

Yuxing Technology Behavior Analysis System

Upgrading traditional monitoring to an
intelligent perception brain
Achieving the transformation from passive
recording to active early warning

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Product Overview

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Product Overview

Yuxing Technology Video Monitoring Analysis System (HVS) is an intelligent monitoring solution combined with traditional monitoring systems. It uses AI technology to read the video streams from every camera 24/7, analyze and judge the behavior information of moving targets automatically, and output the information to related system platforms. It provides timely early warnings for potential safety incidents, which can greatly reduce the workload of monitoring personnel.



Industry Pain Points

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Industry Pain Points

Traditional video surveillance systems face three core challenges:



High False Alarm Rate

Invalid alarms from ordinary motion detection for things like leaves, shadows, and light changes account for over 60%, severely consuming security resources.



Delayed Response

It takes an average of 3-5 minutes from incident occurrence to manual detection, missing the optimal intervention opportunity.



Labor Cost

7x24 hours of manual monitoring for each camera leads to attention fatigue problems.



Our
Solution

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Our Solution

Yuxing HVS uses AI algorithms and achieves:

Comparison Metric	Traditional Monitoring	Yuxing HVS	Improvement
Recognition Accuracy	≤40%	≥90%	225%
Response Speed	3-5 minutes	within 3 seconds	6,000% ~10,000%
Labor Cost	100%	reduce by 70%	Save ¥10,000/month/ camera

Core Competitiveness

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Core Competitiveness - Algorithm Source Provider

Absolute Price Advantage

Focused on providing the most cost-effective video monitoring analysis solutions.

Hardware Adaptation Development

Some projects in mainland China cannot use foreign chips. Our team can adapt algorithms for specific hardware.

Remote Deployment Offline Use

Deployed in a large number of judicial projects over China. These projects have been running stably until now and cannot be connected to the external network.

Continuous Algorithm Optimization

The team continuously optimizes algorithm performance:

reducing hardware configuration, improving algorithm performance, enhancing algorithm accuracy, and providing highly customized algorithms adapted to large models.

System Functions

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System Functions

Behavior Recognition

The behavior recognition function is the core of the intelligent monitoring system. It uses artificial intelligence and deep learning technology to automatically analyze human actions and behavior patterns in surveillance video, thereby achieving **real-time monitoring**, **abnormal pre-warning**, and **efficient management**.

The system uses algorithms to structure the main activity skeleton of people. Various abnormal behaviors are defined based on human movement trajectories, and an action system is formed through deep learning algorithms, which can be efficiently recognized by the system.

