Lunit INSIGHT MMG

AI Solution for Mammography

Lunit INSIGHT MMG

<div> <p>Set DICOM output options</p> <p>Select the AI analyzed DICOM format</p> <div> <label ><svg xmlns="http://www.w3.org/2000/svg" width="20" hei rule="evenodd"> <g> <g> <g transform="translate(-488 -304) translate(468 220) translate(20 84)" > <rect width="19" height="<path fill="#00C9EA" d="M6 5c.552 0 1 .448 1 1v4h8c.552 0 1 .448 1 1s-.448 1-1 1H6c-.552 0-1-.448-1-1V6c0-.552.448-1 1-1z" </g> </g></svg> SC Secondary Capture</label > <div> <div> <label>Display aria-disabled="false" ><input name="dicomFormat.scHeatmapType" type="radio" value="heatmap" checked="" /><svg xmlns viewBox="0 0 20 20" > <g fill="none" fill-rule="evenodd"> <g> <g> <g> <g> <g> (-656 -348) translate(4 translate(0 34) translate(115)" > <circle cx="10" cy="10" r="9.5" stroke="#00C9EA" ></circle> <circle cx="10" cy="10" r="4" </g> </g></svg> Color Map</label> <label ><input name="dicom /><svg xmlns="http://www.w3.org/2000/svg" width="20" height="20" viewBox="0 0 20 20" > <g fill="none" fill-rule="evenodd"> translate(468 220) translate(53 74) translate(20 20) translate(0 34)" > <circle cx="10" cy="10" r="9.5" stroke="#A3A3A3" > g> </g> </g> </g> </g> </g></svg> Single Color Map</label> <label ><svg xmlns="http://www.w3.org/2000/svg" width="20" height="20" viewBox="0 0 20 20" > <g fil transform="translate(-541 -348) translate(468 220) translate(53 74) translate(20 20) translate(0 34)" > <circle cx="10" cy cx="10" cy="10" r="4"></circle> </g> </g> </g> </g> </g> </g></svg> Grayscale Map</label ><label name="dicomFormat.scHeatmapType" type="radio" value="combined" /><svg xmlns="http://www.w3.org/2000/svg" width="20" height=rule="evenodd"> <g> <g> <g> <g> <g transform="translate(-541 -348) translate(468 220) translate(53 74) translate(20 20) tr stroke="#A3A3A3" ></circle> <circle cx="10" cy="10" r="4"></circle> </g> </g> </g> </g> </g> </g></svg> <label>Result Type</label> <div> <div> <label ><input name="cxrScFormat.scTypes.map" ty value="true" checked="" /><svg xmlns="http://www.w3.org/2000/svg" width="20" height="20" viewBox="0 0 20 20" > <g fill="non transform="translate(-488 -304) translate(468 220) translate(20 84)" > <rect width="19" height="19" x="0.5" y="0.5" stroke=5c.552 0 1 .448 1 1v4h8c.552 0 1 .448 1 1s-.448 1-1 1H6c-.552 0-1-.448-1-1V6c0-.552.448-1 1-1z" transform="rotate(-45 10.5 span >INSIGHT Map</label > <div> <img src="/manager/static/media/img_colormap.fd6f4206.png" alt= width="200" height="220" viewBox="0 0 200 220" > <defs> <filter id="1timq1zc8a" width="146.7%" height="126.7%" x="-23.1%" y <feGaussianBlur in="SourceGraphic" stdDeviation="2" ></feGaussianBlur> </filter> <filter id="15xv5wk3db" width="175%" heigh filterUnits="objectBoundingBox" > <feGaussianBlur in="SourceGraphic" stdDeviation="2" ></feGaussianBlur> </filter> <filter y="-60%" filterUnits="objectBoundingBox" > <feGaussianBlur in="SourceGraphic" stdDeviation="2" ></feGaussianBlur> <g> <path d="M0 0H200V220H0z" transform="translate(-3683 -543) translate(3683 543)" ></path> <path fill="#52F78 44.02c8.654 4.308 0 15.543-4.284 20.23-4.284 4.688-1.255 15.478-1.511 22.027z" filter="url(#1timq1zc8a)" opacity="0.3" tr ></path> <path fill="#FFFC47" d="M34.616 74.726c-5.696 3.784-9.67-33.031 9.105-24.415 5.32G 2.49 0 8.98 2.637 11.89-2.63 filter="url(#15xv5wk3db)" opacity="0.5" transform="translate(-3683 -543) translate(3683 543)" ></path> <path fill="#FB1200" .191 2.172-5.124 10.722-3.488 5.948 1.563" filter="url(#e71evj2etjc)" opacity="0.7" transform="translate(-3683 -543) transla </div> </div> </div> </div> <label ><input name="dicomFormat.createSps" type="checkbo xmlns="http://www.w3.org/2000/svg" width="20" height="20" viewBox="0 0 20 20" > <g fill="none" fill-rule="evenodd"> <g> <g 220) translate(20 44)" > <rect width="19" height="19" x="0.5" y="0.5" stroke="#A3A3A3" rx="1" ></rect> <path fill="#A3A3A3" 1s-.448 1-1 1H6c-.552 0-1-.448-1-1V6c0-.552.448-1 1-1z" transform="rotate(-45 10.5 8.5)" ></path> </g> </g> </g> </g></svg Softcopy Presentation State</label> <label ><input name="dicomForma indeterminate="false" value="false" /><svg xmlns="http://www.w3.org/2000/svg" width="20" height="20" viewBox="0 0 20 20" > <g transform="translate(-488 -264) translate(468 220) translate(20 44)" > <rect width="19" height="19" x="0.5" y="0.5" stroke=5c.552 0 1 .448 1 1v4h8c.552 0 1 .448 1 1s-.448 1-1 1H6c-.552 0-1-.448-1-1V6c0-.552.448-1 1-1z" transform="rotate(-45 10.5 span >SR Structured Reporting</label > </div></div> <div> <p>Set DICOM output options <label ><input name="dicomFormat.createSc" type="checkbox" data-indeterminate="false" v w3.org/2000/svg" width="20" height="20" viewBox="0 0 20 20" > <g fill="none" fill-rule="evenodd"> <g> <g> <g transform="tr 34)" > <rect width="19" height="19" x="0.5" y="0.5" stroke="#00C9EA" rx="1" ></rect> <path fill="#00C9EA" d="M6 5c.552 0 1 0-1-.448-1-1V6c0-.552.448-1 1-1z" transform="rotate(-45 10.5 8.5)" ></path> </g> </g> </g> </g></svg> </label > <div> <div> <label>Display Mode</label> <div role="radiogroup"> <label ><in value="heatmap" checked="" /><svg xmlns="http://www.w3.org/2000/svg" width="20" height="20" viewBox="0 0 20 20" > <g fill=" transform="translate(-656 -348) translate(468 220) translate(53 74) translate(20 20) translate(0 34) translate(115)" > <c circle> <circle cx="10" cy="10" r="4" fill="#00C9EA" ></circle> </g> </g> </g> </g> </g> </g></svg> <sp disabled="false" ><input name="dicomFormat.scHeatmapType" type="radio" value="singlemap" /><svg xmlns="http://www.w3 20 20" > <g fill="none" fill-rule="evenodd"> <g> <g> <g> <g> <g transform="translate(-541 -348) translate(468 220) translat cx="10" cy="10" r="9.5" stroke="#A3A3A3" ></circle> <circle cx="10" cy="10" r="4"></circle> </g> </g> </g> </g> </g> </g> </g> label ><label ><input name="dicomFormat.scHeatmapType" type="radio" value="contour" /> height="20" viewBox="0 0 20 20" > <g fill="none" fill-rule="evenodd"> <g> <g> <g> <g> <g transform="translate(-541 -348) translate(0 34)" > <circle cx="10" cy="10" r="9.5" stroke="#A3A3A3" ></circle> <circle cx="10" cy="10" r="4"></circle> </g> </g> >Grayscale Map</label> <label ><input name="dicomFormat.scHeatmapType" www.w3.org/2000/svg" width="20" height="20" viewBox="0 0 20 20" > <g fill="none" fill-rule="evenodd"> <g> <g> <g> <g> translate(53 74) translate(20 20) translate(0 34)" > <circle cx="10" cy="10" r="9.5" stroke="#A3A3A3" ></circle> <circle </g> </g></svg> Combined Map</label > </div> </div> <div> <label>Result Type</label> <div> name="cxrScFormat.scTypes.map" type="checkbox" data-indeterminate="false" value="true" checked="" /><svg xmlns="http:// 0 20 20" > <g fill="none" fill-rule="evenodd"> <g> <g> <g transform="translate(-488 -304) translate(468

