core:line Prosper with Better Health

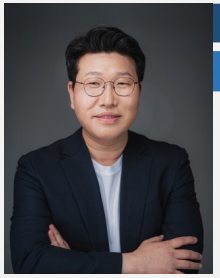
Introduction

March 2022

49, World-Cup Bukro 6-gil, Mapogu, Seoul, 03991, KOREA

Introduction

Management



CEO

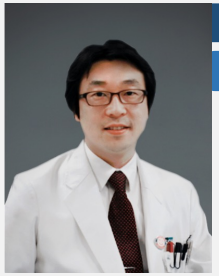
Jinkook Kim

- Director in INFINITT Healthcare Co., Ltd
- Senior Researcher in Mevisys Co., Ltd
- KAIST, Ph.D. Electrical & Electronic Engineering

CEO

Jungpil Choi

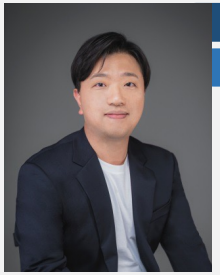
- Overseas sales Manager in INFINITT Healthcare Co., Ltd
- CEO in Mevisys Co., Ltd
- KAIST, Ph.D. Electrical & Electronic Engineering



CPO

Dong Hun Kim

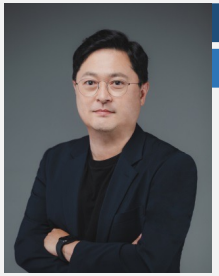
- Medical Doctor / MD., Ph.D
- Professor in department of radiology, Chosun University
- Professor in department of radiology, College of Medicine, Soonchunhyang University



CFO

Kwangmin Lee

- Certified Public Accountant (KICPA)
- CFO in Global-Taxfree (KOSDAQ)
- Deloitte Anjin
- Korea University