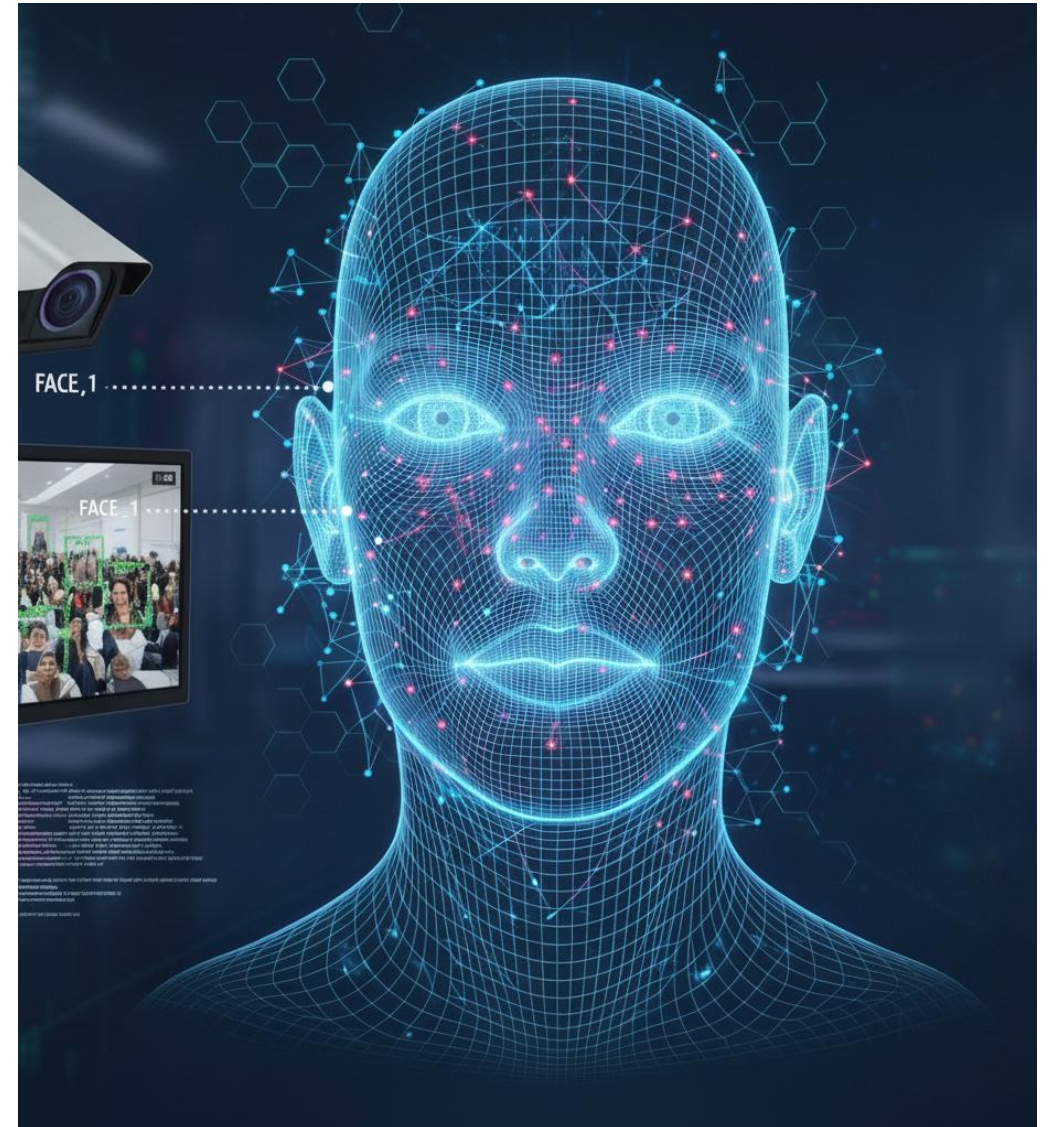


System Functions

Face Recognition

Face recognition is one of the most focused and widely used functions in current intelligent monitoring systems. It pushes monitoring from the stage of "passive recording" to "active identity recognition." It is commonly used for **security access and control, blacklist warning, and VIP customer identification.**

The system uses a deep learning-based detection algorithm to find the location of all faces in the video stream, standardizes the faces through key point localization and geometric transformation, converts face image information into digital codes using a convolutional neural network, and finally compares it with templates stored in the database to achieve accurate face recognition.

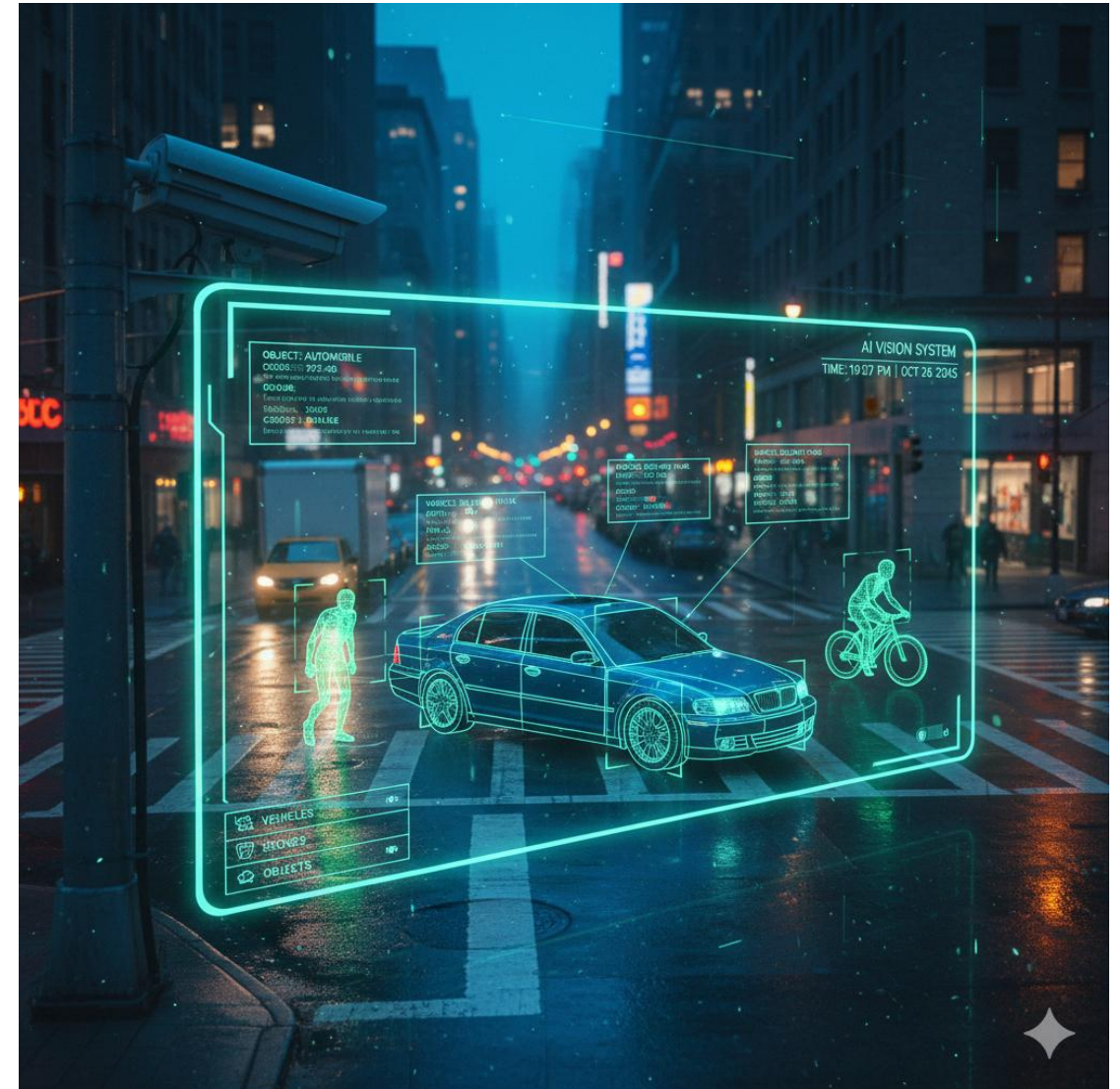


System Functions

Object/Item Recognition

The object/item recognition function utilizes AI to give the monitoring system the ability to "**understand**" the screen, enabling the monitoring system to transform from passive recording to active early warning, achieving efficient event response and intelligent retrieval. It greatly improves the efficiency and accuracy of security monitoring and is a core pillar of modern intelligent security.