Lunit INSIGHT MMG

Product Information
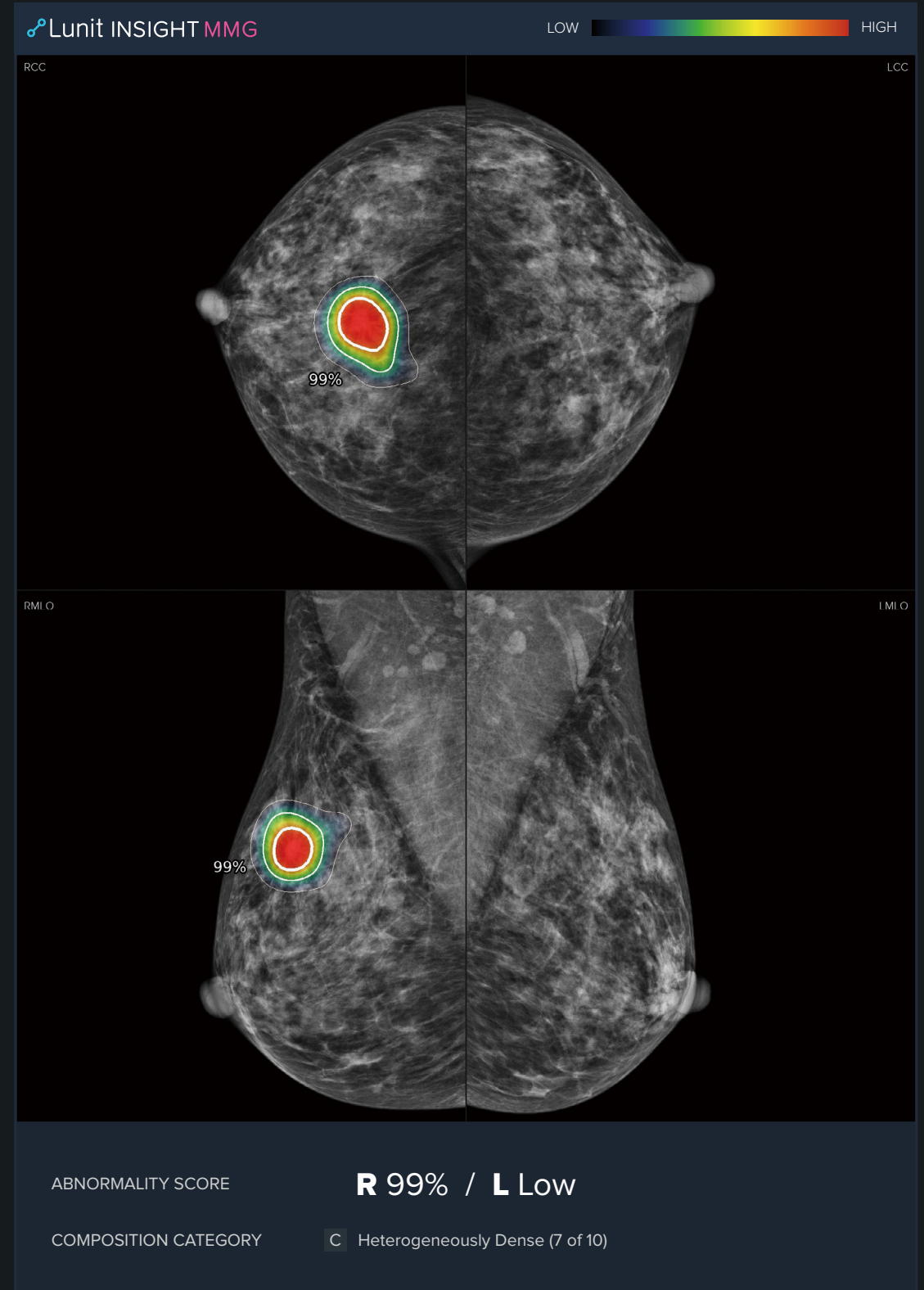
UK ●
● Netherlands

China ●
South Korea ●

● United States

● Mexico

● Brazil

200⁺
Reference Sites

80⁺
Countries Worldwide

7M⁺
*Images Analyzed
(for clinical and research use)*
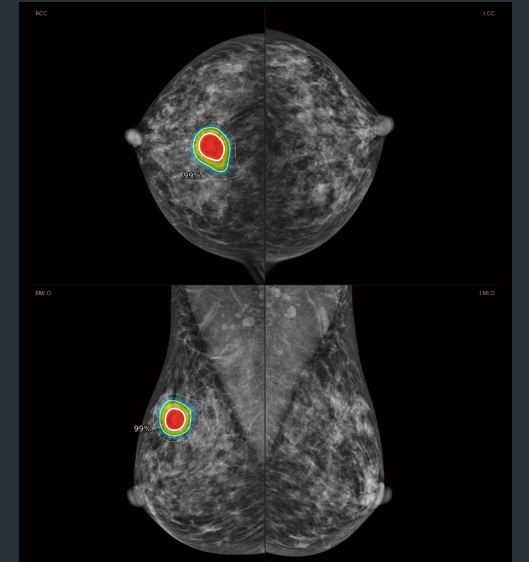
What does Lunit INSIGHT MMG analyze on mammograms?

Lunit INSIGHT MMG detects breast cancer on mammograms with 96% accuracy.

96%

*Detects breast cancer with 96% accuracy*

Lunit INSIGHT MMG generates

Detected Location

The location information of detected breast cancer in the form of heatmap and outlines

Abnormality Score

An abnormality score for each side of the breast, which reflects the AI's calculation of the actual presence of the detected breast cancer

Normal
0%

Abnormal
100%

Low probability of breast cancer presence

High probability of breast cancer presence
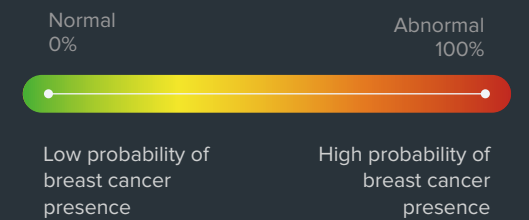
Density Assessment

Assessment of breast density, categorized into four types

COMPOSITION CATEGORY

C   Heterogeneously Dense
(7 of 10)
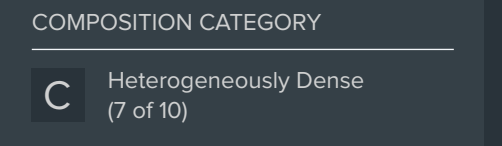
What are the major benefits of using it?

Detect more breast cancers.

Fast triage of normal cases.

Improved reading performance of general radiologists.

01

Detect more breast cancers

The combination of first-reader radiologists and Lunit AI detects more breast cancers, than not only the first-reader and second-reader radiologists but also the double reading by radiologists.[1]

Health check-up centers
Community hospitals and clinics
Radiology departments

02

Fast triage of normal cases

According to the abnormality scores generated by AI, radiologists can successfully triage up to 60% of the entire cases without human interpretation, which can reduce their workload by more than half in mammogram interpretation.[2]

Health check-up centers
Imaging clinics
Teleradiology centers

60%

Triage 60% of the entire cases without human interpretation

03

Improved reading performance of general radiologists

General radiologists can use the AI analysis results to improve their reading performance, at a level up to that of breast specialists.[3]

Health check-up centers
Community hospitals and clinics
Radiology departments

Early diagnosis of breast cancer.

