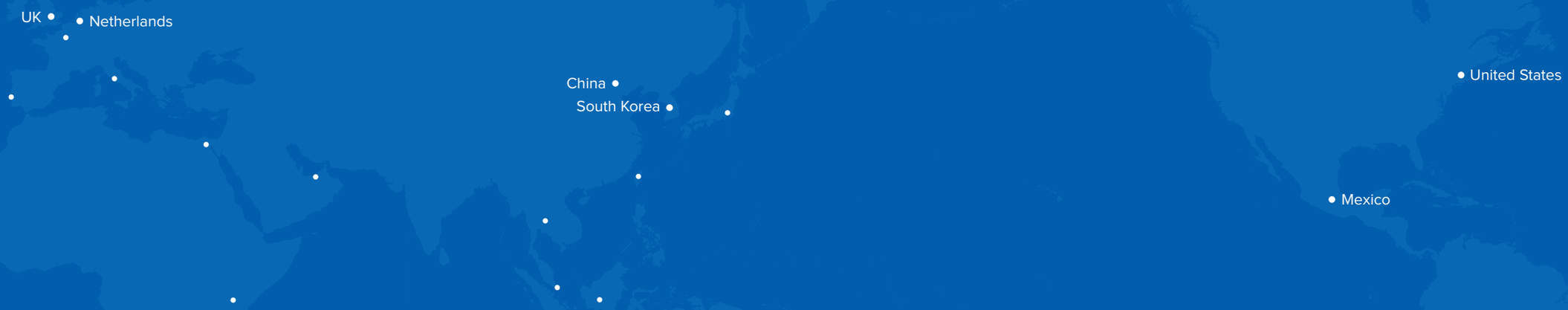
Lunit INSIGHT CXR

AI Solution for Chest X-ray

Lunit

Lunit INSIGHT CXR

Product Information

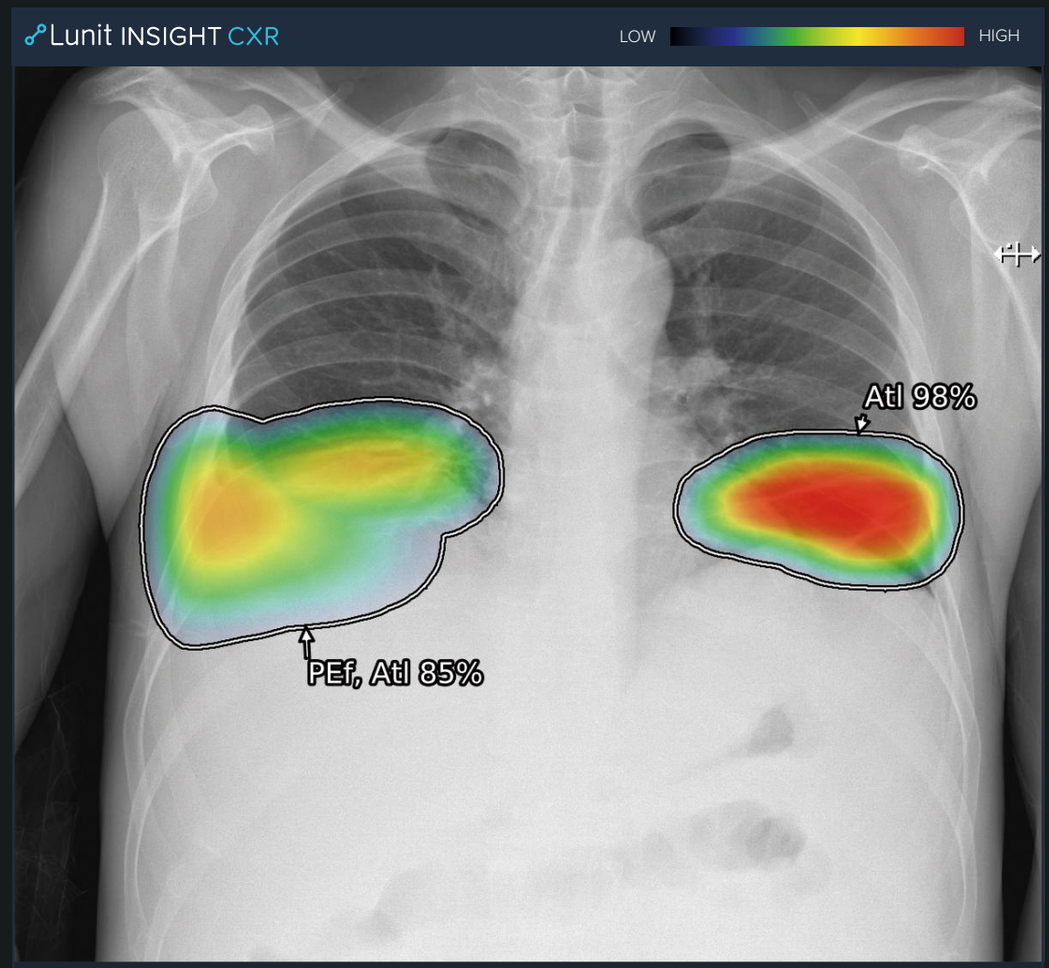


200+
Reference Sites

80+
Countries Worldwide

7M+
Images Analyzed
(for clinical and research use)

Never miss a finding.



CASE REPORT

Abnormality Score 99%

Atl	Atelectasis	98%	Multiple Lesions
PEf	Pleural effusion	85%	Right zone
Calc	Calcification	Low	-
Cm	Cardiomegaly	Low	-
Csn	Consolidation	Low	-

What does Lunit INSIGHT CXR analyze on chest x-ray images?

Lunit INSIGHT CXR detects 10 abnormal radiologic findings with 97-99% accuracy and supports tuberculosis screening on chest x-ray images.

10 *Abnormal Radiologic Findings*

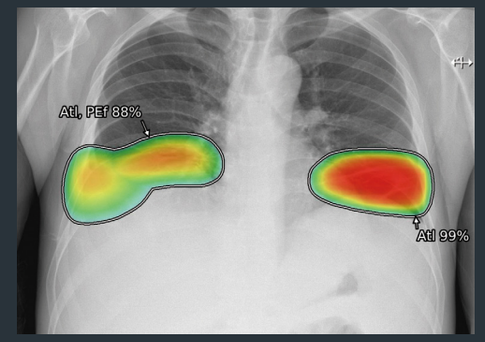
97-99% *Accuracy*

Developed by using Lunit's cutting-edge deep learning technology

