



Parascript® AccuDetect® Computer-Aided Detection (CAD) software helps radiologists read digital mammograms. Using several complementary algorithms and sophisticated voting methods to achieve high sensitivity and low false-positive rates, AccuDetect identifies areas suspicious for breast cancer for further review.

Results

According to the retrospective comparative study, “Malignant Lesions on Mammography: Accuracy of Two Different Computer-Aided Detection Systems,” by Lobbes et al.¹, the previous version of the AccuDetect CAD system² showed better overall performance when compared to iCAD’s Second Look³ in detecting masses, microcalcifications, and all cancer types, especially in extremely dense breasts. When compared to Second Look in extremely dense breasts (ACR 4), AccuDetect demonstrated **15.4 percent increase** in detection of both *masses and calcifications* with similar operating points for both CAD systems. Most importantly, for *total cancer cases in extremely dense breasts*, the percentage of cancers correctly identified by AccuDetect was **14.6 percent higher** than that of Second Look, again with similar operating points.

These differences can be directly related to the mechanism that each system uses in detecting lesions. Second Look detects culprit lesions on mammograms using image processing, pattern recognition, and artificial intelligence techniques based on the knowledge from thousands of mammograms. In addition to these well-known approaches, AccuDetect system uses multiple independent cancer detection algorithms and unique patented voting methodology⁴ to combine its findings. Comparing the results of the multiple image recognition processes allows for the mitigation of the inherent faults of the recognition processes, thus leading to reduced false-positive and false-negative rates.

Performance

SUPERIOR CAD WORKFLOW PERFORMANCE

- Fast processing time - 11 seconds per image, 45 seconds per 4-view study.
(Compared to: iCAD’s SecondLook: 30 seconds per image, 120 seconds per 4-view study; and Hologic’s R2: 30 seconds per image, 120 seconds per 4-view study.)⁵
- Priority queuing of preferred devices for important or urgent studies.
- CAD server supports up to four FFDM systems.

DETECTION OF MICROCALCIFICATIONS

- Detects calcification clusters consisting of several calcifications with size between 0.1mm and 0.8mm. in diameter within 2cm² area.
- Results for calcifications: 90% sensitivity with 0.75 false positives per four-view study.

DETECTION OF SOFT TISSUE DENSITIES

- Detects soft tissue densities with a diameter between 5mm and 50mm.
- Results for soft tissue densities: 83.3% sensitivity with 0.95 false positives per four-view study.

OUTSTANDING STANDALONE PERFORMANCE⁶

AccuDetect’s sophisticated CAD algorithms support early, more accurate detection:

- 91% sensitivity with 1.6 false positives per four-view study.
- 45% specificity (percentage of normal cases where CAD did not show any marks).
- Delivers very high performance on dense/extremely dense breasts – 85% sensitivity, 43% specificity, 1.5 false positives per four-view study.⁷

¹ M. Lobbes et al., Clinical Imaging 37 (2013) 283-288.

² AccuDetect Galileo version 4.0.1.

³ iCad Second Look version 7.2.

⁴ Voting in mammography processing. US patent 8,311,296.

⁵ P. Tchou et al., “Interpretation Time of Computer-aided Detection at Screening Mammography.” Radiology, October 2010

⁶ See Accudetect device labeling for complete clinical data.

⁷ The differences in both sensitivity and specificity between AccuDetect CAD results for dense or extremely dense breasts and fatty or scattered fibroglandular breasts are statistically insignificant.

Features

PRECISE CAD MARKERS

- Highlight suspicious lesions without obscuring regions of interest.
- Mark densities with ovals and microcalcifications with rectangles that surround the region of interest.
- Correspond to the size of suspicious calcification clusters and densities.
- Toggle on/off (enabled by majority of review workstations).

OPEN SYSTEM ARCHITECTURE

- Supports direct radiography (DR) Full Field Digital Mammography (FFDM) systems. The software adapts to the specific characteristics of each FFDM detector to maximize performance.
- Integrates with multiple clinical workflows including acquisition and review workstations, picture archiving and communication systems (PACS) and other DICOM enabled devices.

COMPATIBILITY

- A True Multi-Vendor Solution, AccuDetect 7.0 includes a Windows 7, multi-vendor CAD server that provides consistency across all digital mammography systems including **GE, Philips, Hologic, FujiFilm, IMS, Carestream, Planned, AGFA, Allengers,** and **Siemens.**⁸ The AccuDetect platform is specifically designed to give radiologists the ability to customize their platform solution. AccuDetect's scalable design provides customers the freedom to choose the products and functionality needed today and in the future.



RECOMMENDED COMPUTER

Processor

4 Core i7-3770, 3.5GHz

RAM

8 GB

Hard Drive

250GB SATA, 7200 RPM Hard Drive

Network

1 GB Ethernet card

OS

Windows 7 Professional, 64-bit

Hyper Threading

Enabled

CONNECTIVITY

Network Interface, Ethernet Interface (RJ45 Connector)

UNIVERSAL DICOM

CONNECTIVITY

- Supports DICOM Structured Report
- Sends results to multiple destinations
- Automatic send/receive of results
- 10/100/1000 Base T Ethernet
- Remotely accessible