Support for decision-making on BI-RADS 3 and 4 cases.

Improved diagnostic accuracy for dense breasts.

04

Early diagnosis of breast cancer

Radiologists can detect T1 and node-negative breast cancer with 91% and 87% accuracy, respectively.[4]

Health check-up centers
Community hospitals and clinics
Radiology departments

91% *AI detection accuracy of T1 breast cancer*

87% *AI detection accuracy of node-negative cancer*

05

Support for decision-making on BI-RADS 3 and 4 cases

For difficult cases classified as BI-RADS 3 or 4, radiologists can compare their reading result and decide with confidence for additional exams such as ultrasound and biopsy.

Health check-up centers
Community hospitals and clinics
Radiology departments

06

Improved diagnostic accuracy for dense breasts

Radiologists can improve their diagnostic accuracy for dense and fatty breasts by up to 9% and 22%, respectively.[5]

Health check-up centers
Community hospitals and clinics
Radiology departments

9% *Dense breast cancer diagnosis increased by 9% with AI.*

22% *Dense breast cancer diagnosis increased by 22% with AI.*

What do the medical journals say?

Below are highlights from the studies published in peer-reviewed journals that validate the performance of Lunit INSIGHT MMG and its clinical value in mammography interpretation.

JAMA Oncology   THE LANCET Digital Health

Accurate and efficient diagnosis boosted with AI

HIGHLIGHT 1

Improved reading performance of general radiologists and breast specialists.[6]

<Increased Breast Cancer Detection With AI>
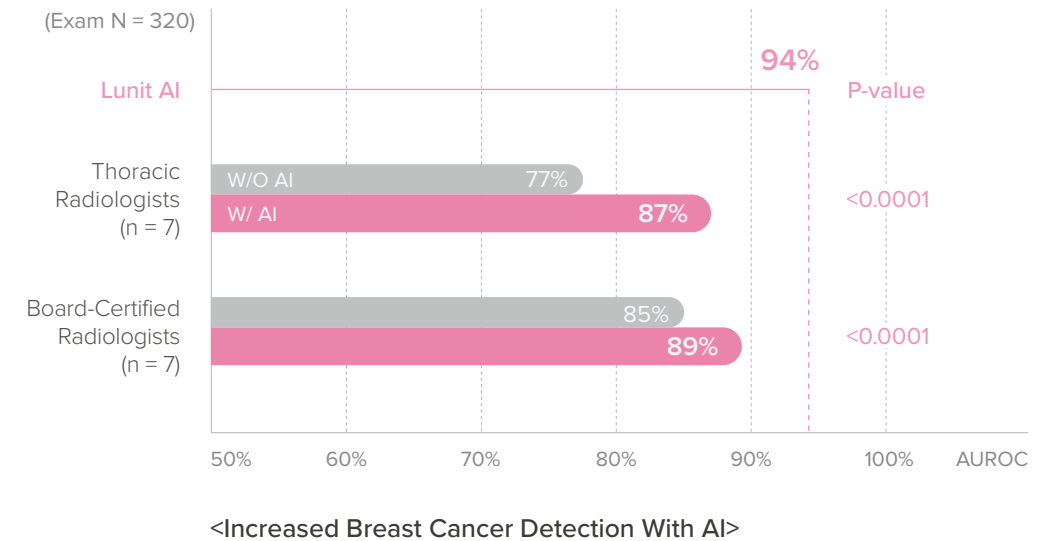
HIGHLIGHT 2

Detect early breast cancer such as T1 and node-negative breast cancer.[7]

<Early Breast Cancer Diagnosis Rate Improvement>
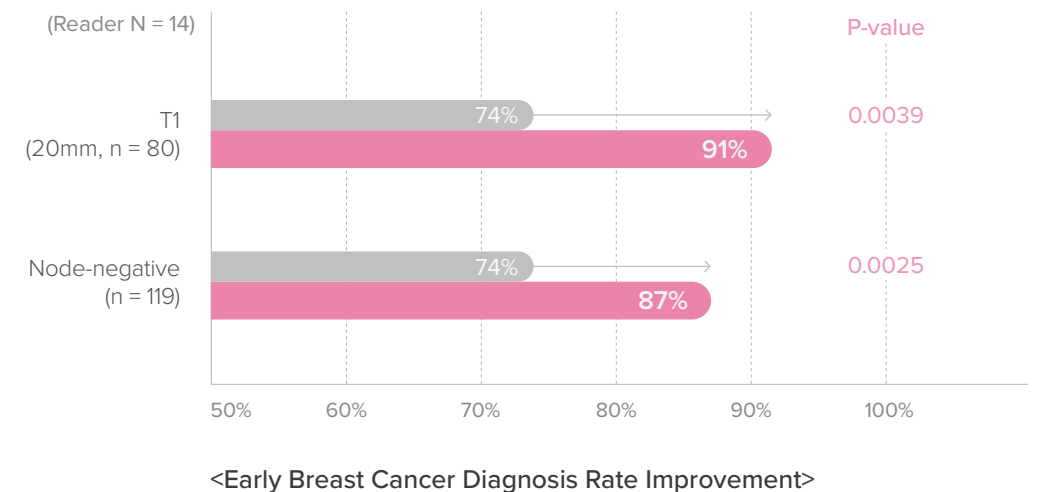
Simulated Triaging Workflow

This simulation features a triage workflow model, of which the AI score functions as a supportive information, that reduces radiologists' reading volume and complements their interpretations.