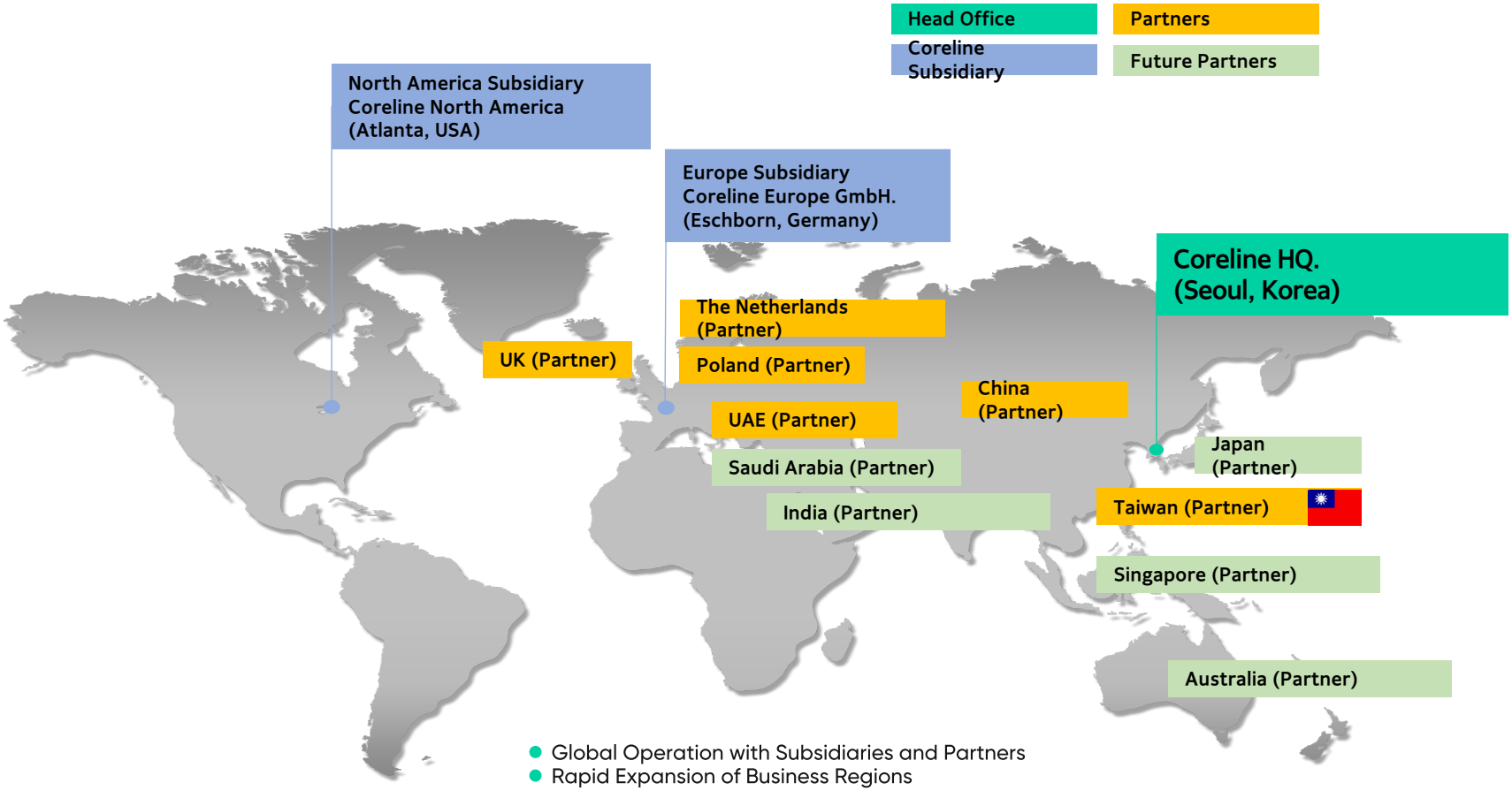


CTO

Jaeyoun Yi

- CTO in INFINITT Healthcare Co., Ltd
- Senior Researcher in Mevisys Co., Ltd
- KAIST, B.A, M.S and Ph.D. Electrical & Electronic Engineering

Global Operation



- Global Operation with Subsidiaries and Partners
- Rapid Expansion of Business Regions
- Focus on Large Hospitals and Local Supports

Thoracic Product Portfolio

Product			Feature	Specification
Big 3 Diseases	*LCS*	*NM*	Nodule Characterization and Reporting	Lung RADS NELSON+
		CAD	Lung Nodule Detection	
		B3/ LCS +	LCS + LAA + CAC	by a single LDCT scan
	COPD		Automated COPD Quantification	Emphysema, Airway, Air-trapping, Vessel, Fissure integrity
	CAC		Automated Calcification Scoring	Agatston, Mass, Volume
Other Lung Diseases	*Lung Texture*		Texture Analysis for ILD	6 Pattern analysis
	Q-infect		Pneumonia Quantification	e.g., COVID-19

Our AI software showcases pivotal technology addressing the latest requirements for effective lung cancer screening (LCS)

Key Features

① Nodule CAD
- Sensitivity per patient: 0.97, AUC 0.9345
- Sensitivity per nodule: 0.91
- Specificity per patient: 0.7644, AUC 0.8790
- Nodule false positive rate per patient: 0.5758

② F/up Mode (Automatic Nodule Matching)

③ Lung RADS (1.0/1.1)

④ Volumetric measurement & Volume Doubling Time (VDT)

