

## Improvement on Photoacoustic Tomography Systems for Imaging Applications

By allowing for superior imaging of both skin and breast tissue, researchers from the University at Buffalo have developed an improvement of existing photoacoustic tomography that provide high-quality 3D imaging using a conventional linear transducer array. This technology improves the performance of traditional photoacoustic tomography devices by increasing their elevational resolution, which widens the field of view of the transducer that receives waves. The transducer then organizes the information collected from the waves to construct a 3-D image, which is generated through a proprietary algorithm. Without requiring an increase in scanning times, this improvement provides up to ten times improvement in spatial resolution. As if these were not enough benefits, this novel, noninvasive technology can also reduce patient discomfort and provide immediate results compared to current options.



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## ADVANTAGES

### Dense Breast Imaging

- Less discomfort for patients
- Insurance companies pay high costs for current imaging for poor clinical outcomes, but with invention, it is less expensive, and more accurate

### Directly applicable to existing transducers

- No need to get customized transducers, minimal modification cost.
- Improve the resolution of existing

## APPLICATIONS AND MARKETS

- Dense breast imaging
- Skin cancer imaging
- Diabetic foot imaging
- Biometrics

## PATENT STATUS

U.S. patent application filed December 5, 2016

## PRIMARY INVENTORS

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## RELATED PUBLICATIONS

Wang, Y., Wang, D., Zhange, Y., Geng, J., Lovell, J., Xia, J., (2016). **Slit-enabled linear-array photoacoustic tomography with near isotropic spatial resolution in three dimensions.** *Optics Letters*, 41(1), 127-30.

Wang, Y., Wang, D., Hubble, R., and Xia, J., (2017). **Second Generation Slit-based Photoacoustic Tomography System for Vascular Imaging in Human,** *Journal of Biophotonics*, 10, 799-804.

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