser light of 858 nm. The mark is reportedly the highest efficiency yet achieved for the conversion of light into electricity.

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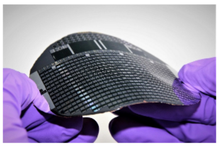

Liquid Crystal Metalens Enables Electric Zoom
A metalens developed by researchers from Cornell University and Samsung Advanced Institute of Technology can be focused using voltage rather than by mechanically moving its components. The lens, a proof of concept, is the first of its kind, the researchers reported, and opens possibilities to compact varifocal lenses.

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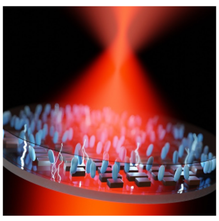

Lattice Light-Sheet Microscopy Provides Real-Time 3D Views for Targeted Malaria Treatments
With the help of a custom-built lattice light-sheet microscope, researchers at the Walter and Eliza Hall Institute (WEHI) captured high-resolution 3D video images of individual malaria parasites (Plasmodium falciparum) invading red blood cells in real time, and they observed the molecular and cellular changes that occurred throughout the very fast process.

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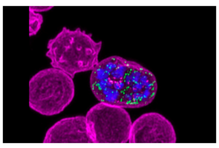

.: *Vision Spectra* Conference

Merging TOF Depth and 2D Color Data for 3D Robot Perception
Presented by: **Kimberly Matsinger, Basler, Inc.**

Computer vision can make robots "smarter," and it helps with expanding their fields of application. Time-of-flight (TOF) cameras capture precise 3D depth data in real time and offer compact and robust 3D vision solutions. For some robotic applications, it is useful to merge the depth data with the RGB data from a 2D color camera. The result is a point cloud in the object's true colors. This compensates for missing depth information, assists in classifications based on object color, or enables neural networks to be pre-trained on 2D color data.

In her presentation, Kimberly Matsinger, product market manager for the Americas at Basler, invites attendees to learn more about 2D and 3D vision-guided robotics.

The inaugural *Vision Spectra* Conference runs July 20 - 22. Registration is free for the event, which is offered exclusively online. For more information and registration, please visit www.photonics.com/vsc2021. Continued coverage of this inaugural event will also be available on vision-spectra.com and Photonics.com leading up to the conference.

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HyperFine Brillouin Spectrometer

LightMachinery Inc.

The great challenge with Brillouin spectroscopy is that the scattered signal from the un-shifted wavelength of the laser can overwhelm the small Brillouin shifted return signal. LightMachinery has combined its leading-edge HyperFine spectrometer with a very narrow band tunable filter to suppress the bright un-shifted laser frequency.

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Controlling Machines with Smart Vision Sensors

IDS Imaging Development Systems GmbH

Whether in equipment, plant and mechanical engineering, medical technology, agriculture or logistics - image processing solutions are used in a wide variety of industries and scenarios to accelerate, control, and optimise processes. When artificial intelligence comes into play, the range of applications becomes even wider.

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