SCREENED FEMALE COHORT

HIGHLIGHT 3

AI SCORE RULE OUT

60%
No Radiologist (Lowest AI Score)

NORMAL

40%

3%
Abnormal Mammogram

DOUBLE READING AND CONSENSUS

37%
Normal Mammogram

HIGHLIGHT 4

AI SCORE RULE IN

32-35%

2-5%

Enhanced assessment (Highest AI scores) for supplemental imaging

SUPPLEMENTAL MODALITY (e.g. MRI)

Normal MRI

Abnormal MRI

DIAGNOSTIC WORK-UP

BREAST CANCER DETECTED

HIGHLIGHT 3

Triage 60% of the entire cases without missing any breast cancer.[8]

RULE OUT

60% of the entire cases with scores below a rule-out threshold could be triaged to a no radiologist work stream and interpreted as negative without missing any screen-detected cancer.

HIGHLIGHT 4

Detect more cancer cases originally interpreted by double reading as normal.[9]

RULE IN

Cases interpreted as normal but with scores above a rule-in threshold could be considered for supplementary breast imaging tests to detect more cancer that could have been missed.

HIGHLIGHT 5

Lunit best detects breast cancer compared to other commercial AI solutions.[10]

(Exam N = 8,805)

		P-value
Lunit AI	96%	< .001
Other AI 1	92%	0.68
Other AI 2	92%	0.68

50%　60%　70%　80%　90%　100%　AUC

<Best Performance In Breast Cancer Detection Compared With Other AI Solutions>
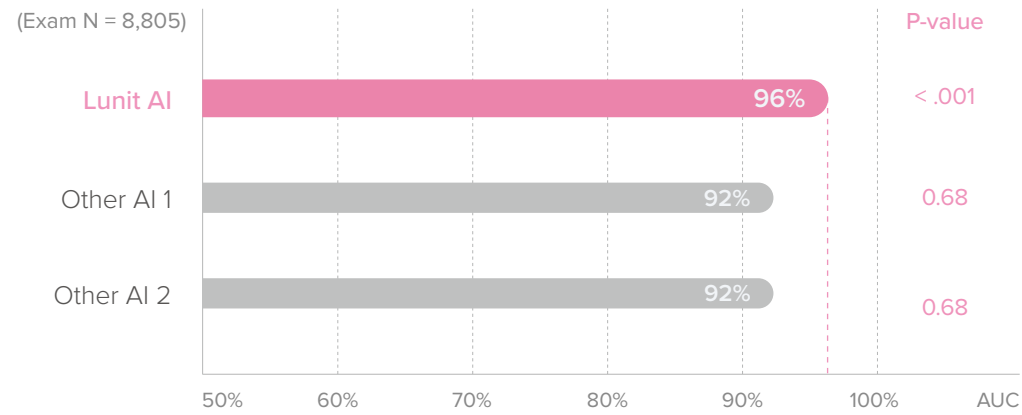
HIGHLIGHT 6

Highest sensitivity when combined with first-reader radiologist.[11]

(Exam N = 113,663)

		P-value
Combination of first-reader radiologists and Lunit AI	89%	< .001
Double reading consensus	85%	0.11
Second-reader radiologists	80%	0.40
First-reader radiologists	77%	0.03

50%　60%　70%　80%　90%　100%　Sensitivity

<Highest Sensitivity When Combined With First-Reader Radiologists>
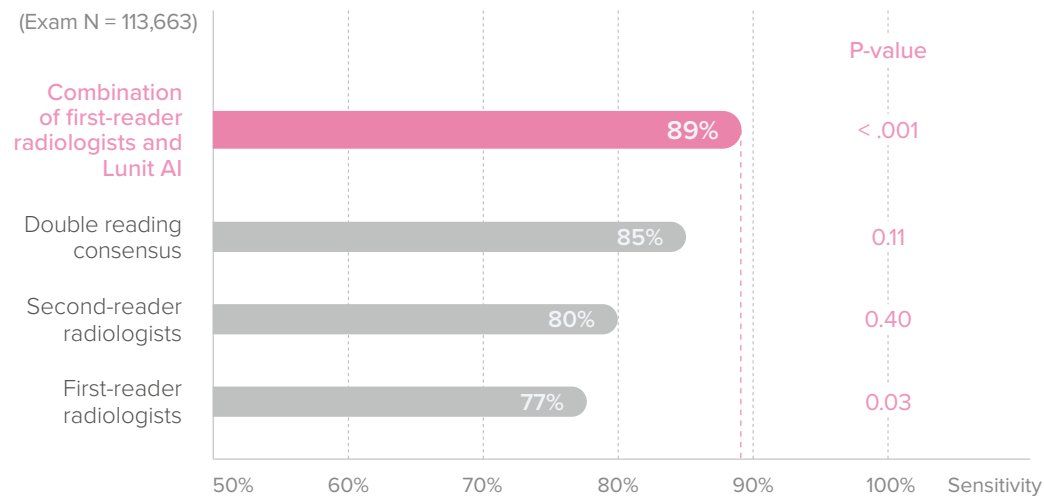
What do the medical journals say about AI-powered mammography?

