

SPHERE AX Company introduction

We live on SPHERE : AI Xperience



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Our vision

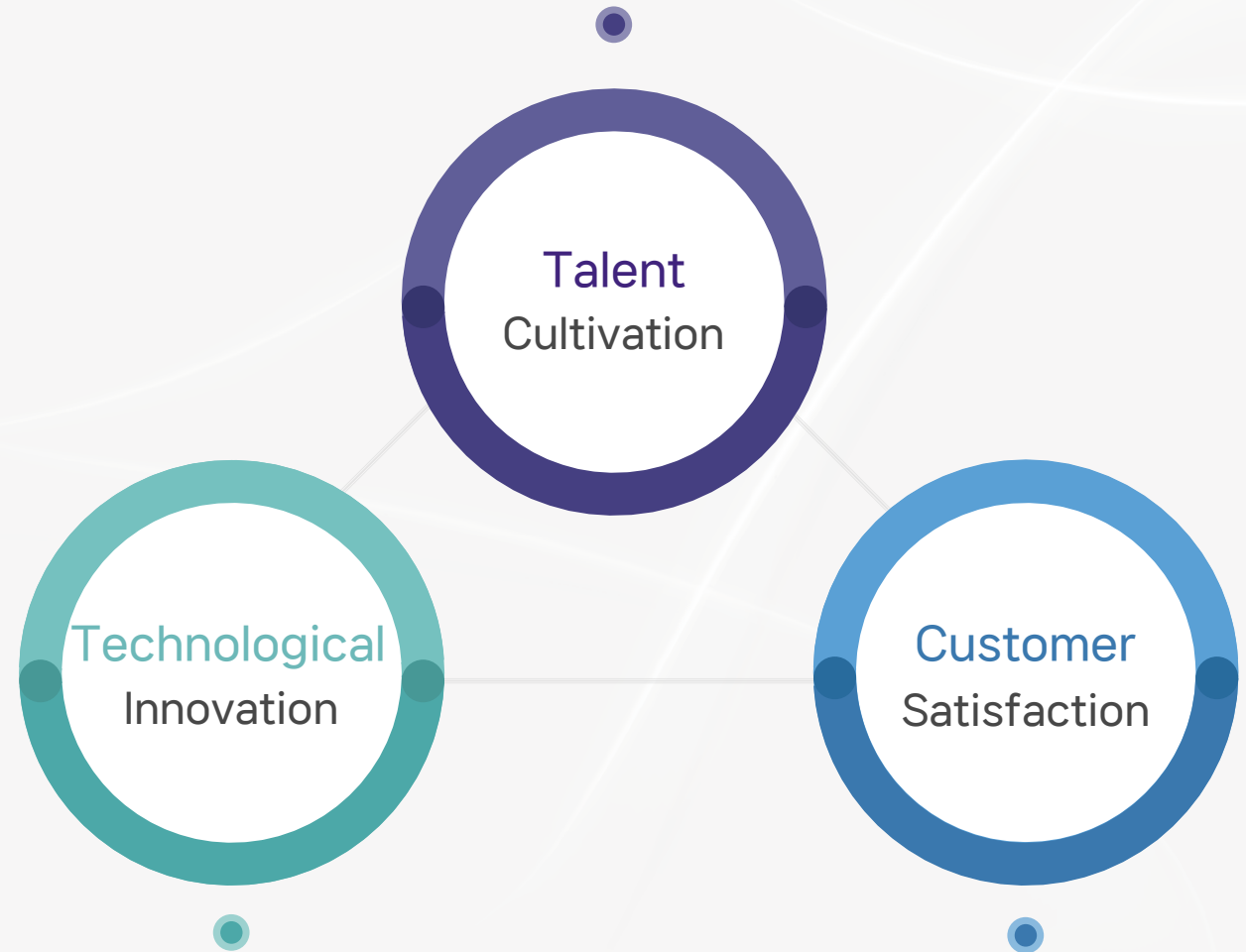
SPHERE AX

is leading the change as an AI+X platform company by developing artificial intelligence(AI) video analysis technology that is **essential in the world** through **constant research** with **talented employees**.

SPHERE AX creates a safer and smarter future by adding AI technology where society needs it.