Lunit INSIGHT CXR generates

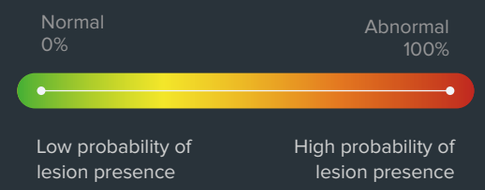
Detected Location

The location information of detected lesions in the form of heatmaps and/or contour maps



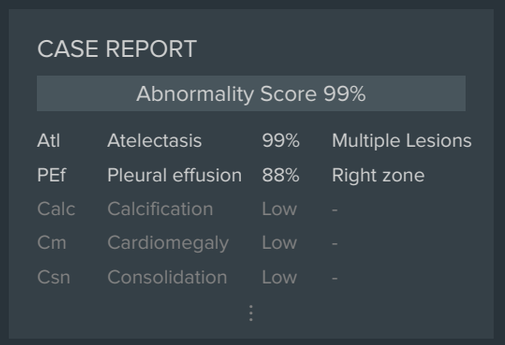
Abnormality Score

An abnormality score reflecting the AI's calculation of the actual presence of the detected lesion



AI Report

An AI case report summarizing the overall analysis result, narrowed down to each finding



What are the major benefits of using it?

Fast triage of
normal cases.

Efficient reading
via exam prioritization.

Improved reading
performance.

01

Fast triage of normal cases

According to the abnormality scores generated by AI, radiologists can triage normal cases quickly and focus on reading abnormal cases where lesions might exist.

