

# BIOPHOTONICS

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## WEBINARS

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### Looking Deeper by Listening to Light: Photoacoustic Imaging and Its Applications

Thursday, November 3, 2022 1:00 PM - 2:00 PM EDT

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#### .: About This Webinar

Photoacoustic imaging is a novel hybrid imaging technique that combines both optical and ultrasound imaging. In this technique, a short-pulsed laser source illuminates the tissue to generate sound waves called photoacoustic waves. These sound waves are used to obtain high-contrast, high-resolution, deep-tissue imaging of various physiological parameters. Photoacoustic imaging, like ultrasound imaging, is a multiscale and multidepth imaging modality. Manojit Pramanik discusses several photoacoustic imaging systems with different resolution and depth capabilities, along with their applications.

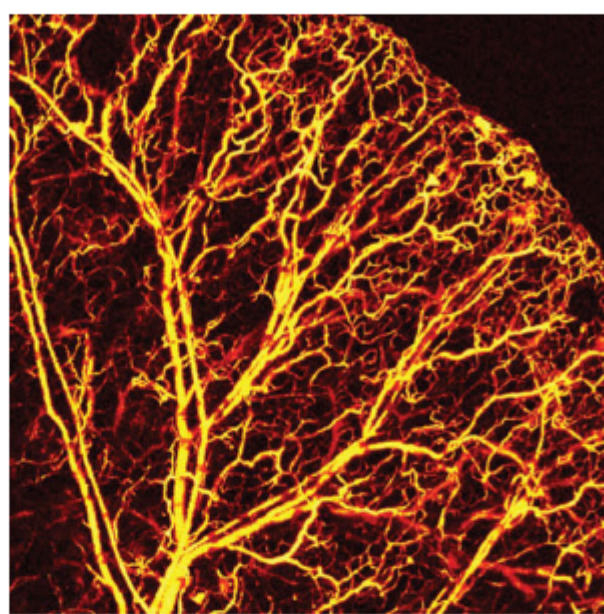
First, he addresses the low-cost, high-speed, compact pulsed laser diode-based photoacoustic tomography (PLD-PAT) imaging system for small animal brain imaging and tumor imaging. Translating photoacoustic imaging into clinical use is a challenge. Pramanik discusses a hand-held photoacoustic imaging system based on clinical ultrasound platforms for noninvasive sentinel lymph node imaging and bladder imaging in small animals. This type of imaging system has great potential for clinical applications. In addition to photoacoustic tomography, Pramanik shares the benefits of high-resolution photoacoustic microscopy systems for angiogenesis imaging and machine learning approaches to enhance imaging. Combining imaging systems with contrast agents opens the door for targeted molecular imaging. He finally addresses a few contrast agents for photoacoustic imaging with molecular imaging capabilities.

#### Who should attend:

Engineers, researchers, and clinicians who use or are interested in photoacoustic imaging. Commercial representatives involved in imaging R&D and marketing. Those who work in imaging within medical research, biotechnology, microscopy, test & measurement, machine learning, tomography, and cancer research.

#### About the presenter:

Manojit Pramanik, Ph.D., is an associate professor at Nanyang Technological University in Singapore. He received his doctorate in biomedical engineering from Washington University in St. Louis, Missouri, in 2010. His industry experience includes two years at General Electric Global Research and one year at Philips Medical System. His research interests include the development of photoacoustic imaging systems, image reconstruction, machine learning for photoacoustic imaging, clinical application areas, molecular imaging, contrast agent development, and Monte Carlo simulation for light transport in biological tissue. He has published more than 250 international journal articles and conference presentations. He serves as an editorial board member of the *Journal of Biomedical Optics* for photoacoustics. He is a senior member of IEEE and SPIE, and is the inaugural Biodesign Faculty Fellow offered by the Singapore Biodesign program in collaboration with the Stanford Biodesign program.



#### .: Mark Your Calendar

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