Go to Video →
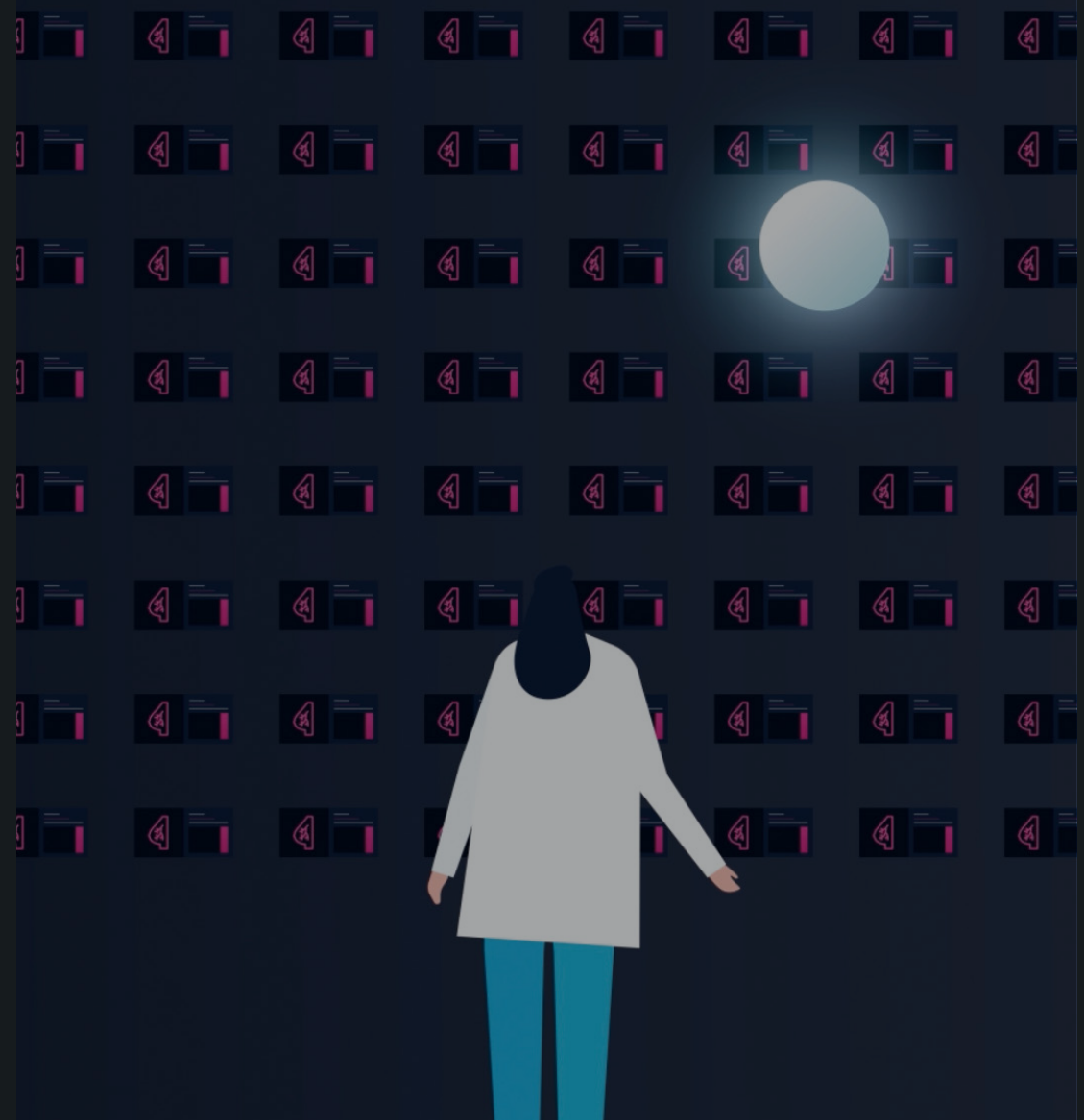
Five-year survival rate
when detected early by AI

Lunit INSIGHT successfully analyzed the mammogram of a 59-year-old female patient, detecting breast cancer that had been missed since 2 years ago.

96%

*When Detected
Early By AI
(stage 1-2)*

65%

*When Missed
(stage 3-4)*
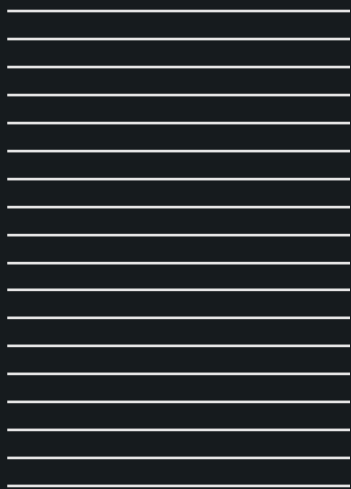
Reference : AJCC 8th Edition