SPHERE AX,

We live on **SPHERE** : AI Xperience



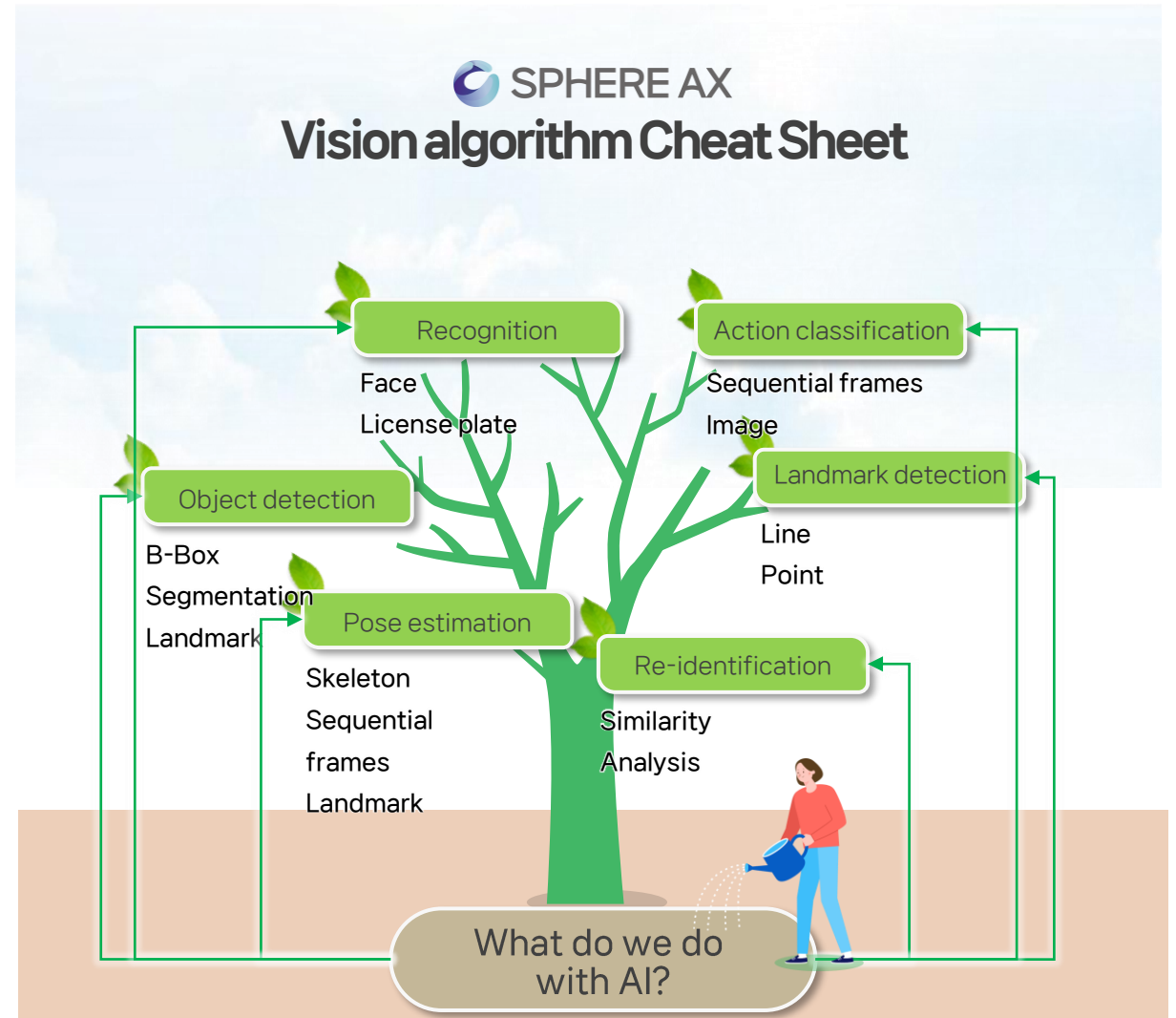
Our technology

Core Technology 6

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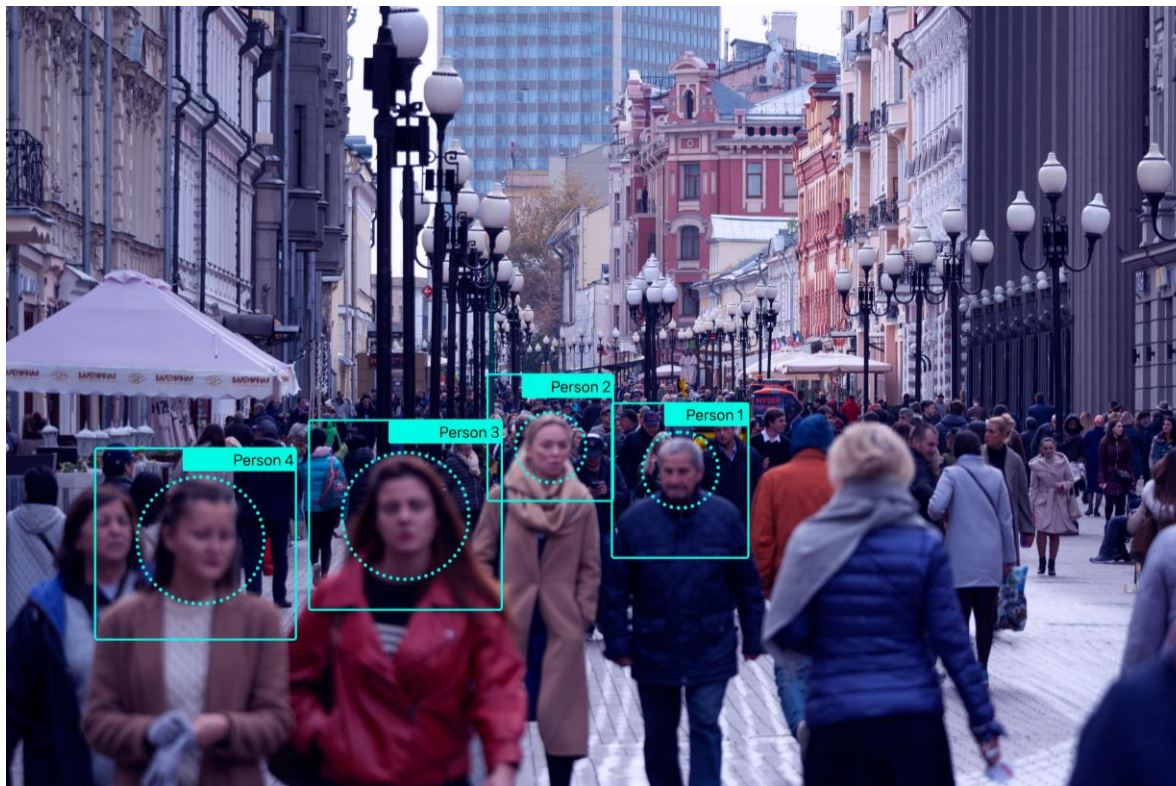
SPHERE AX's data-set

