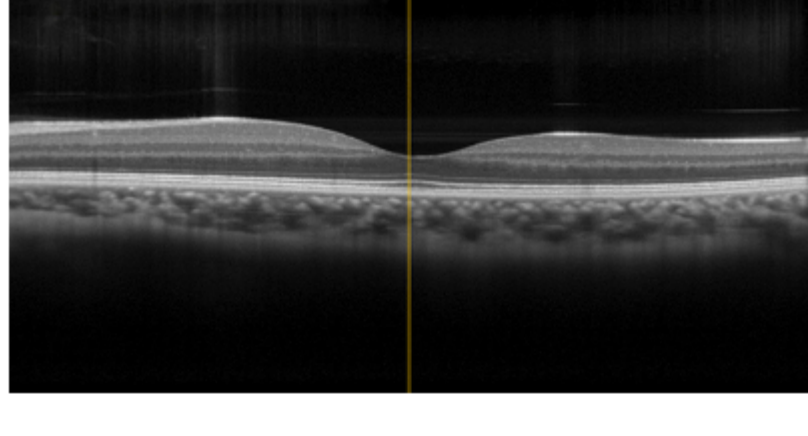




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Photonic Integrated Circuits Enable High-Speed OCT Imaging of the Eye

In the U.S., eye diseases and vision problems are widespread, with diseases such as age-related macular degeneration (AMD), glaucoma, and diabetic retinopathy affecting millions of people. The NIH estimates that by 2030, 5 million

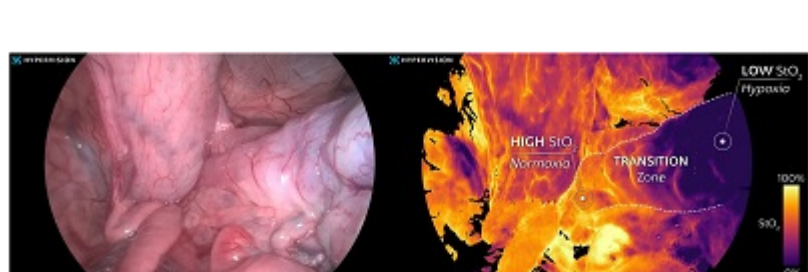
Americans will have low vision, and 2.2 million will be blind,

and the total economic burden for vision-related issues has been estimated to be \$139 billion¹. Advanced diagnostic methods aimed at early and effective identification of such diseases, including some of the most recent iterations of optical coherence tomography (OCT), hold great potential to allow for early treatment and to prevent permanent vision issues. [Read Article](#)



Miniaturized photonic components drive medical intervention

The miniaturization of components used in medical imaging has facilitated a range of groundbreaking diagnostics and therapeutics in modern health care. These imaging systems help to create detailed visual representations of the interior of tissues and organs for clinical analysis and medical intervention for a wide variety of diseases and chronic conditions. They can also play a critical role in guiding operations and evaluating treatment responses in proximity to the surgical suite. [Read Article](#)



Hypervision and imec Collaborate on Hyperspectral Imaging for Surgery

Hypervision, a spin-out company from King's College London that aims to advance computer-assisted tissue analysis for

improved surgical precision and patient safety, has signed a strategic development agreement with imec. The collaboration targets the co-development of scalable technologies tailored for surgical applications, as the company works to scale its on-chip hyperspectral imaging and real-time AI analytics. [Read Article](#)



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LIGHT: Introduction to Optics and Photonics, Second Edition

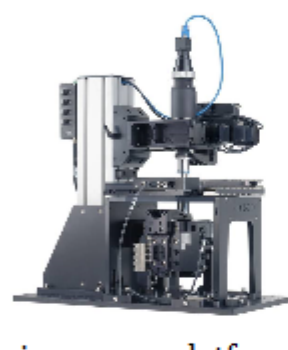
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OCT Technique Improves Accuracy of Deep Brain Stimulation Mapping

Deep brain stimulation (DBS), a surgical procedure that can be used to treat Parkinson's, obsessive-compulsive disorder, and other neurological disorders, involves implanting electrodes in specific brain regions to regulate abnormal neural activity. The precise placement of these electrodes is crucial for a successful clinical outcome. Magnetic resonance imaging (MRI), the tool commonly used for DBS mapping, lacks the resolution and contrast needed to accurately pinpoint the small, deep brain nuclei targeted for electrode placement. Consequently, researchers are exploring optical imaging techniques with better contrast, higher resolution, and lower costs than MRI to serve as supplementary tools in intraoperative DBS. [Read Article](#)