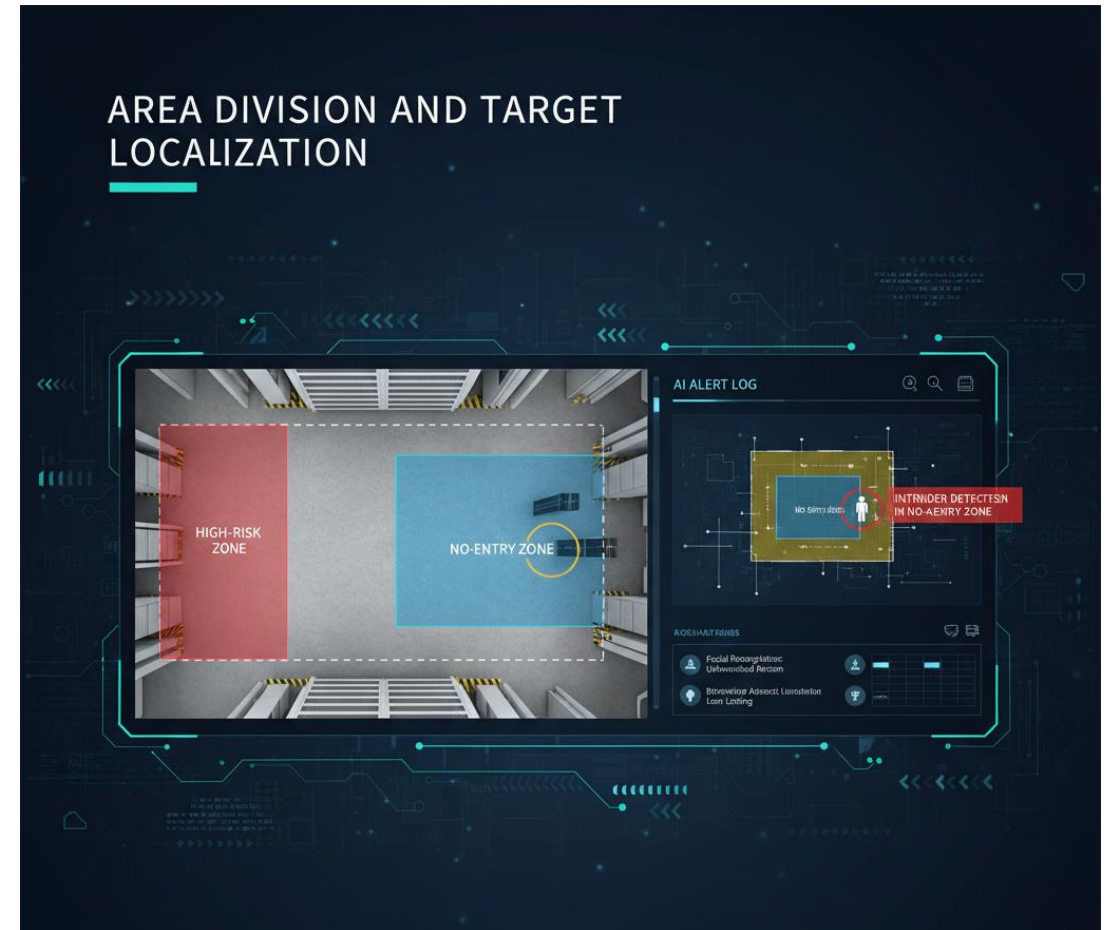
The system is based on deep learning, inputting the video stream into a pre-trained AI model to accurately identify preset object categories (such as people, vehicles, etc.) and mark their precise locations on the screen. Based on their movement, stopping, or interaction in the screen, the system triggers preset intelligent events.



System Functions

Area Division and Target Localization

The system allows you to freely define areas of interest in any shape on the screen, based on your actual monitoring scenario (e.g., **High-Risk Zone**, **Restricted Access Zone**, **Important Asset Storage Area**). All recognition functions (such as behavior, facial, and object recognition) can be activated or excluded within these specific zones, significantly improving the accuracy and relevance of alarms. You can localize the focus area down to centimeter precision, ensuring the system only monitors the areas you truly need to protect.



System Functions

User-Defined Recognition Rules

The system not only provides preset recognition functions, but also utilizes Large Model Analytics to process user-defined, specialized recognition rules. This allows for personalized coverage in areas not addressed by the system's general recognition rules.

Simply use **natural language** (for example, 'A person in black clothing is pushing a wheelchair forward') to tell the system what you want to monitor, and the new recognition rule will take effect immediately, without the need for complex code.