Object	Feature	Details
People	Object detection	People, Face, Gender, Color of clothes
	Re-identification	Similarity analysis in multi-channel
	Action classification	Fight, Fall (Human collapse), Wandering, Intrusion
	Pose estimation	Skeleton
Vehicle Vessel Airplane	Object Detection	Model, Color, Number Plate, Direction
	License Recognition	License Plate (Korea, Japan, Thailand, Europe...)
Animal	Object detection	Boar, Deer, Roe deer, Elk
	Action classification	Cow (Sitting, Walking, Lying down, Mounting)
Face	Face recognition	People and Face detection
	Face analysis	Emotion, Age, Gender
Forest Fire	Object detection	Smoke, Fire
Medical Video / Images	Object detection	X-ray type classification
	Segmentation	Bone classification
	Line detection	Bone angle



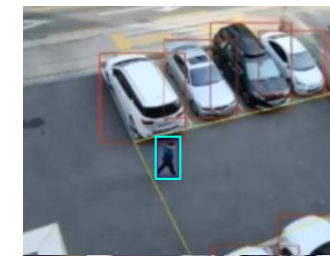
Real-time video analysis technology

Video analysis of related image information, real-time recording & alarm when a specific event occurs in multi-channel CCTV footage



Intrusion

Unauthorized object detection in a certain area



Loitering

Detecting objects that roam within a certain area



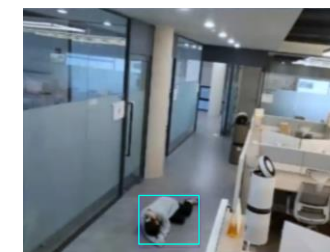
Line Cross

Calculate the number of objects passing through a specific line



Crowd

Detect a group of objects within a certain area



Collapse

Detecting fallen and lying objects



Fight

Detect objects who show violent behavior

Re-identification technology

Recognizes the same object in multi-channel CCTV footages and matches objects based on similarity evaluation



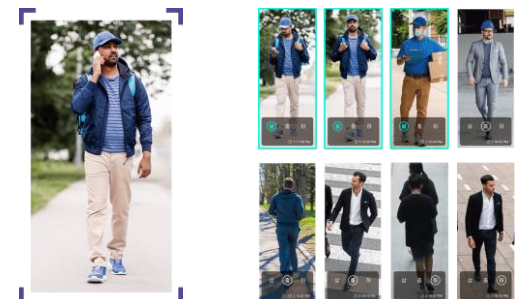
1 Object Detection and Object Tracking



2 Objects that found from CCTV footage



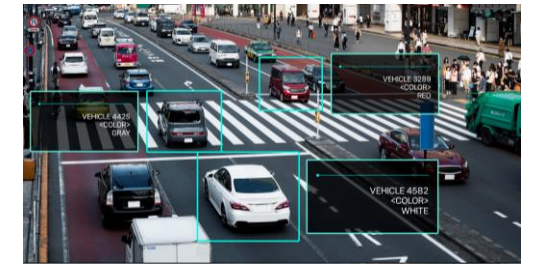
3 Comparing the similarity between the objects detected in CCTV footages and the object to be searched



4 Shows 'search target objects' in order of similarity

High-speed video searching technology

High-speed search and analysis of specific objects based on deep learning technology for multi-channel CCTV footages



- Provides up to 60x search speed based on high performance GPU (up to 12 minutes based on 1 hour video & minimum search time of 4 minutes)

- Deep learning based object recognition and tracking



- Analyzes people, gender, clothes color, vehicle, manufacturer, color, moving direction etc.