Health check-up centers
Imaging clinics
Teleradiology centers

02

Efficient reading via exam prioritization

In reference to the abnormality scores on the worklist, radiologists can prioritize exams in their reading order, resulting in a 13% reduction in reading time, and a 33% in reduction time for normal cases.[1]

Radiology departments
Imaging clinics
Teleradiology centers

13% *reduction in reading time*

33% *in reduction time for normal cases*

03

Improved reading performance

Non-radiology physicians, general radiologists, and thoracic radiologists can improve their diagnostic accuracy for major chest abnormalities such as malignant pulmonary nodules, pneumothorax, pneumonia, and active pulmonary tuberculosis.[2 3 4 5 6 7 8]

Clinical departments prior to surgeries and procedures
(Emergency, Pulmonary, Oncology, Cardiothoracic, Surgery, etc.)

Community hospitals and clinics

Reduced overlooked lung cancers.

Streamlined ED workflow.

COVID-19 patient triaging and monitoring.

04

Reduced overlooked lung cancers

The AI-aided, automatic detection of small and subtle pulmonary nodules overlapped in the hilar shadow, ribs, heart, and diaphragm, enables radiologists to reduce overlooked lung cancer cases, especially during regular check-ups.[9]

Health check-up centers
Community hospitals and clinics

05

Streamlined ED workflow

With the assistance of AI, radiology residents can improve their diagnostic performance[10] and reduce their reading time[11], which ultimately accelerates the decision-making process and treatment in the ED.

Emergency departments

<Reading Time for Detecting Acute Respiratory Infection>

(Image N=387)

39% Reduction

06

COVID-19 patient triaging and monitoring

AI-aided chest radiograph interpretation can help medical professionals detect COVID-19 infected pneumonia quickly[12] and accurately[13], enabling prompt isolation and timely treatment.

COVID-19 screening centers
Emergency departments

Click to Watch
- Thammasat University Hospital, Thailand
- Songklanagarind Hospital, Thailand

What do the medical journals say?

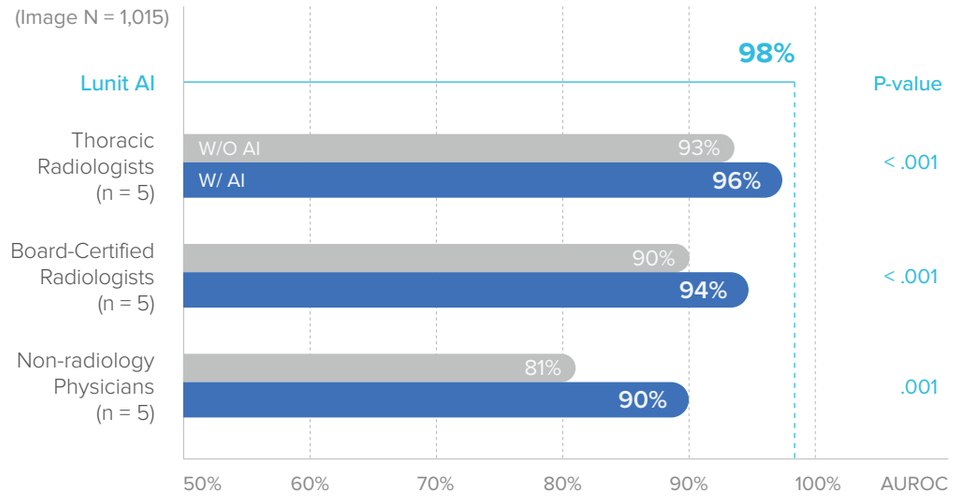
Below are highlights from the studies published in peer-reviewed journals that validate the performance of Lunit INSIGHT CXR and its clinical value in chest radiograph interpretation.

