# Computer-aided Detection for Breast Tomosynthesis

The explosion of data which a tomosynthesis exam generates can be daunting for radiologists. A typical 2D mammogram involves examining two images per breast, whereas tomosynthesis can produce hundreds of images, thus significantly increasing reading complexity and interpretation time.

To help address these challenges, the iCAD company — a specialist in the design of Computer-Aided detection (CAD) systems — has developed Power-Look Tomo Detection, a concurrent read CAD solution specifically designed for digital breast tomosynthesis (DBT).
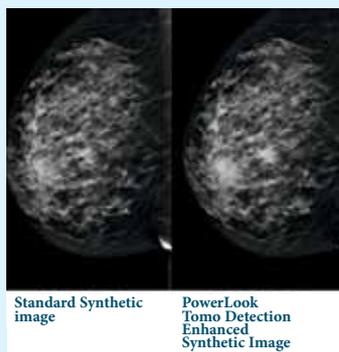
The new system provides radiologists with a powerful tool to simplify DBT reading workflow and improve interpretation confidence. Studies have shown that the product can reduce interpretation time by up to 36.5% with an average reduction of 29.2%. The current version of the package is designed to detect soft tissue densities including masses, architectural distortions, and asymmetries.

Standard Synthetic image

PowerLook Tomo Detection Enhanced Synthetic Image

PowerLook Tomo Detection is built on the latest deep learning technology and is designed to improve DBT reading workflow while maintaining the high sensitivity and low false positive rates associated with DBT. The algorithm used in the system is trained to identify suspicious soft tissue densities using both biopsy-proven cancer images as well as normal mammogram images.

How does it work?

PowerLook Tomo Detection rapidly scans each DBT plane image identifying potential areas of interest. These areas of interest are extracted from the planes and blended onto a synthetic 2D image where they are visible on a single image. The detected regions on the enhanced synthetic 2D image are also linked to the appropriate 3D DBT planes, so creating an efficient and effective navigation tool for radiologists to decrease reading time. Unlike traditional 2D CAD solutions, PowerLook Tomo Detection is designed to be used concurrently throughout study interpretation. Also unlike traditional 2D CAD no CAD marks are placed on the image.

PowerLook Tomo Detection is currently available with the GE's SenoClaire and Seno Iris mammography workstation. This technology combined with the GE V-Preview synthetic 2D image creates an Enhanced V-Preview image. By blending the detected regions into the V-Preview synthetic 2D image, over 90% of cancers that can be seen on the tomosynthesis planes are also visible on the enhanced synthetic image.

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Digital Mobile X-ray system

The EFX version of the MobileDaRt Evolution series from Shimadzu is digital mobile X-ray system that can be moved to any location where radiography is required, enabling on-site examinations and image verification. The system continues the company's tradition in diagnostic imaging providing innovative technologies and industry firsts.

Designed for efficiency and high throughput, the new system is equipped with a wireless flat panel detector (FPD), so broadening its applications from clinical rounds in hospitals to critical care units, as well as operating rooms and neonatal intensive care units (NICU).

The system not only improves the workflow of the X-ray technologist but also reduces the burden on patients. Instead of a traditional hard disk drive, a high speed vibration-resistant solid-state drive (SSD) has been incorporated , thereby reducing the risk of data loss. The system startup time has been substantially reduced to approximately 1 minute.

LEDs have been used as the light source to indicate the irradiation field, so increasing the brightness, contributing to improved operability for the and reducing power consumption to approximately one half of conventional levels while ensuring a long operating life and reducing periodic maintenance requirements.

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