Video security & personal information protection technology

Real-time object detection de-identification, copyright information management for high-definition, large-capacity video (based on domestic standard lightweight model)



Object Detection

Automatic detection of moving objects (people, vehicle)



De-identification

Provides de-identification (Masking function) for specified objects



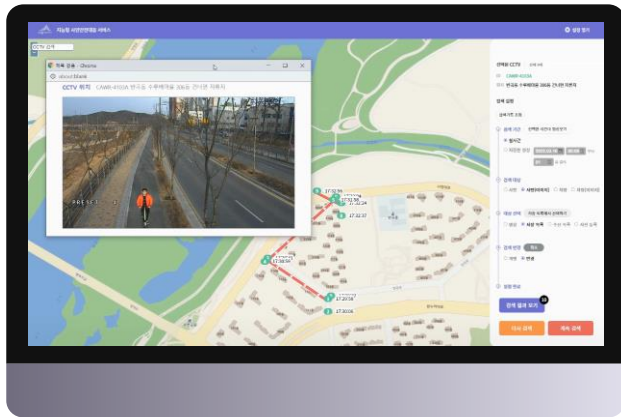
Watermark

Insert the copyright information of the video owner as a watermark

National Pilot Smart City - Sejong

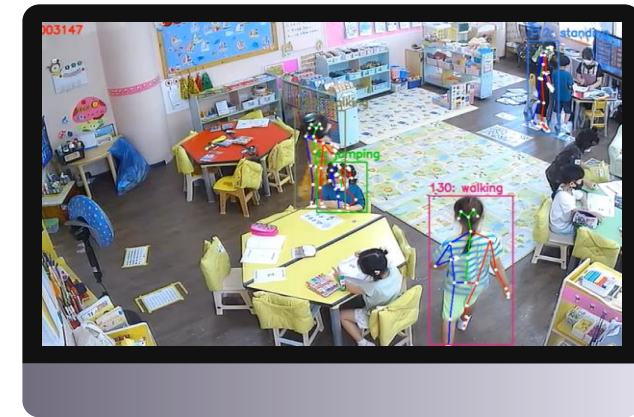
Establishment of crime prevention and emergency response services for cities (parks, etc.)

Period	Detail
18.Dec.20 ~ 09.Jul.21	Object tracking and moving path construction service using deep learning based object re-identification technology



Development of a service platform based on child behavior analysis to improve educational culture for children (Utilizing Edutech technology)

Period	Detail
01.Jan.22 ~ 31.Dec.22	Child emotion analysis service using facial expression and behavior analysis technology



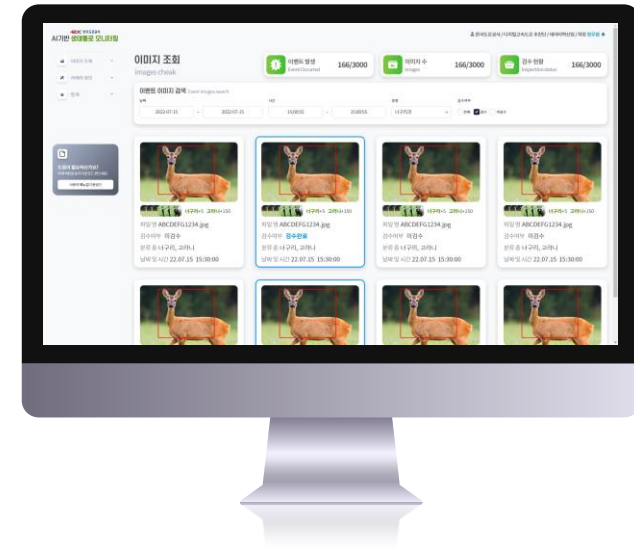
Development of forest fire alarm system capable of real-time detection based on AI and LBS

Period	Detail
01.Jun.22~02.Dec.22	Real-time forest fire & smoke detection and alarm function in multi-channel CCTV environment



Establishment of AI-based ecological corridor monitoring system

Period	Detail
26.May.22~21.Dec.22	AI-video analysis based ecological corridor wildlife monitoring and data analysis service



Our product

VISCOOPER	14	SECUWATCHER	18
VISCOOPER (Wild animal detection)	15	MOSAICER	19
FIREWATCHER	16	AI Vision Analysis platform 'dara'	20
CROWDWATCHER	17		

Intelligent Video Analysis Solution

“ A solution that uses deep learning based video analysis algorithm to detect and re-identify (Re-ID) people & vehicle objects in CCTV footages to track moving paths and search high-capacity CCTV images

Features

- 01 Multiple CCTV simultaneous analysis
- 02 Model by vehicle type, license plate analysis
- 03 Human object clothing color analysis
- 04 Track location with designated object recognition and re-recognition