2008

MISSED

AI Score 71.2%
DETECTED

2009

MISSED

AI Score 91.8%
DETECTED

2010

BREAST CANCER
DIAGNOSED

AI Score 99.9%
DETECTED

Sample Cases
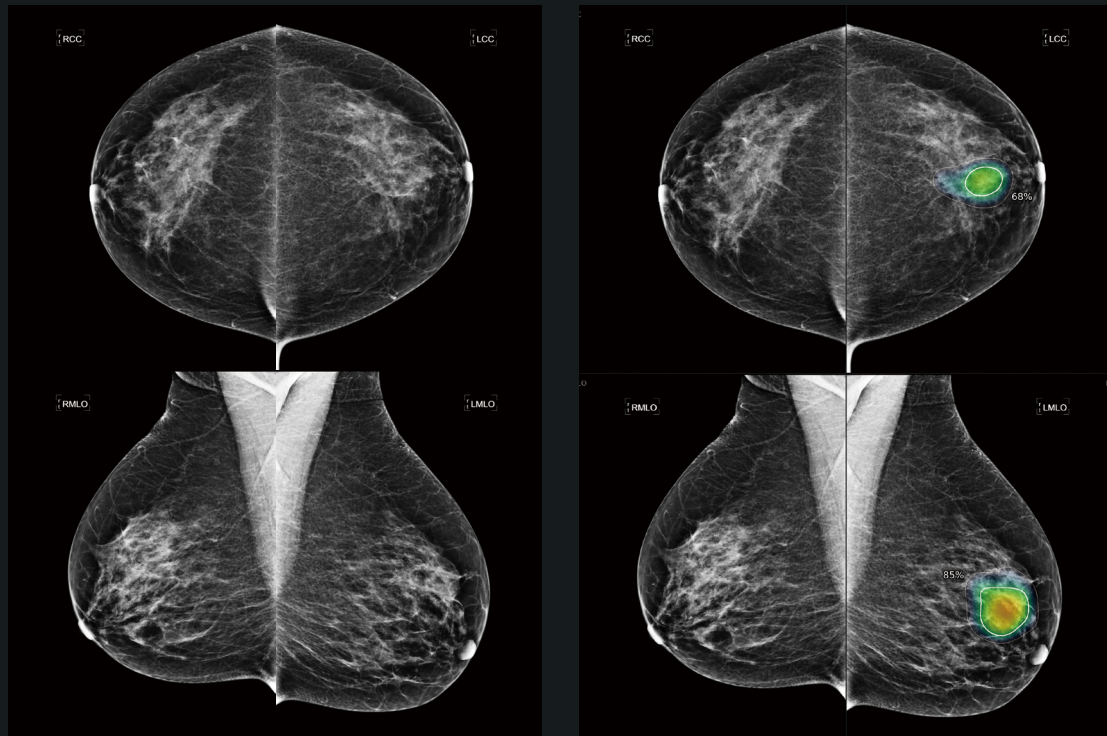
CASE 1

Biopsy proven cancer

Fine pleomorphic microcalcifications detected in the left breast.

L 85[%]

Abnormality Score
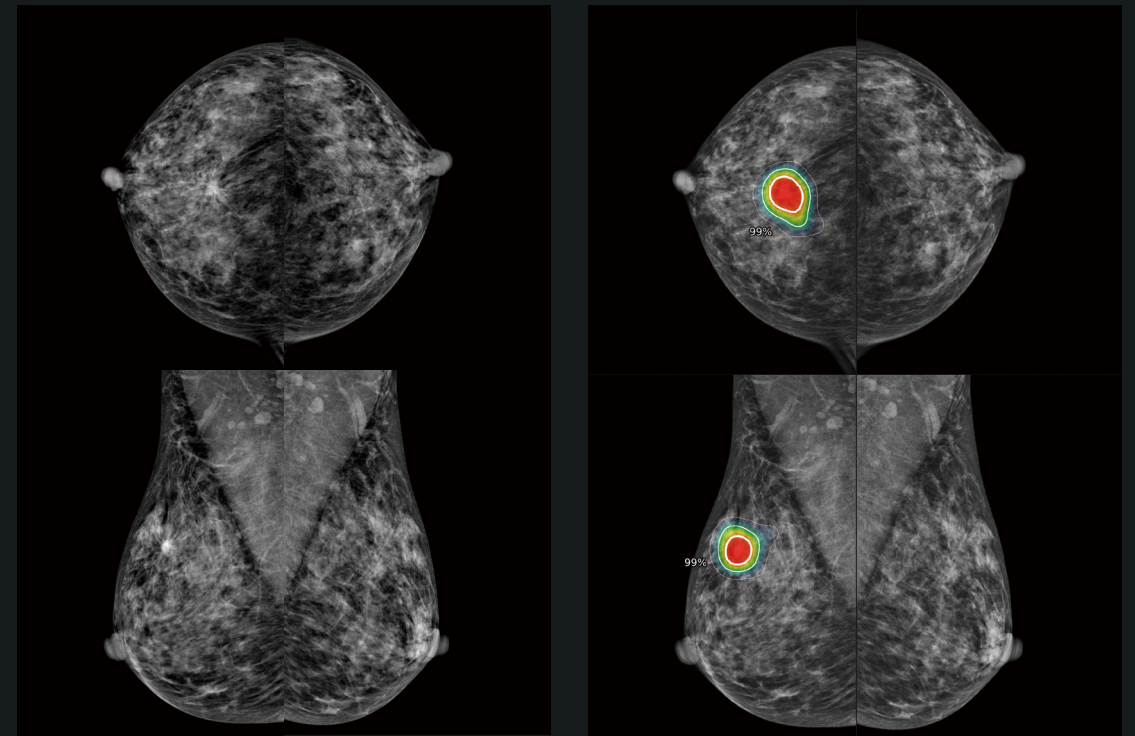
CASE 2

Biopsy proven cancer

Typical mass with microcalcifications detected in the right breast.

R 99[%]

Abnormality Score

Try Lunit AI Solution

Visit insight.lunit.io and upload a DICOM file you have.
You will get the AI result within seconds.