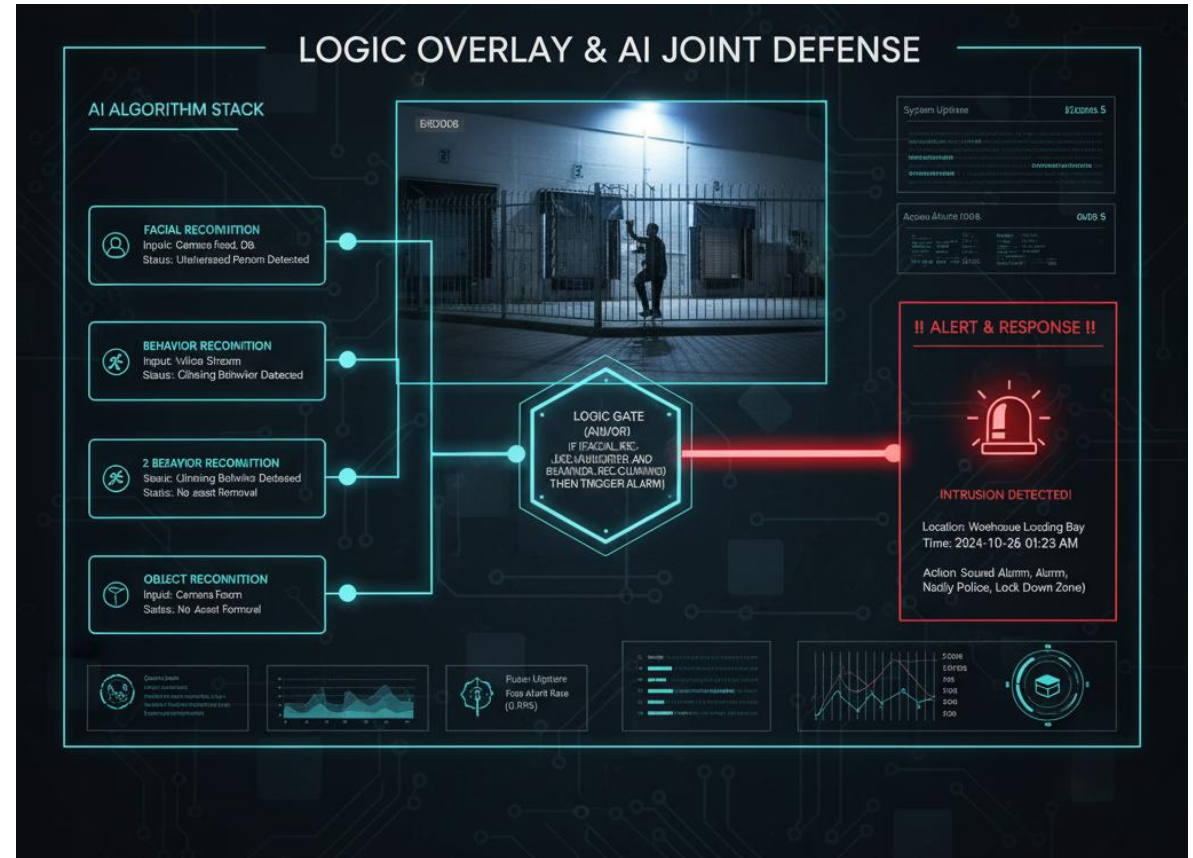
System Functions

Recognition Logic Overlay

A major core advantage of this system is its powerful logic overlay capability. You can **combine** multiple recognition functions to form complex, high-precision alarm conditions, effectively reducing false alarms.

Example: You can set an "Intrusion Alarm" logic as: "If an unauthorized face (Facial Recognition) is detected within Area A (e.g., a warehouse entrance) AND climbing behavior (Behavior Recognition) is also detected, the alarm will be immediately triggered" after applying the AND or OR logic overlay.

This multi-factor verification mechanism ensures that only genuine security threats trigger an alert.



System Functions

One-Key Arming and One-Key Disarming

To ensure quick response and convenient daily management, the system offers **one-key operation** features:

One-Key Arming: Quickly activate all your preset alarm logics, area divisions, and linkage strategies. Suitable for high-alert periods such as after hours, nighttime, or holidays.

One-Key Disarming: Quickly deactivate all alarm logics, putting the system into routine monitoring mode (recording only, no alarming), which facilitates staff access and daily operations.