EUROPEAN RESPIRATORY *journal* FLAGSHIP SCIENTIFIC JOURNAL OF ERS · JAMA Network Open. · Clinical Infectious Diseases · Radiology

Accurate and efficient diagnosis boosted with AI

HIGHLIGHT 1

Improved reading performance of non-radiology physicians, general radiologists, and thoracic radiologists.[14]

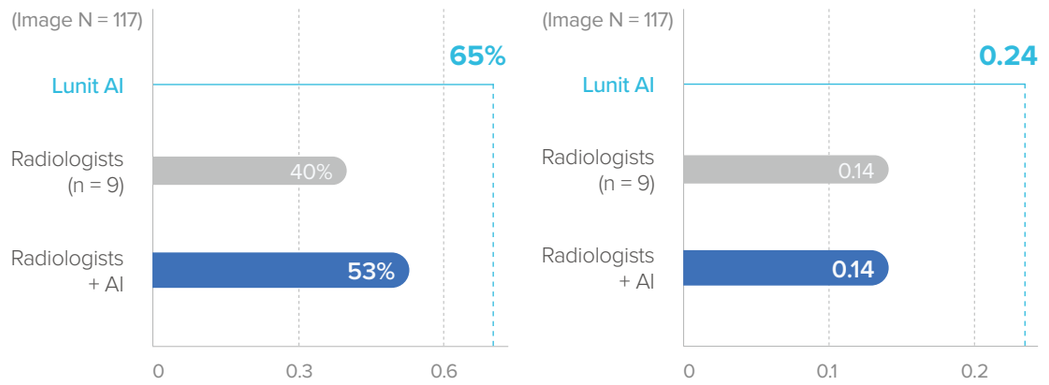


<Detection of Major Chest Abnormalities>

<Detection of Major Chest Abnormalities>

HIGHLIGHT 2

Better detection of early-stage overlooked lung cancer without increasing false positive cases.[15]

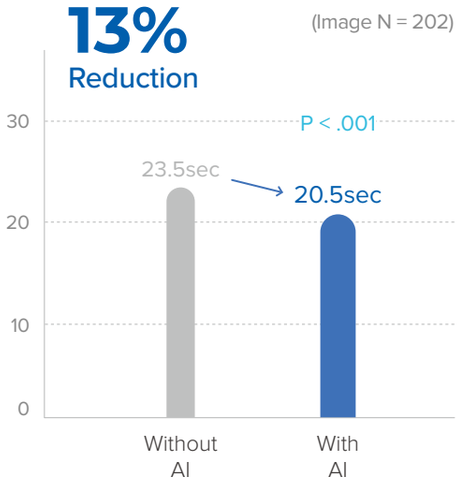


<Sensitivity>

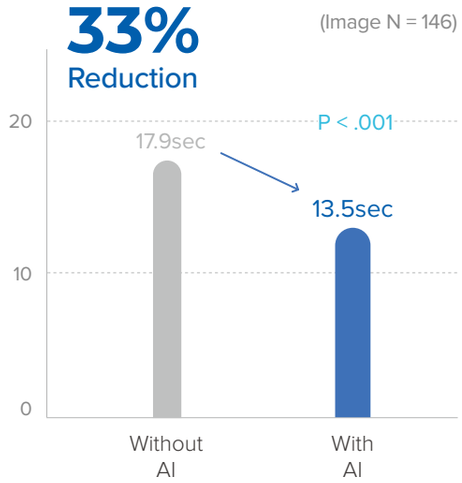
<False-Positive Markings Per Radiograph>

HIGHLIGHT 3

Reduce the overall reading time.[16]



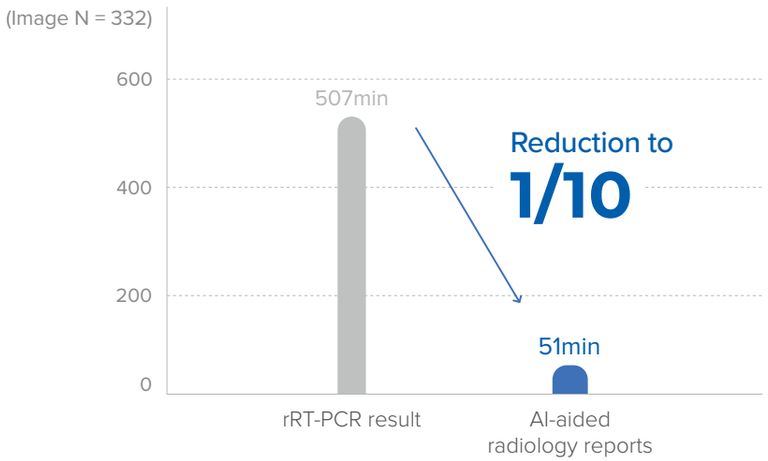
<Reading Time for Normal and Abnormal Cases>