Go to page →

ABNORMALITY SCORE   **R** Low / **L** Low   CAUTION: for research use only.
COMPOSITION CATEGORY   **B** Scattered Fibroglandular Densities (5 of 10)
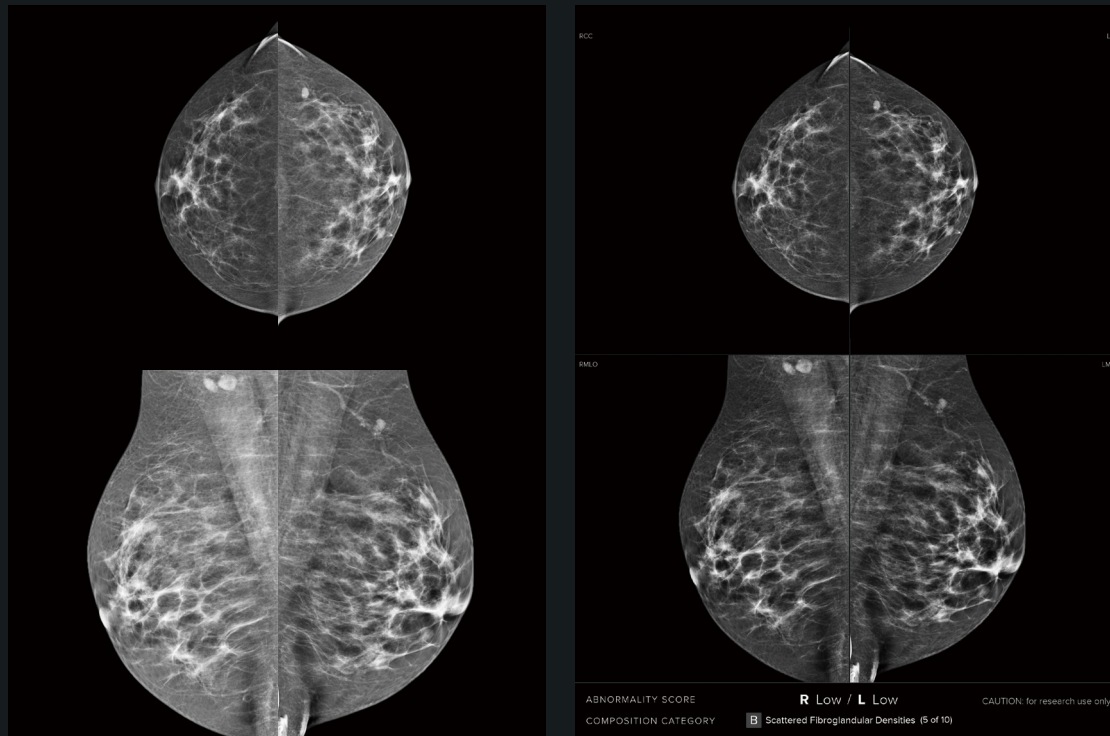
CASE 3

Negative, confirmed by follow-up images

Low *Abnormality Score*

Reference

User Benefits

[1]   Mattie Salim, Erik Wåhlin, Karin Dembrower, et al. External Evaluation of 3 Commercial Artificial Intelligence Algorithms for Independent Assessment of Screening Mammograms. *JAMA Oncology.* 2020

[2]   Karin Dembrower, Erik Wåhlin, et al. Effect of artificial intelligence-based triaging of breast cancer screening mammograms on cancer detection and radiologist workload: a retrospective simulation study. *THE LANCET Digital Health.* 2020

[3 4 5] Hyo-Eun Kim, Hak Hee Kim, et al. Changes in cancer detection and false-positive recall in mammography using artificial intelligence: a retrospective, multireader study. *THE LANCET Digital Health.* 2020

Clinical Validation

[6]   Hyo-Eun Kim, Hak Hee Kim, et al. Changes in cancer detection and false-positive recall in mammography using artificial intelligence: a retrospective, multireader study. *THE LANCET Digital Health.* 2020

[7]   Hyo-Eun Kim, Hak Hee Kim, et al. Changes in cancer detection and false-positive recall in mammography using artificial intelligence: a retrospective, multireader study. *THE LANCET Digital Health.* 2020

[8 9] Karin Dembrower, Erik Wåhlin, et al. Effect of artificial intelligence-based triaging of breast cancer screening mammograms on cancer detection and radiologist workload: a retrospective simulation study. *THE LANCET Digital Health.* 2020

[10 11] Mattie Salim, Erik Wåhlin, Karin Dembrower, et al. External Evaluation of 3 Commercial Artificial Intelligence Algorithms for Independent Assessment of Screening Mammograms. *JAMA Oncology.* 2020

Research Partners

We welcome research partnerships and other collaboration with medical institutions, healthcare providers, and companies interested in implementing our software products. Currently, we have over 30 worldwide research partners throughout USA, Canada, UK, Sweden, China, and Korea.

Distribution Partners

FUJIFILM　　GE Healthcare　　AGFA

SECTRA　　INFINITT Healthcare

CE 2797

FDA clearance expected in 2021
Document number: MMG-BR-TB-EN_Ver.1

Contact us

General - contact@lunit.io
Investment - ir@lunit.io
Media - media@lunit.io
Partnership - partner@lunit.io

Office

Seoul HQ
Boston, USA
Amsterdam, The Netherlands
Shanghai, China

AI Vision, Earlier Action

Contact Us

Please feel free to email us about any inquiries or questions.

E-mail : contact@lunit.io

Website : www.lunit.io