⑤ Brock Score calculation

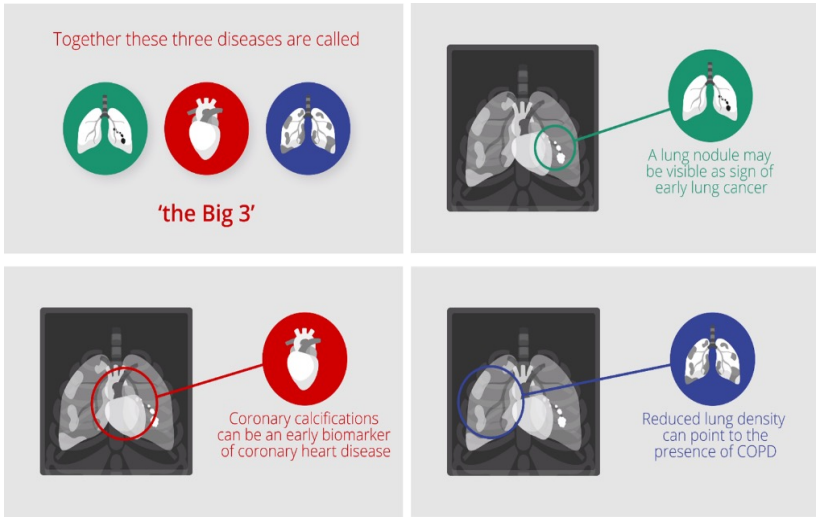
⑥ EUPS compliance

AVIEW LCS / LCS +

Lung Cancer Screening in LDCT

- **Deep learning-based AI**
  Lung nodule detection, lung / lobe / airway segmentation, kernel conversion, cardiac segmentation, CAC detection
- **Quantitative analysis in CT scans**
  Guidelines of Lung RADS, NELSON+ Emphysema index, CAC scoring
- **IT technology**
  Cloud service → K-LUCAS, HANSE, etc.
  3D hybrid rendering

World-leading B3 Solution



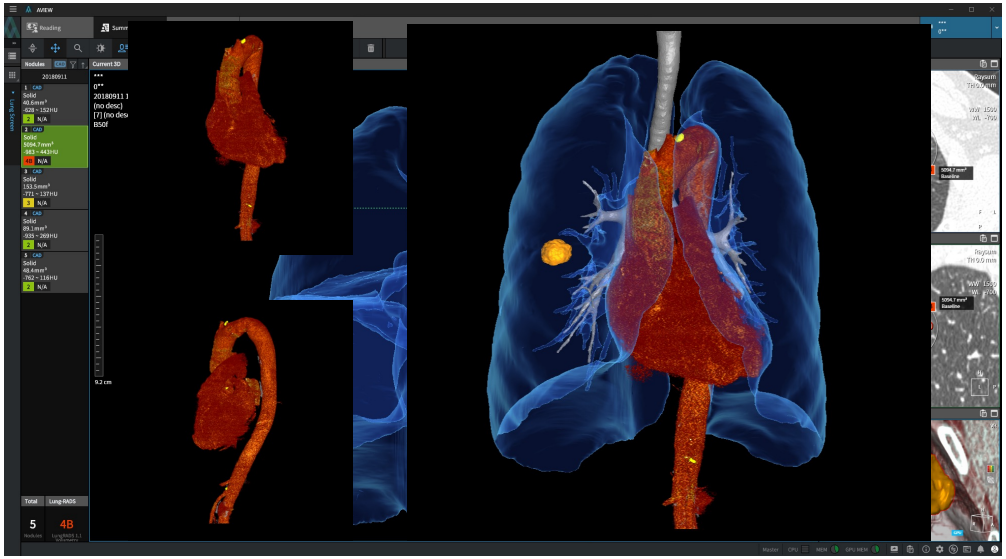
- **Smoking-related diseases – B3 disease**
  Lung cancer + emphysema + CAC (cardiac disease)
- **Growing demand for simultaneous screening**
  Lung cancer screening → chest disease screening
- **Equipped with CT kernel conversion AI**
  The only solution for simultaneous B3 diseases screening in LDCT from routine lung cancer screening scan

Auto VDT (Volume Doubling Time) measurement

- Nodule matching by non-rigid registration
  → Auto-size change comparison

LCS 3D View

Visualization of pulmonary nodule & calcified lesion



Visualization of emphysema

- Auto segmentation via AI and fast 3D rendering
- Summary view for consultation and explanation
- Rich Report available

LCS Report

HANSE Studie c/o Medizinische Hochschule Hannover,
Institut für Diagnostische u. Interventionelle Radiologie, OE8220,
Carl-Neuberg-Straße 1, 30625 Hannover

Frau Maria Mustermann
Musterstraße 2, HAUS 5A
35444 Biebertal

HANSE Studie
info@hanse-lungencheck.de
https://www.hanse-lungencheck.de/
(0511) 1322 0633 (Hannover)

Befundet am: 01.04.2018

Sehr geehrte Frau Maria Mustermann
Vielen Dank für Ihre Teilnahme am Hanse-Lungencheck! Anbei die Ergebnisse Ihrer Niedrigdosis-CT Untersuchung.