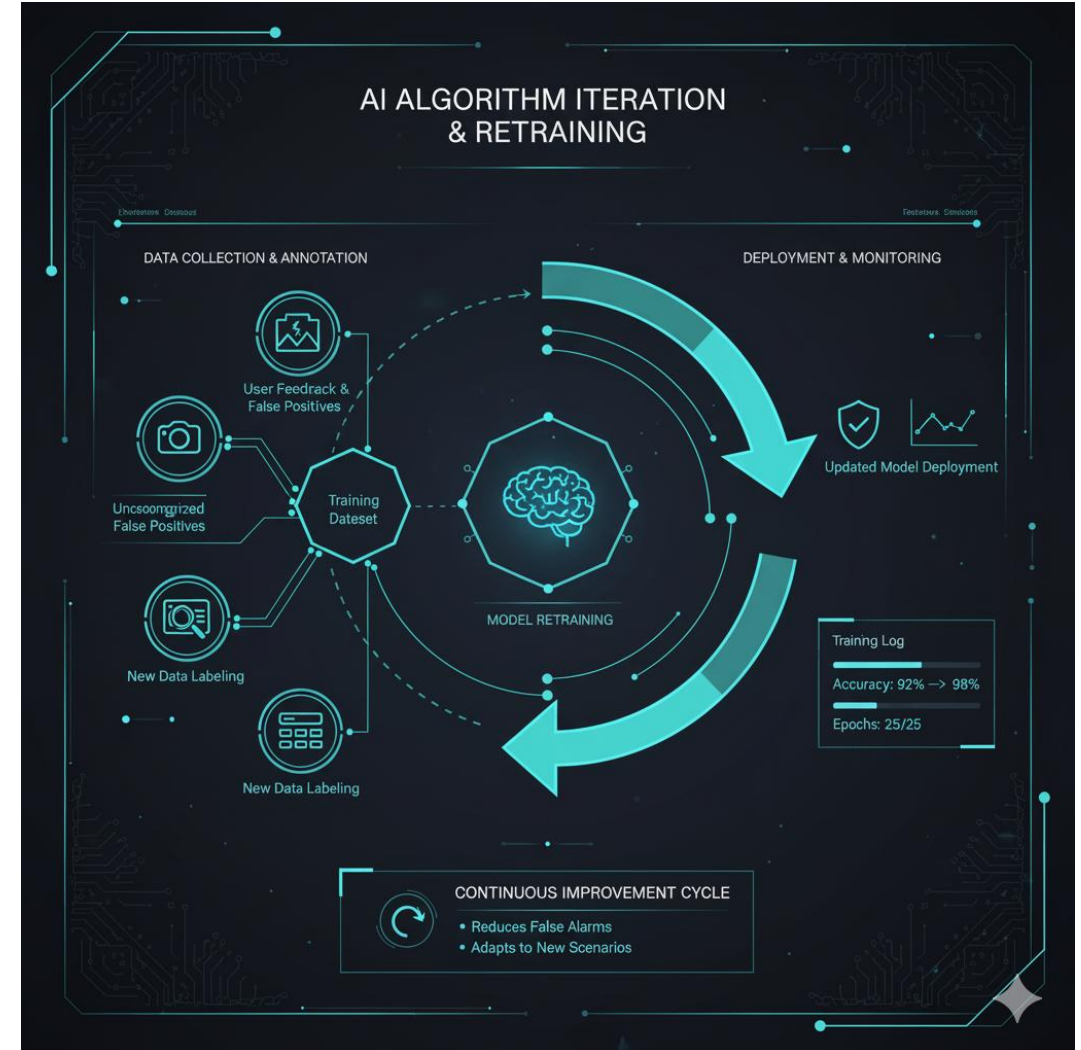
System Functions

Secondary Training (AI Algorithm Iteration Training)

We understand that AI algorithms require continuous optimization to adapt to new business scenarios and environmental changes. Therefore this system supports Secondary Training (AI Algorithm Iteration):

During real-world operation, you can capture any misidentifications or missed detections. Simply reach out to our technical team, and we will use that data to retrain and refine the AI model for better performance.

This enables the algorithm to continuously **self-improve and evolve**, constantly increasing recognition accuracy and robustness in specific application scenarios, truly achieving the continuous iteration and long-term effective operation of the intelligent system.