Main Function



Multi-purpose
CCTV video
analysis



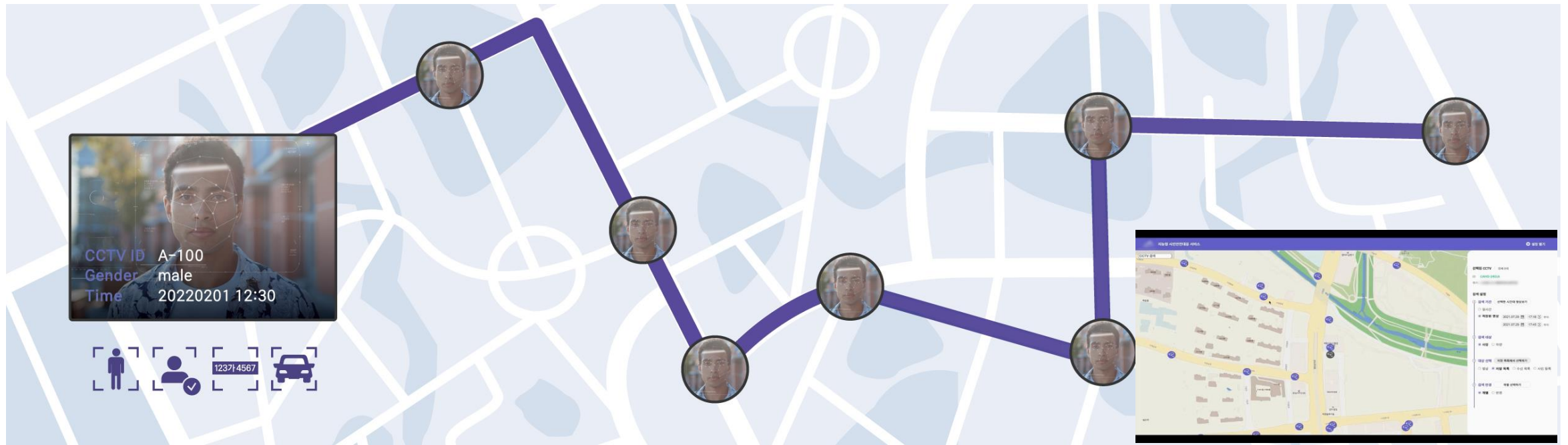
Possible to take
prompt action for
any events



AI based object
identification and
detection (people,
vehicle etc.)



GIS based object re-
identification and
location tracking
(face, number plate etc.)