Niedrigdosis-CT vom 01.04.2018

Name **Maria Mustermann** Geburtsdatum **27.08.1952** ID **HANSE_001**

▪ Lungenkrebs Früherkennung

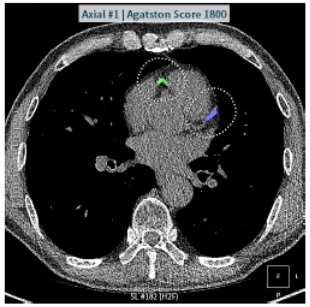
Lung-RADS 4BS - Klinisch abklärungsbedürftig
Der Befund deutet mit so hoher Wahrscheinlichkeit auf ein Lungenkarzinom hin, dass dass eine (ggf. auch invasive) klinische Abklärung angezeigt ist.
Wir werden Ihren Befund in der interdisziplinären Konferenz zeitnah besprechen und Sie über das weitere Vorgehen informieren.

Lokalisierung	Li.Unterlappen
Bildnummer	#275
Typ	Solide
Status	Baseline
Durchmesser	22.5 mm
Volumen	5999.1 mm³
Gewicht	N.A.
4X Eigenschaften	
Lung-RADS	4B - Klinisch abklärungsbedürftig

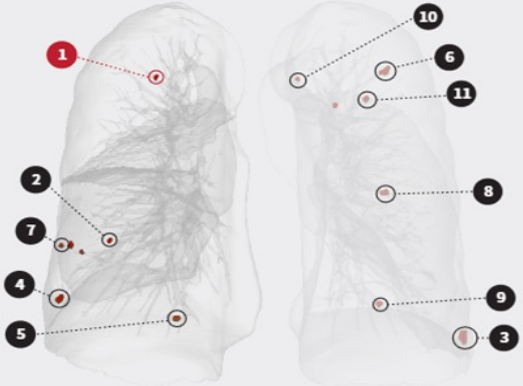
▪ Herz

Ihr koronarer Calciumwert beträgt: 1800 (nach Agatston; entsprechend der 9 Altersgruppe)

Ihr koronarer Calciumwert zeigt, dass bei Ihnen eine koronare Herzkrankheit (KH Herzkranzgefäße") vorliegt. Ihr koronarer Calciumwert hilft bei der Bestimmung zukünftige Herz-Kreislaufereignisse (z.B. Herzinfarkt oder Schlaganfall) neben de Risikofaktoren (z. B. Cholesterinspiegel im Blut, Bluthochdruck, Rauchen). Bitte Hausarzt oder Kardiologen, um über Ihre Herzvorsorge zu sprechen, die Ihr Risik Herzinfarkten und Schlaganfällen senken kann.



Total number of nodule: 11



Lung Cancer Screening ***Report Summary***

- **Generates PDF Report.**
- **Can be transferred to PACS as secondary capture DICOM.**
- **Also generates text-only report → Copy to clipboard**

AVIEW COPD *Chronic Obstructive Pulmonary Disease*

Fully automated COPD Quantification through AI;
To support Early detection, Phenotyping, follow-up, & surgery support