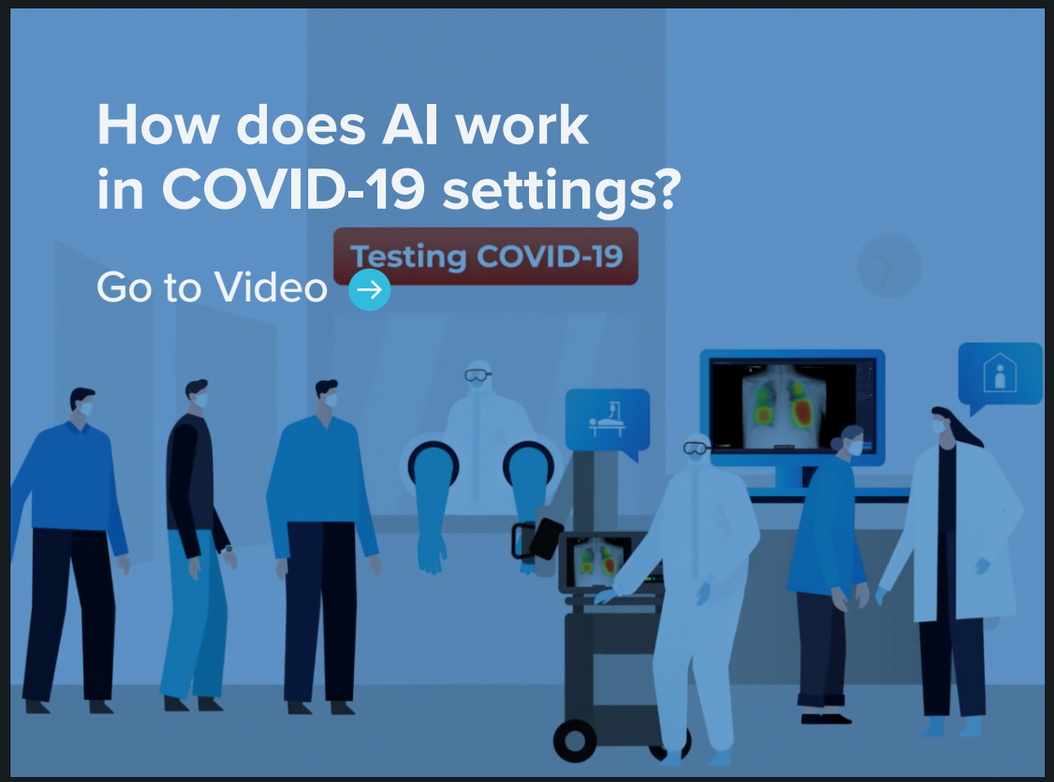
<Reading Time for Normal Cases>

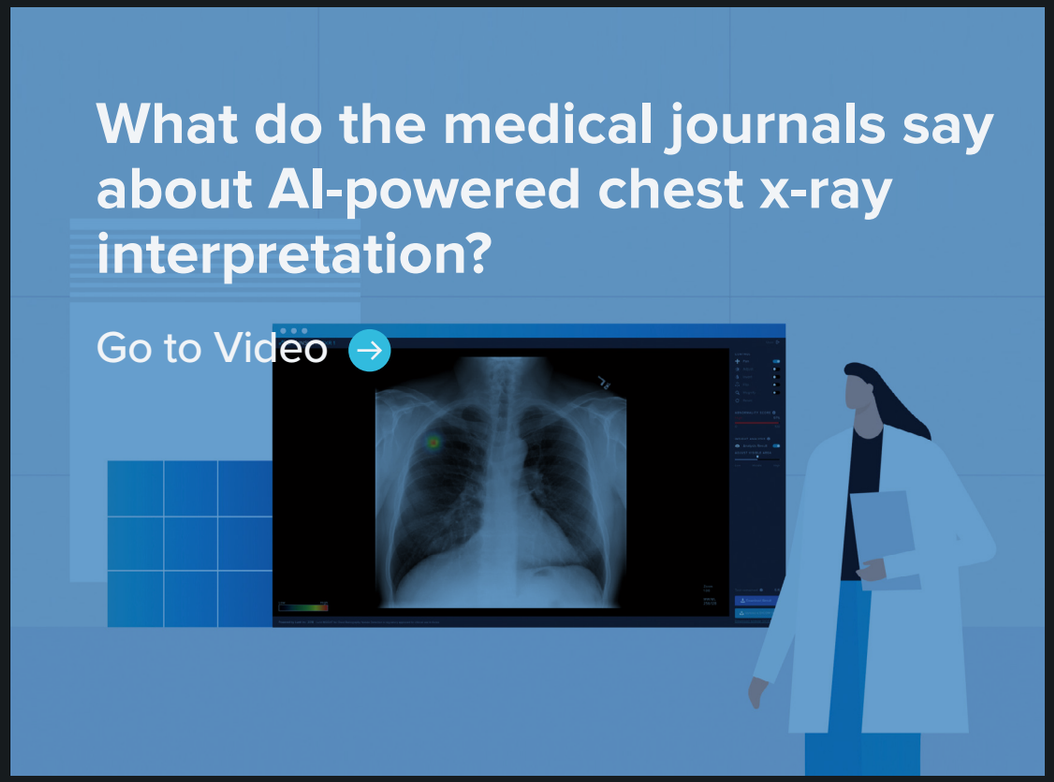
HIGHLIGHT 4

AI-aided chest radiograph interpretation takes less time than PCR tests in triaging COVID-19 suspected patients.[17]



<Turnaround Time Between Radiology Report and rRT-PCR Result>





Five-year survival rate when detected early by AI

73%

When Detected Early By AI (stage 1-2)

18%

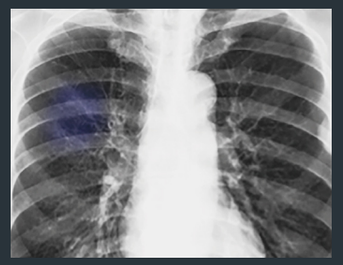
When Missed (stage 3-4)

Reference : AJCC 8th Edition

Lunit INSIGHT successfully analyzed the chest x-ray image of 54-year-old male patient, detecting lung cancer that had been missed 3 years ago.