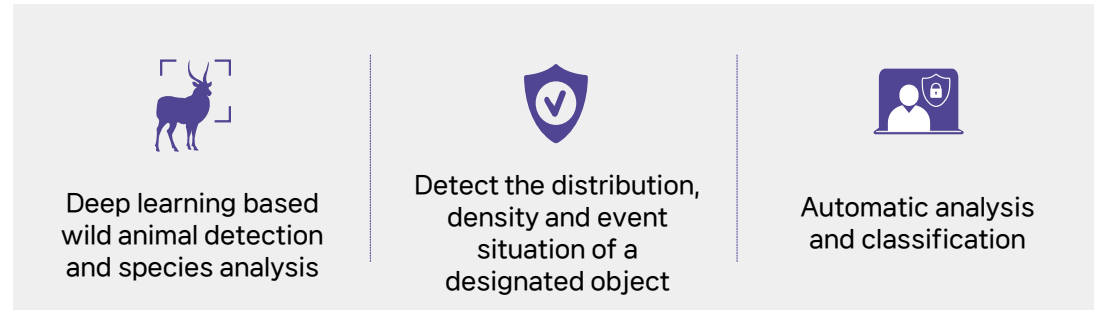


VISCOOPER

Wild Animal Detection

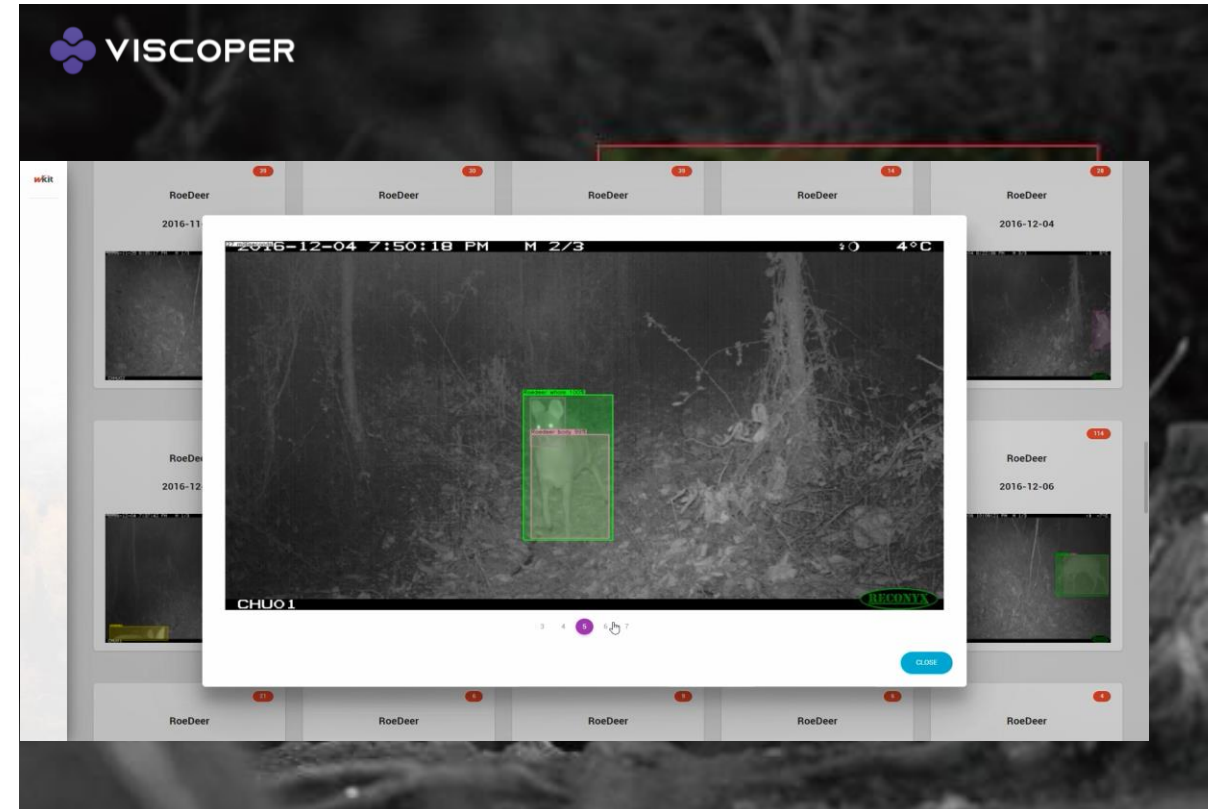
“ A solution that can be used in areas such as ecological monitoring, wildlife protection and crop protection by applying deep learning video analysis technology to find wild animals in images taken by CCTV / trap cameras and analyze the appearance, frequency, and events of specific objects.

Main Function



Features

- 01 People, Vehicle, Animal detection
- 02 Provide statistical data
- 03 Can be linked to existing operating platform (system)
- 04 Available to analyze and classified by wildlife object (12 species) (boar, goat, elk, roe deer, badger, raccoon, cat, wildcat, marten, weasel, wild dog, person)
- 05 High analysis accuracy rate (Wild boar : 97%, other 11 species : above 85%)







FIREWATCHER

Forest Fire Detection Solution

“ A state-of-the-art forest fire situation analysis solution for early response to fire extinguishing that detects smoke (not flame), in multi-channel CCTV footages by applying deep learning video analysis technology

Main Function

 <p>Multi-channel CCTV Video analysis</p>	 <p>AI based object identification and recognition (smoke, cloud, vapor)</p>	 <p>Real-time notification of event status</p>	 <p>Prompt initial action in case of fire</p>
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Features

- 01 Detects the initial situation of a fire by detecting 'smoke' rather than 'fire'
- 02 A deep learning model that minimizes false detection of smoke-like clouds, fog, etc.
- 03 Enables simultaneous real-time multi-channel analysis and monitoring



Intelligent Crowd Characteristic Analysis Solution

“ A solution that analyzes the density of multiple people in the set area of CCTV footages based on deep learning video analysis technology and detects dangerous situations to enable rapid response

Main Function



CCTV video control in real-time



Setting criteria for counting and clustering events & alarming when events occur



Search, view, save, de-identify events (Searchable by date, CCTV, event)



Manage CCTV lists and provide event statistics

Features

- 01 CCTV real-time video analysis (crowd counting, density, identity, mobility-based risk)
- 02 Performs 100% deep learning of core technologies (unit space identification, crowd coefficient measurement, movement direction prediction)
- 03 AI Edge device can be connected to pre-installed CCTV to analyze
- 04 Support for rapid alarm and response to dangerous situations (Disaster response center, Related ministries, On-site speakers, etc.)







SECUWATCHER

Intelligent Video Information Security Solution



“ A video information security solution that can protect personal information by encrypting and storing video information captured at the CCTV control center through export management, forgery prevention and leakage detection

Main Function

 <p>Personal privacy protection based on PDPA</p>	 <p>Video tampering prevention</p>	 <p>High speed encryption when saving recorded video (Lightweight encryption module)</p>	 <p>Provides information only under authority</p>
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Feature

- 01 Automatic and manual object tracking function (Human& Face Detection)
- 02 Image, text watermarking technique (applying zero watermarking technique that is strong against video attacks)
- 03 Differentiate video authority functions for the police and for civil petitioners
- 04 Application of domestic standard lightweight encryption module (LEA-128)
- 05 Video access control using only a dedicated player
- 06 Systematic video transfer process through the management server



AI based Video Masking Web-service

- “ (1) Image de-identification web service provided based on AWS cloud to prevent exposure of personal information when images containing personal information are taken out.
(2) A service that can easily and quickly apply masking on various file formats (video/images) to protect personal information.

How to use

1. Plan Selection

Create an account, check the total time of the video file and then select the service plan

2. Upload a video

Upload the video file by selecting the masking type for the video after payment.