Key Features

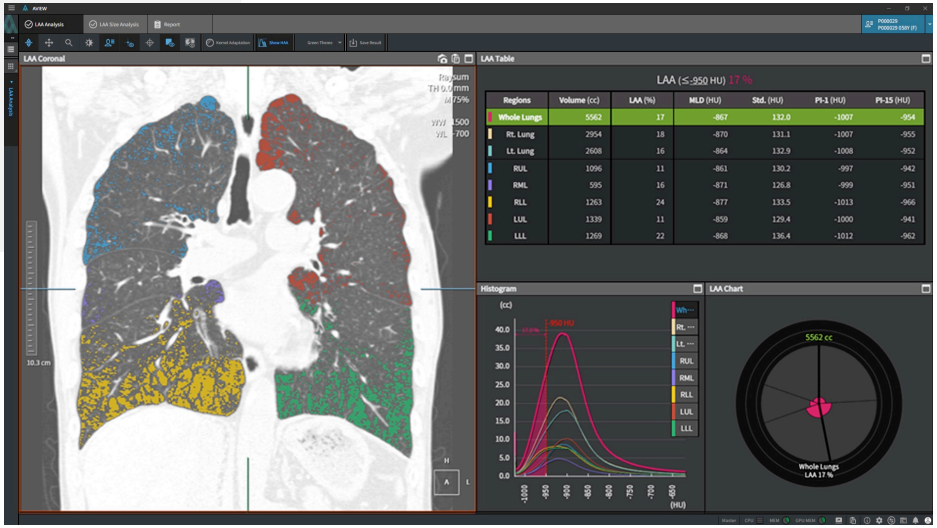
① Fully automated processing

② Phenotyping

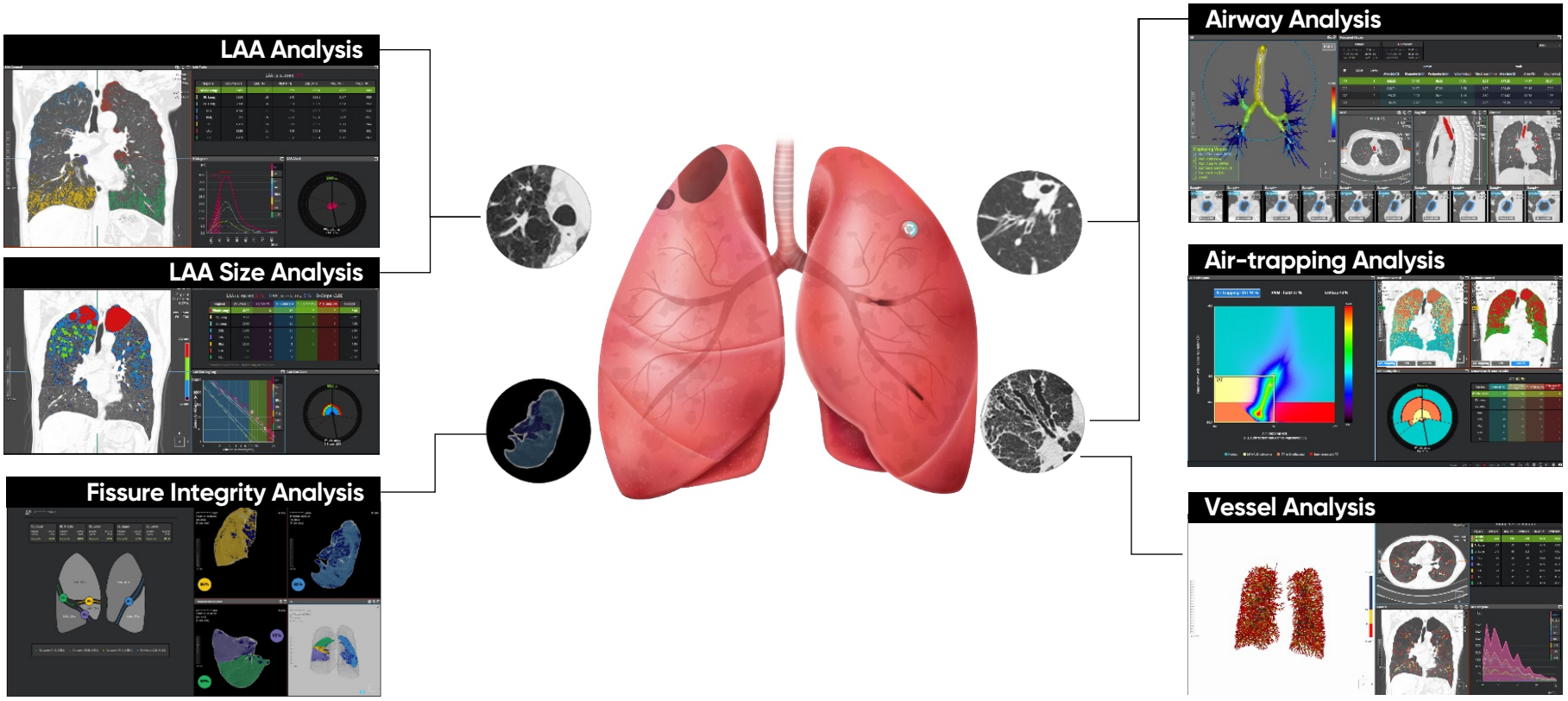
- Emphysema
- Fissure Integrity
- Vessel
- Airway
- Air-trapping

Experience

Asan Medical Center in Korea
National Taiwan University Hospital (NTUH)
Hokkaido University in Japan
UZ Leuven in Belgium
Massachusetts General Hospital (MGH)