2013

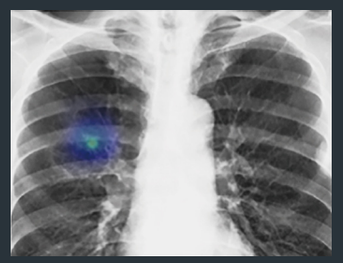
MISSED



AI Score 16.7%
DETECTED

2014

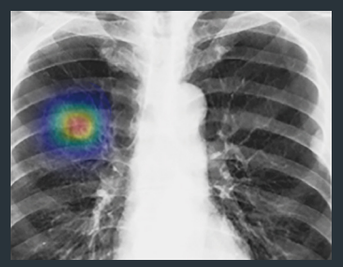
MISSED



AI Score 43.1%
DETECTED

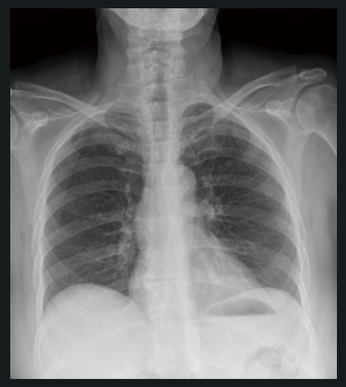
2016

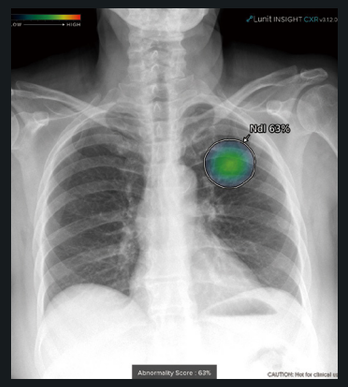
LUNG CANCER DIAGNOSED



AI Score 90.7%
DETECTED

Sample Cases





Small nodule detected

63% *Abnormality Score*

Multiple lesions including atelectasis, pleural effusion

98% *Abnormality Score*

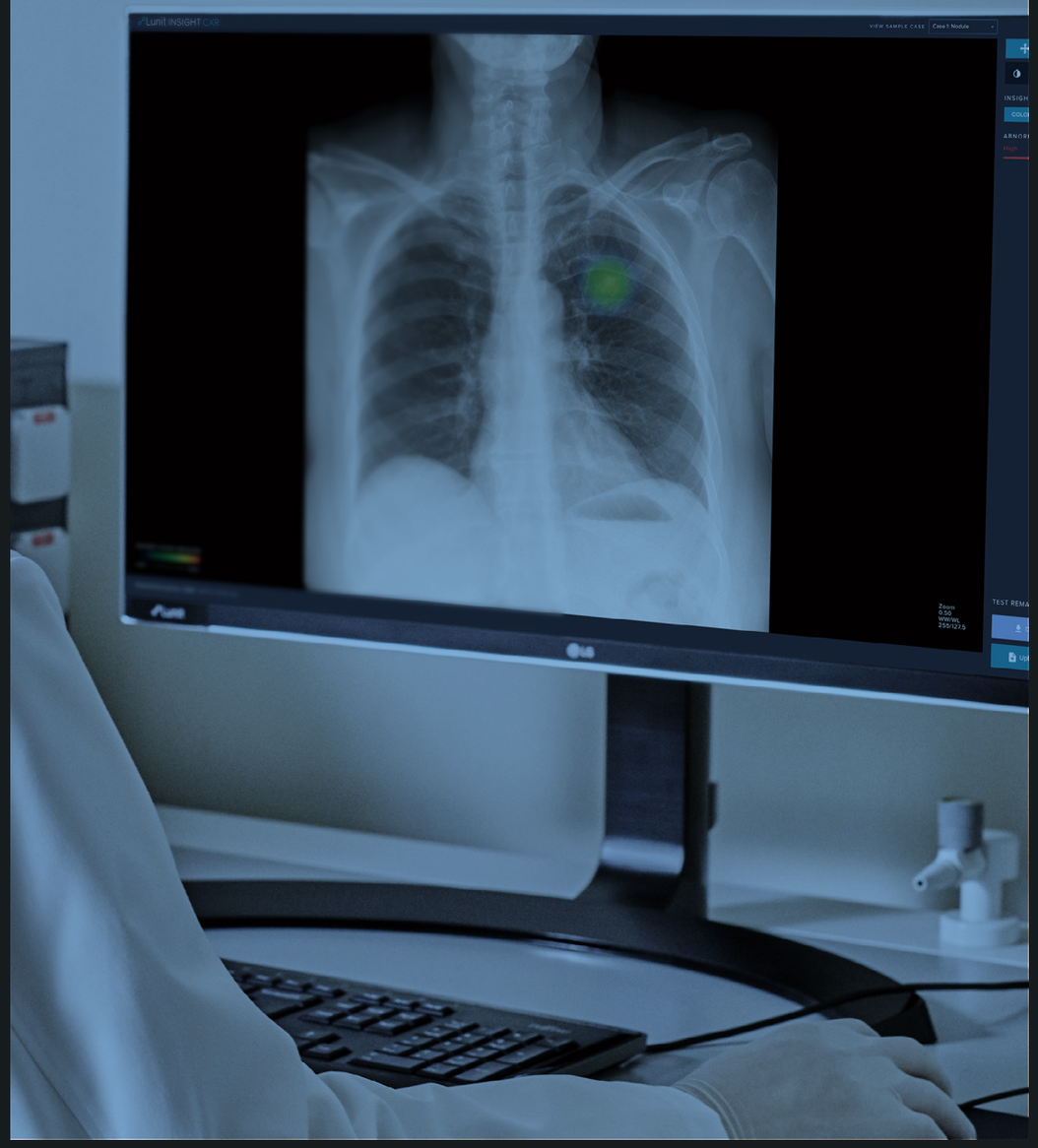
COVID-19 infected pneumonia detected

77% *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



Reference

User Benefits

1 Ju Gang Nam, Minchul Kim, et al. Development and validation of a deep learning algorithm detecting 10 common abnormalities on chest radiographs. *European Respiratory Journal.* 2020