3. Convert masking image

After checking the time required for export, service users can apply for video export with fixed amount of points







Features

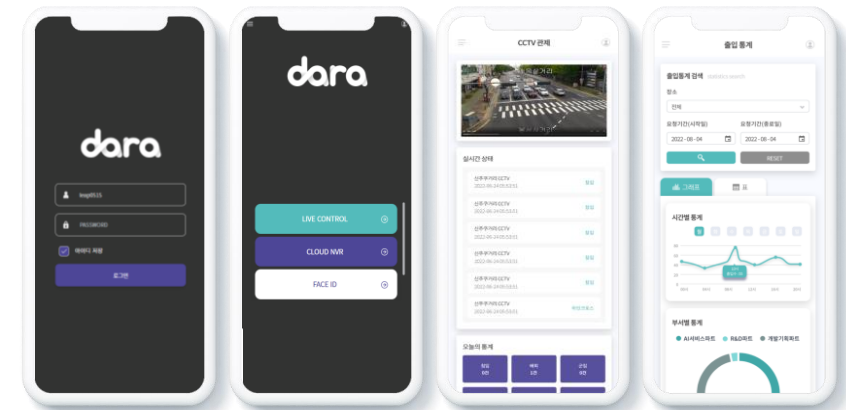
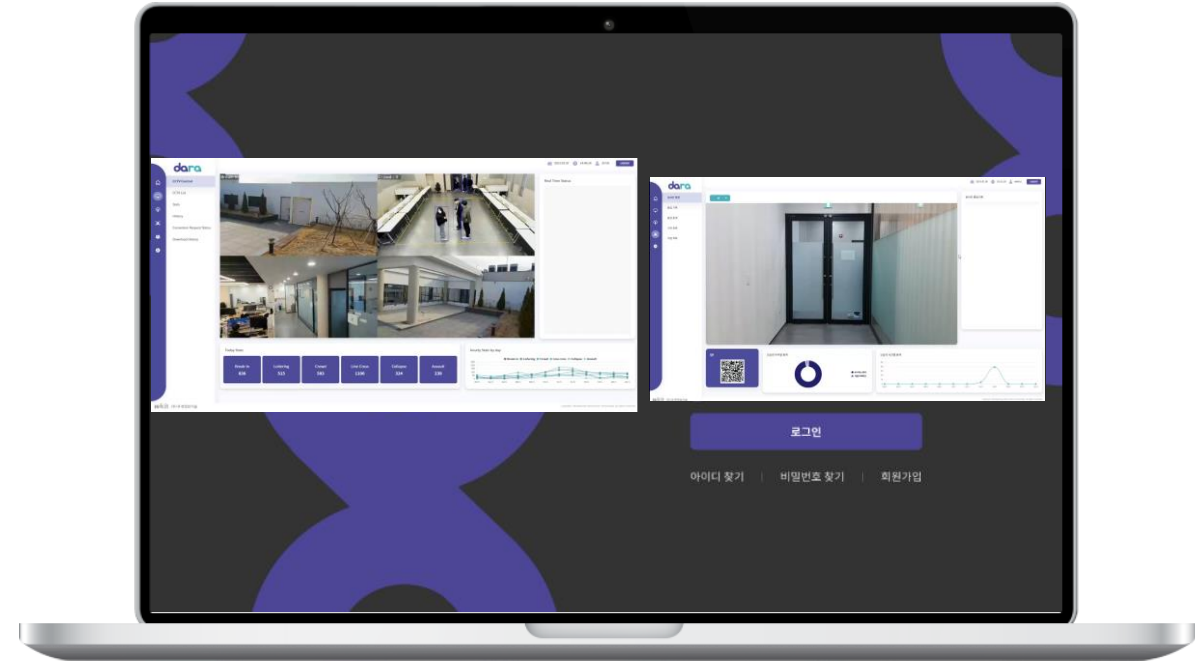
- 01 Easy to use both online and mobile and do not require separate installation
- 02 Users can apply identification/de-identification of objects they want and adjust the degree of masking
- 03 Possible to detect/de-identify people, faces, vehicle and license plate with high accuracy
- 04 Users can freely choose the objects to be de-identified



“Dara is an AI video analysis platform that utilizes the GPU resource pool of cloud infrastructure. By applying SPHERE AX's AI engine (ai dara), it analyzes objects such as people and cars in real time and provides various services.

Features

 <p>Various services provided in modular form</p>	<ul style="list-style-type: none">- LIVE CONTROL- CLOUD NVR- FACE IDEtc.	 <p>Cloud based service</p>	<ul style="list-style-type: none">- Reduce direct management elements- Introducing and adding new equipment, simplifying storage expansion- Supports both Cloud and On premise
 <p>Passed KISA intelligent CCTV performance certification (Intrusion, Loitering, Collapse)</p>	 <p>Web & Mobile support & UX optimized for each device</p>	 <p>Efficient high-definition video storage using the latest compression standard technology</p>	 <p>Provide video transfer service through personal video information protection platform</p>



About SPHERE AX

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Company

SPHERE AX Co., Ltd.