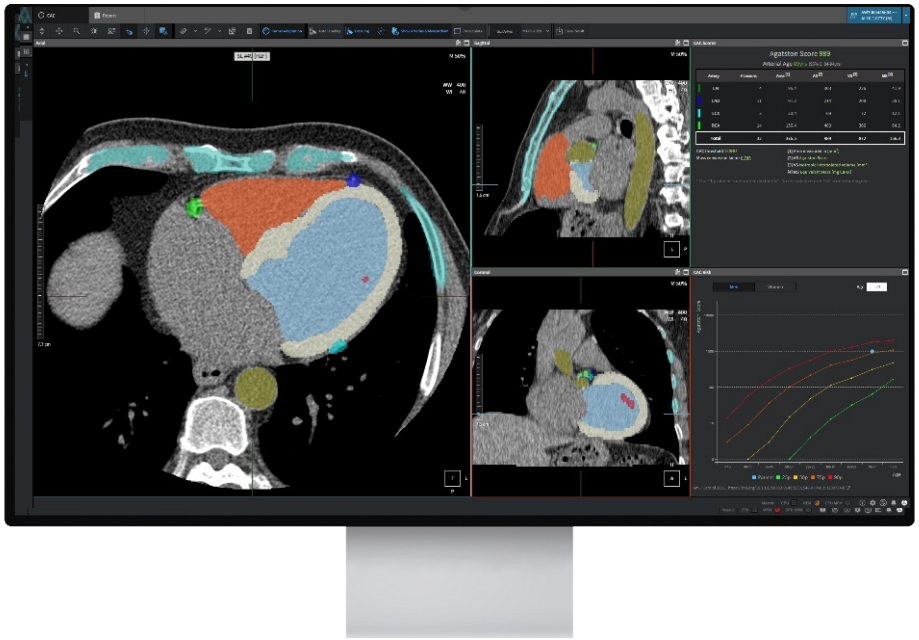
COPD Phenotyping



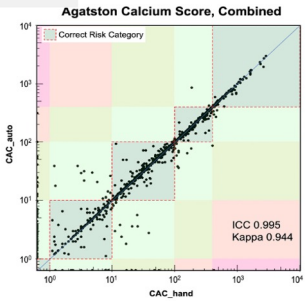
AVIEW Calcium Scoring

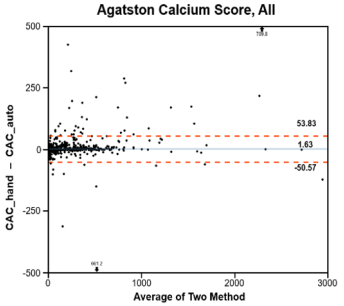
Key Features

① Fully Automated and Fast Analysis
② Scores on each Vessel
③ Agatston, Volume and Mass Score



Asan Medical Center
Catholic Univ. of Korea EunPyeong St. Mary's Hospital
Dankook University Hospital
Seoul National University Bundang Hospital
Korea University Ansan Hospital





ROBINSCA — RISK OR BENEFIT IN SCREENING FOR CARDIOVASCULAR DISEASE
iDNA — life - changing early detection

- Evaluation on overseas sites such as the Netherlands and Saudi Arabia
- Reliability analysis ICC 0.96 Risk stratification kappa 0.94

*iDNA- institute for DiagNostic Accuracy

AVIEW Lung Texture

Lung Texture with Automatic ILD Reporting

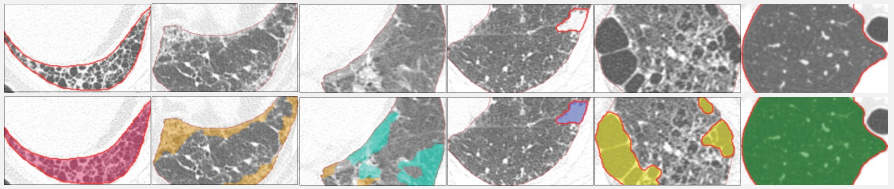
Aview: Lung Texture UI

Key Features

① Fully Automated using AI

② Lung/Lobe segmentation based on AI

③ 6 Patterns Classification

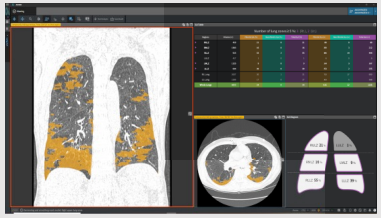


ILA Analysis Reporting based on the Fleischner's guideline

① Identifies lung-zones with fibrotic ILA ≥ 5% & highlighted in the result chart

② Lowers variability of inter- & intra-reader

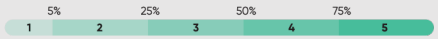
③ Assistance on ILD diagnosis & progress follow-up