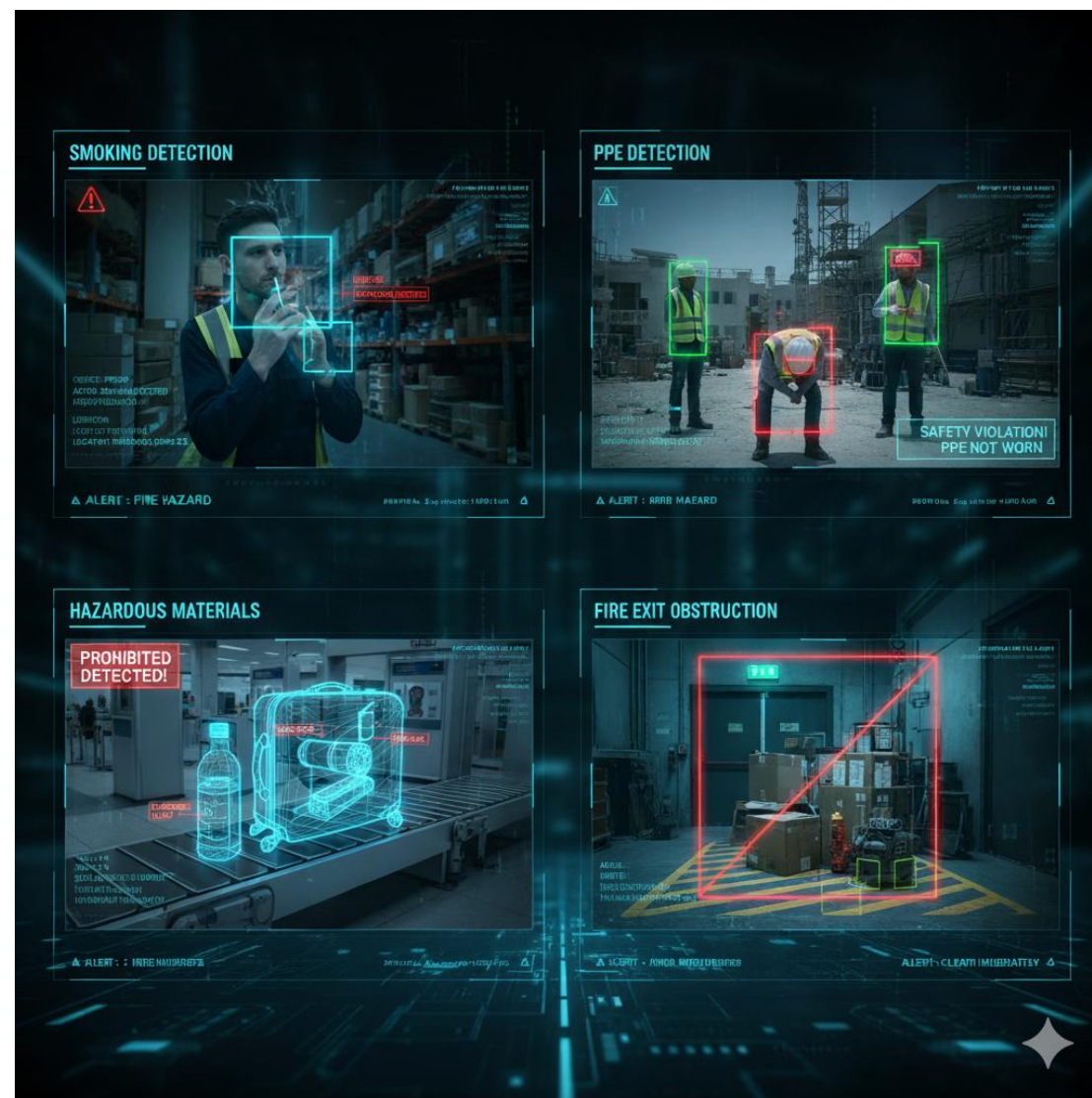


System Functions

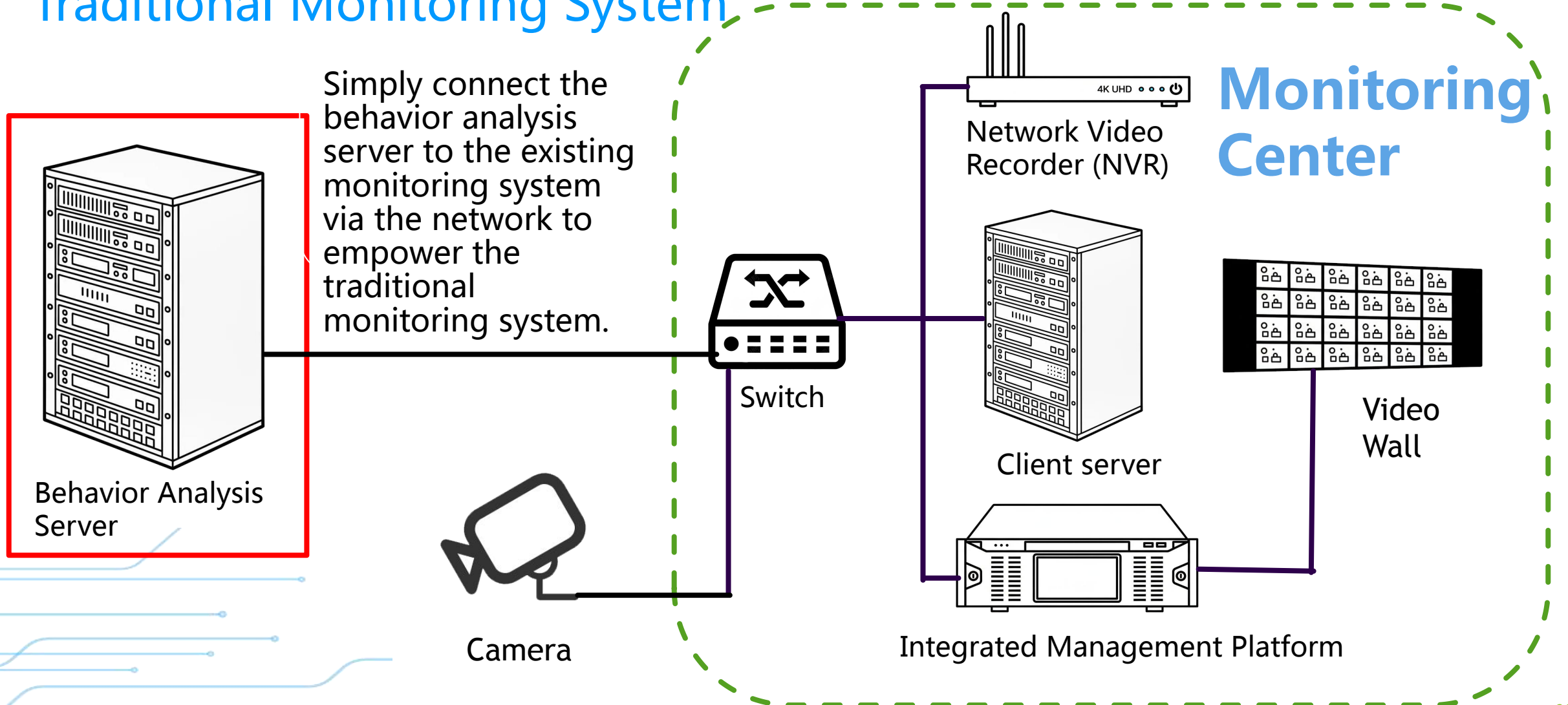
Support Algorithm Customization

Our AI customization algorithm service focuses on special scenarios and compliance requirements. Besides behavior recognition, face recognition, and basic object recognition, we are well aware that different industries have unique and highly demanding customization needs for monitoring analysis.

We provide a series of customized AI algorithm services targeting specific risks, safety, and compliance, aiming to fill the gap of general solutions and provide precise intelligent monitoring support for your special business scenarios. Such as **smoking detection, smoke and fire detection, fire exit obstruction detection, hazardous materials detection, work uniform detection, and helmet detection.**



Integration of Behavior Analysis System and Traditional Monitoring System



Types of Behavior Analysis Server

According to customer needs and the number of cameras to be analyzed, common types include:

1. Mini PC, approximate size: 196.5(D) x 198(W) x 45(H) mm, capable of analyzing up to 8 video streams;
2. Tower server, similar to a standard desktop PC, capable of analyzing up to 128 video streams;
3. 2U and above rack-mounted server, a single graphics card can analyze up to 128 video streams, and video stream analysis can be expanded through cascaded graphics cards.