Date of Establishment

10th. December. 2008

Business Type

Software Development

Capital

11.5 billion (won, ₩) (as of Dec. 2022)

Employee

179 (as of March. 2023)

Product / Business

Artificial Intelligence (People-Vehicle-Wild animal detection AI,
Dangerous situation(forest fire, industrial accident) detection AI etc.)
Blockchain, Big-data,
Cloud based software development & supply

CEO Career

BA in Electronic Engineering, Yeongnam University

MS in Cyber Security, Gyeong-il University

CEO of WooKyoung Information Technology Co., Ltd.

President of Daegu · Gyeongbuk Venture Business Association

President of Daegu · Gyeongbuk ICT Industry Association

Director of the Federation of Korean Information Industries

(Former) 10th President of Daegu · Gyeongbuk KPC (Korea Productivity Center)

(Former) Director of Daegu · Gyeongbuk INNOBIZ Association

(Former) IT Mentoring Member of MKE (Ministry of Knowledge Economy)

CEO

Yun-ha Park





Establishment Stage (2008 – 2015)

Development of information security solution after establishment of SPHERE AX

- ('15) Commendation from the Minister of Trade, Industry and Energy
- ('15) Development of personal information protection system for dashcam
- ('14) Development of PUF ultra-light encryption video security system
- ('13) Establishment a company-affiliated research institute
- ('12) Registration of information and communication construction business
- ('08) Establishment of WKIT



Growth Stage (2016 - 2020)

Secure public confidence by launching intelligent video security solutions

- ('20) Exported 「Personal Information Protection Solution (Lite ver.)」 to Japan
- ('20) Participated in Korea National SmartCity Project (Sejong City)
- ('20) Completed construction of a new company building
- ('20) Signed a technical partnership agreement with C*** (Pakistan)
- ('19) Signed a sales contract with M*** (Malaysia)
- ('19) Registered the intelligent video solution as a procurement item (Expanded to the B2G market)
- ('18) Released video analysis solution
- ('17) Developed intelligent video security technology based on Deep Learning
- ('16) Released Secuwatcher for CCTV Enterprise video export (Personal Video Protection Solution)



Take-off Stage (2021 – Present)

Promoting the expansion of intelligent video analysis based services by proving technology in the public market

- (24) WKIT → SPHERE AX Company name Change
- ('22) Signed Kakao Cloud Service Partnership with Kakao Enterprise Co., Ltd.
- ('22) Signed Naver Cloud Platform service partnership with Naver Cloud Co., Ltd.
- ('22) Intelligent CCTV performance test certification (DARA v1.0) by Korea Internet & Security Agency (KISA)
- ('22) Launch 「MOSAICER」 in Japan
- ('22) Participated in Thailand Chachoengsao Smartcity Pilot Project
- ('22) Signed a MOU with D*** (Vietnam)
- ('21) Awarded 「WORLD CLASS PRODUCT OF KOREA 2021」 with Secuwatcher for CCTV
- ('21) Signed a sales contract with A*** (Thailand)
- ('21) Development of Vehicle Counting/ Aircraft ground operation/ Wild animal analysis technology

IPRs (Intellectual Property Rights)

“ A total of 136 cases ”

including intellectual property patent registration and application

- > PCT Application 20 cases
- > Overseas Patent Application 7 cases
- > Trademark Registration/Application 18/3 cases
- > Design Registration 2 cases
- > Patent Registration/Application 23/19 cases



- 2018.06 **Communic Asia / Singapore** 2 times/~2021.06
- 2019.10 **Japan IT Week Autumn / Japan** 5 times/Scheduled for 2023.10
- 2020.01 **CES (Consumer Electronics Show) / USA** 3 times/~2023.01
- 2020.04 **Exported 「Personal Information Protection solution (Lite ver.)」 to Japan**
- 2021.11 **Awarded 「WORLD CLASS PRODUCT OF KOREA 2021」 with Secuwatcher for CCTV**
- 2022.02 **MWC (Mobile World Congress) / Spain** 2 times/~2023.02
- 2022.04 **Participated in Thailand Chachoengsao Smartcity Pilot Project**
- 2022.05 **IFSEC International / England** 2 times/~2019.06
- 2022.09 **IFA (Internationale Funkausstellung) / Germany**
- 2022.10 **Launch cloud based personal information protection web-masking service 「MOSAICER」 in Japan**
- 2022.11 **DigiTech ASEAN / Thailand** (Held a seminar for the Thai local governments) 2 times / Scheduled for 2023.11
- 2023.03 **Ho Chi Minh Smart School Project** in progress
- 2023.04 **SmartCity Asia / Vietnam** 2 times/~2022.05



THAILAND



JAPAN



VIETNAM



MALAYSIA

Global
Competence



Marketing
Competence



Technical
Competence



Human
Competence

THANK YOU

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