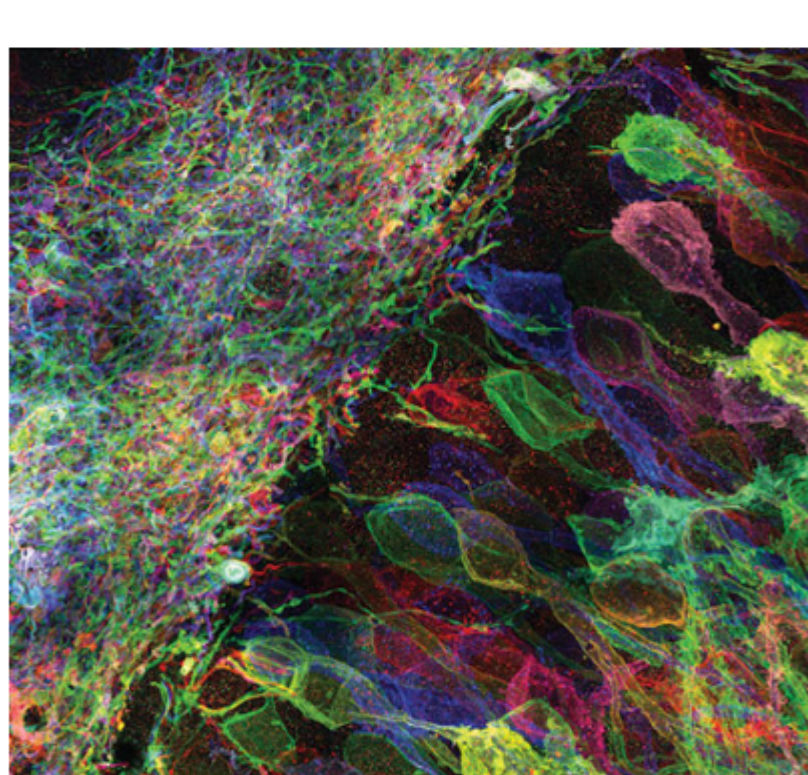
Evident's Pramana Acquisition Will Combine Clinical Microscopy, Digital Pathology Capabilities

Evident has agreed to acquire Pramana, a manufacturer of whole slide imaging technologies and digital pathology solutions. Terms of the deal have not been announced. Founded in 2021 by inference, a leader in multimodal and agentic AI innovation, Pramana develops fully autonomous image scanning systems, which are designed for use in hospitals, research facilities, and educational institutions. The systems use volumetric imaging techniques to scan specimens at varying fields of view and combine the images into a single fully focused image. [Read Article](#)

Multimodal Microscopy Imaging Method Charts Course for Monitoring Brain Metabolic Changes

A microscopy system developed by researchers at MIT addresses the challenges of using all-optical imaging techniques to visualize metabolic changes and neuronal activity deep within the brain. Using the system, which combines acoustic imaging and multiphoton excitation, the researchers achieved exceptional depth and sharp images by combining several advanced technologies into one microscope. [Read Article](#)

Latest Webinars



Tools for Analyzing, Controlling, and Simulating Biological Systems

Tue, Sep 16, 2025 1:00 PM - 2:00 PM EDT

It was discovered that one can physically magnify biological specimens by synthesizing dense networks of swellable polymer throughout them, and then chemically processing the specimens to isotropically swell them. This method, which is called expansion microscopy, enables ordinary microscopes to do nanoimaging – important for mapping molecules throughout cells, tissues, and organs. As a second example, Ed's team serendipitously discovered that microbial rhodopsins, genetically expressed in neurons, could enable their electrical activity to be precisely controlled in response to light. These molecules, now called optogenetic tools, enable causal assessment of how neurons contribute to behaviors and pathological states, and are yielding new candidate treatment

strategies for brain diseases. Finally, the development of new strategies such as robotic directed evolution, fluorescent reporters enable the precision measurement of signals such as voltage. To reveal relationships between different molecular signals within a cell, there is work of developing spatial and temporal multiplexing strategies that enable many such signals to be imaged at once in the same living cell. Sponsored by Zaber Technologies Inc., Jenoptik and COMSOL Inc.

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Features

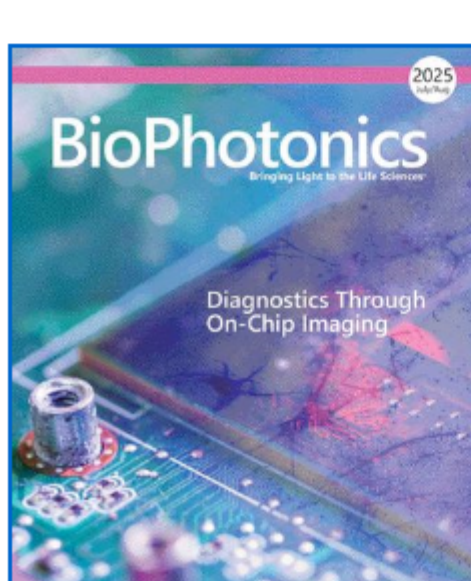
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