Behavior Analysis System Technical Introduction

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Behavior Analysis System Technical Introduction-1

Item	Description
Accuracy	90%
Latency	within 3 seconds
Concurrent Channels	8 / 16 / 32 / 64 / 128 channels or supports customized analysis of more video streams
Optimal Frame Rate Processing	25fps
Video Stream Access Protocol	RTSP
Supported Video Encoding Formats	H.264、 H.265 (H.264 optimal)
Management Method	Centralized Management Client
API	Provides open API/SDK and documentation (e.g., HTTP protocol)

Behavior Analysis System Technical Introduction-2

Item	Description
Storage Method	Automatic storage using the system's local storage drive
Storage Mechanism for Analysis Results	Stores 15 seconds of video before and after the alarm event, occurrence time, and event type
Health Monitoring	A built-in health monitoring tool that can real-time monitor the processing status of each video stream, hardware resource utilization, and the running status of the analysis algorithm
Update and Maintenance Method	The system is equipped with an FTP service. Customers receive update packages via email and place them in the FTP file directory for updating
Recommended GPU Configuration	<p>Recommends configuration based on the customer's channel access requirements, supporting models:</p> <p>Consumer grade: Nvidia 10/20/30/40/50 series</p> <p>Industrial grade: Nvidia Tesla P4/T4</p> <p>Domestic: Huawei Atlas</p>
Recommended CPU Configuration	<p>Recommends configuration based on the customer's channel access requirements, supporting models:</p> <p>Consumer grade: Intel I3 I5 I7 series</p> <p>Industrial grade: Intel Xeon series</p> <p>Domestic: Huawei Kunpeng series</p>

Behavior Analysis System Technical Introduction-3

Item	Description
Deployment Method	The server is installed in the monitoring center and connected to the monitoring local area network
Configuration Management	Configuration instructions are attached within the system algorithm list
Video Wall Display Method	Can be directly displayed / splicing control / platform control
Display Output	1 way HDMI signal output
Multi-point Early Warning	Supports multi-point pop-up warnings managed through the client
Early Warning Methods	Automatic pop-up, voice prompt, remote event (app) push

Behavior Recognition Function

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Behavior Recognition Function

Perimeter Area - Intrusion Detection

Action Definition

- The detection of a person in the screen is defined as an intrusion event.

Application Scenarios

- Any scene with restricted human access, or perimeter fence alert zones, indoor alert zones, etc.

Configuration Rules

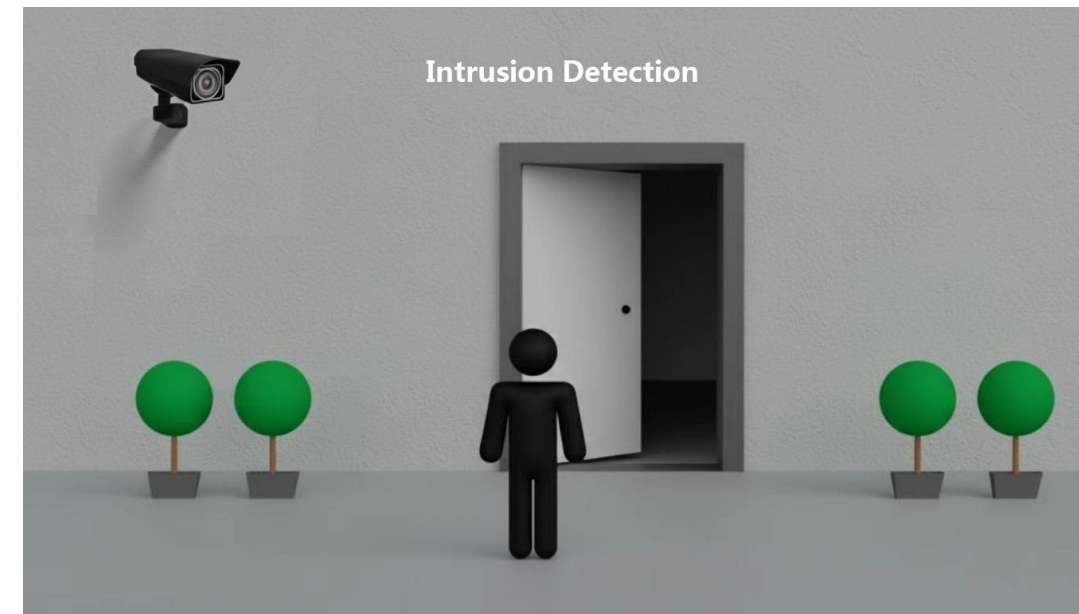
- Set an effective area; an alarm is triggered upon detecting a human intrusion within the effective area. Set an armed time period; an alarm is triggered upon identifying a human intrusion during the armed time period.

Action Characteristics

- The intrusion event belongs to the skeleton recognition category of actions, and it is also one of the most widely used actions.

Recognition Speed

- Analysis and screen pop-up can be completed within 3 seconds from the action generation to the system alert.



Behavior Recognition Function

On-duty Post - Unauthorized Absence Detection

Action Definition

- An on-duty personnel leaving their post for more than a certain duration is defined as unauthorized absence.

Application Scenarios

- On-duty posts.

Configuration Rules

- Set an effective area within the on-duty post area. The system provides four time options: 1 minute, 5 minutes, 15 minutes, and 30 minutes, where 1 minute is the detection time and the other three are for regular needs.

Action Characteristics

- Unauthorized absence detection is a comprehensive recognition based on skeleton feature recognition plus time attributes. First, if no person is detected in the effective area, timing starts, and an alert is immediately triggered when the system-set time is reached.

Recognition Speed

- Analysis and screen pop-up can be completed within 3 seconds from the action generation to the system alert.



Behavior Recognition Function

On-duty Post - Sleep on Post Detection

Action Definition

- An on-duty personnel sleeping on the job for more than a certain duration is defined as sleep on post.

Application Scenarios

- On-duty posts.