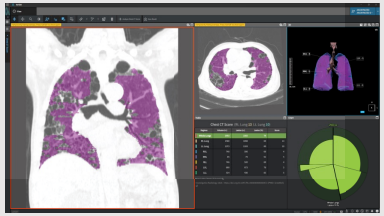


Lung CT scores for pneumonia

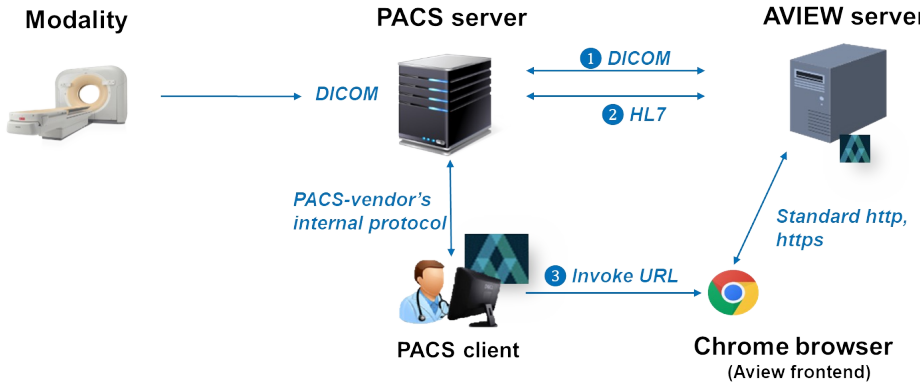
① Lung / lobe segmentation based on AI

② 5 grades based on the Pneumonia lesion ratio





System Interface



- *DICOM communication for images*
  - C-STORE (Send), C-FIND & C-MOVE, Query-Retrieve
- *HL7 communication for ORM, ORU messages*
- *Launch web-browser to launch AVIEW frontend UI from the PACS client directly.*
- *CLOUD + On-Prem + Hybrid*

PACS Integration

Method	Description
GSPS	• Nodule marking • Type, Size, Maximal Plane • Text can be added
Generate Report	• Reporting in the PACS referring the report from AVIEW
New series creation	• Captured images only • Capacity issue (using 2 series)
Structure Report	• Customized Reports can be created

LCS Projects

K-LUCAS

Korean Lung Cancer Screening Project

- **Pilot Project (Y2017-Y2018)**
  - 13,000 examinees
  - 14 hospitals.
- **Full-Out Screening (Y2019-)**
  - Target 270,000+ examinees a year
  - 300 hospitals (50 sites on Cloud based)
  - Korean Lung-RADS

4-IN-THE-LUNG-RUN

Erasmus MC & iDNA

- 11 screening sites in 5 countries
- B3 trial (LCS, COPD, CAC)
- 26,000 examinees / 76,000 exams
- Central reading:
  Secondary LCS & Emphysema index & CAC score
- Full cloud operation

HANSE

Holistic study Assessing a Northern German interdisciplinary lung cancer Screening Effort

- **3 Medical Center**
  - **MHH**
    Medizinische Hochschule Hannover, BREATH, DZL, LRCN
  - **Univ Hospital Lübeck**
    Universitätsklinikum Schleswig-Holstein, ARCN, DZL
  - **Lung Hospital Grosshansdorf**
    LungenClinic Grosshansdorf GmbH, ARCN, DZL
- **Number subject : 5,000**
- **Hybrid operation (Cloud+ On-premise)**

ILSP

Italian Lung Screening Project

- **18 Screening Sites**
  - **8 IRCCS**
    Scientific Institute for research, hospitalization, and healthcare
  - **4 Instituto Tumori**
    Cancer Institute
  - **6 University Hospitals & Hospital Agencies**
- **Number subject : 4,000**

Other references

Lung Cancer Screening Certification Program

- 2 online courses (October 13th)
- 15 Participants per course
- Central reading / teaching on the cloud
- Exclusive Sponsor for all webinars through 2022

Other

- UZ Leuven, Belgium
- University of Leicester, UK
- University of Parma, Italy
- Cochin Hospital, Paris

core:line Prosper with Better Health

Thank you

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