2 Ju Gang Nam, Sunggyun Park, et al. Development and Validation of Deep Learning–based Automatic Detection Algorithm for Malignant Pulmonary Nodules on Chest Radiographs. *Radiology.* 2018

3 Eui Jin Hwang, Sunggyun Park, et al. Development and Validation of a Deep Learning-based Automatic Detection Algorithm for Active Pulmonary Tuberculosis on Chest Radiographs. *Clinical Infectious Diseases.* 2018

4 Eui Jin Hwang, Sunggyun Park, Kwang-Nam Jin, et al. Development and Validation of a Deep Learning–Based Automated Detection Algorithm for Major Thoracic Diseases on Chest Radiographs. *JAMA Network Open.* 2019

5 Jong Hyuk Lee, Sunggyun Park, et al. Deep learning–based automated detection algorithm for active pulmonary tuberculosis on chest radiographs: diagnostic performance in systematic screening of asymptomatic individuals. *European Radiology.* 2020

6 Eui Jin Hwang, Jung Hee Hong, et al. Deep learning algorithm for surveillance of pneumothorax after lung biopsy: a multicenter diagnostic cohort study. *European Radiology.* 2020

7 Jong Hyuk Lee, Hye Young Sun, et al. Performance of a Deep Learning Algorithm Compared with Radiologic Interpretation for Lung Cancer Detection on Chest Radiographs in a Health Screening Population. *Radiology.* 2020

8 Hyunsuk Yoo, Ki Hwan Kim, et al. Validation of a Deep Learning Algorithm for the Detection of Malignant Pulmonary Nodules in Chest Radiographs *JAMA Network Open.* 2020

9 Sowon Jang, Hwayoung Song, et al. Deep Learning–based Automatic Detection Algorithm for Reducing Overlooked Lung Cancers on Chest Radiographs. *Radiology.* 2020

10 Eui Jin Hwang, Ju Gang Nam, et al. Deep Learning for Chest Radiograph Diagnosis in the Emergency Department. *Radiology.* 2019

11 Jae Hyun Kim, Jin Young Kim, et al. Clinical Validation of a Deep Learning Algorithm for Detection of Pneumonia on Chest Radiographs in Emergency Department Patients with Acute Febrile Respiratory Illness. *Journal of Clinical Medicine.* 2020

12 Eui Jin Hwang, Hyungjin Kim, et al. Implementation of a Deep Learning-Based Computer-Aided Detection System for the Interpretation of Chest Radiographs in Patients Suspected for COVID-19. *Korean Journal of Radiology.* 2020

13 Se Bum Jang, Suk Hee Lee, et al. Deep-learning algorithms for the interpretation of chest radiographs to aid in the triage of COVID-19 patients: A multicenter retrospective study. *PLOS ONE.* 2020

Clinical Validation

14 Eui Jin Hwang, Sunggyun Park, Kwang-Nam Jin, et al. Development and Validation of a Deep Learning–Based Automated Detection Algorithm for Major Thoracic Diseases on Chest Radiographs. *JAMA Network Open.* 2019

15 Sowon Jang, Hwayoung Song, et al. Deep Learning–based Automatic Detection Algorithm for Reducing Overlooked Lung Cancers on Chest Radiographs. *Radiology.* 2020

16 Ju Gang Nam, Minchul Kim, et al. Development and validation of a deep learning algorithm detecting 10 common abnormalities on chest radiograph, *European Respiratory Journal,* 2020

17 Eui Jin Hwang, Hyungjin Kim, et al. Implementation of a Deep Learning-Based Computer-Aided Detection System for the Interpretation of Chest Radiographs in Patients Suspected for COVID-19. *Korean Journal of Radiology.* 2020

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