Configuration Rules

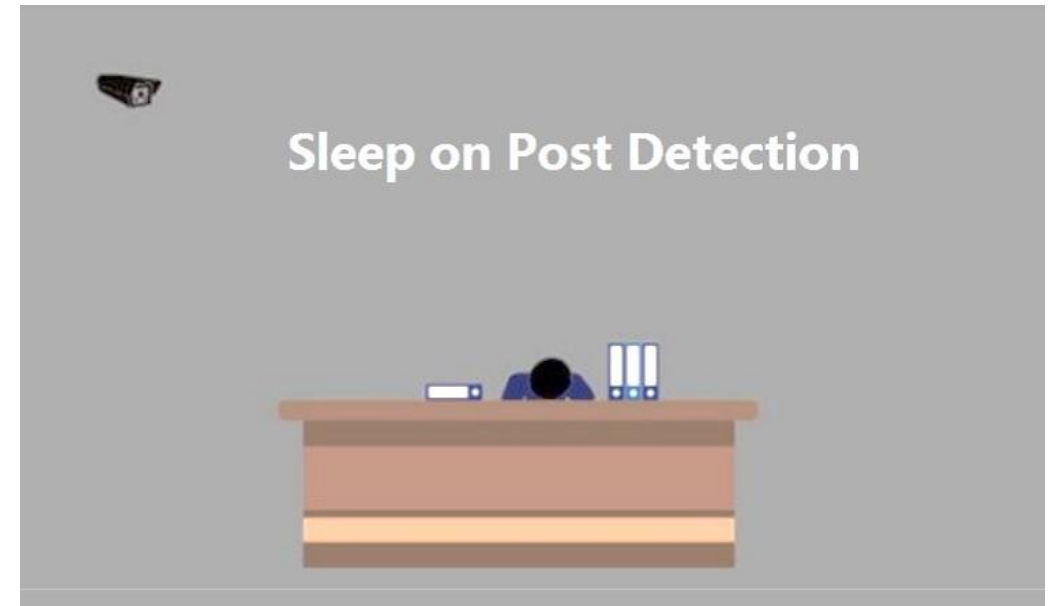
- Set an effective area within the on-duty post area. The system provides four time options: 1 minute, 5 minutes, 15 minutes, and 30 minutes, where 1 minute is the detection time and the other three are for regular needs.

Action Characteristics

- Sleep on post detection is a comprehensive recognition based on skeleton feature recognition plus time attributes. The nature is the same as unauthorized absence detection, but the detection rules are slightly different.

Recognition Speed

- Analysis and screen pop-up can be completed within 3 seconds from the action generation to the system alert.



Behavior Recognition Function

Public Area - Fall Event Detection

Action Definition

- A fall is defined when the joint points of a person's head, hips, and feet are on the same plane parallel to the ground.

Application Scenarios

- Indoor and outdoor public areas.

Configuration Rules

- This action does not require setting an area or event; it is full-range, full-process real-time detection, only requiring sensitivity adjustment. Low sensitivity results in fewer false positives, while high sensitivity results in more false positives.

Action Characteristics

- A fall event belongs to limb action recognition. When a person falls to the ground, there is no problem if they can immediately get up under normal circumstances; if they cannot get up, an accident may have occurred.

Recognition Speed

- Analysis and screen pop-up can be completed within 3 seconds from the action generation to the system alert.



Behavior Recognition Function

Special Area - Crowd Gathering Detection

Action Definition

- A crowd is defined when the number of people gathered in the screen exceeds the quantity set by the system.

Application Scenarios

- Certain special areas.

Configuration Rules

- The system can set the number of people according to actual needs, such as 3 people, 10 people, etc., and can set the area and time period. In crowd gathering application scenarios, which are all public areas, it is not appropriate to set up crowd detection during normal activity hours and in areas with a high number of people.

Action Characteristics

- A crowd gathering event belongs to skeleton-based person counting and recognition, and an alarm is triggered when the number of people in the recognition scene reaches the upper limit set by the system.

Recognition Speed

- Analysis and screen pop-up can be completed within 3 seconds from the action generation to the system alert.



Behavior Recognition Function

Public Area - Request for Help Detection

Action Definition

- Raising both hands simultaneously is defined as a request for help.

Application Scenarios

- Indoor and outdoor public areas, etc.

Configuration Rules

- Request for help is divided into extremely low rules and other rules. The extremely low rule only triggers an alarm after continuously raising both hands for more than four seconds. Other rules are based on the height at which both hands are raised.

Action Characteristics

- The request for help event belongs to limb action recognition. Normally, this action requires user promotion; when an emergency is encountered, raising both hands towards the camera can send a help signal. False positives for this action mainly come from stretching or other unintentional raising of both hands.

Recognition Speed

- Analysis and screen pop-up can be completed within 3 seconds from the action generation to the system alert.



Behavior Recognition Function

Public Area - Loitering Detection

Action Definition

- A person walking back and forth in a specific area for more than the prescribed time is defined as loitering.

Application Scenarios

- Special scenarios, or public area scenarios during specific time periods.

Configuration Rules

- The system provides four rule options: 1 minute, 3 minutes, 5 minutes, and 10 minutes, and allows setting the armed time period and area.

Action Characteristics

- Loitering detection is a comprehensive recognition based on skeleton and time. When the camera captures a person's skeleton appearing in the recognition area, the system starts timing, and an alarm is triggered if the person continues to appear in the recognition area for more than the system-set time limit. This type of action has no false positives.

Recognition Speed

- Analysis and screen pop-up can be completed within 3 seconds from the action generation to the system alert.



Behavior Recognition Function

Public Area - Prolonged Stationary Detection

Action Definition

- A person remaining stationary in a specific area for more than the prescribed time is defined as prolonged stationary.

Application Scenarios

- Special scenarios, or public area scenarios during specific time periods.

Configuration Rules

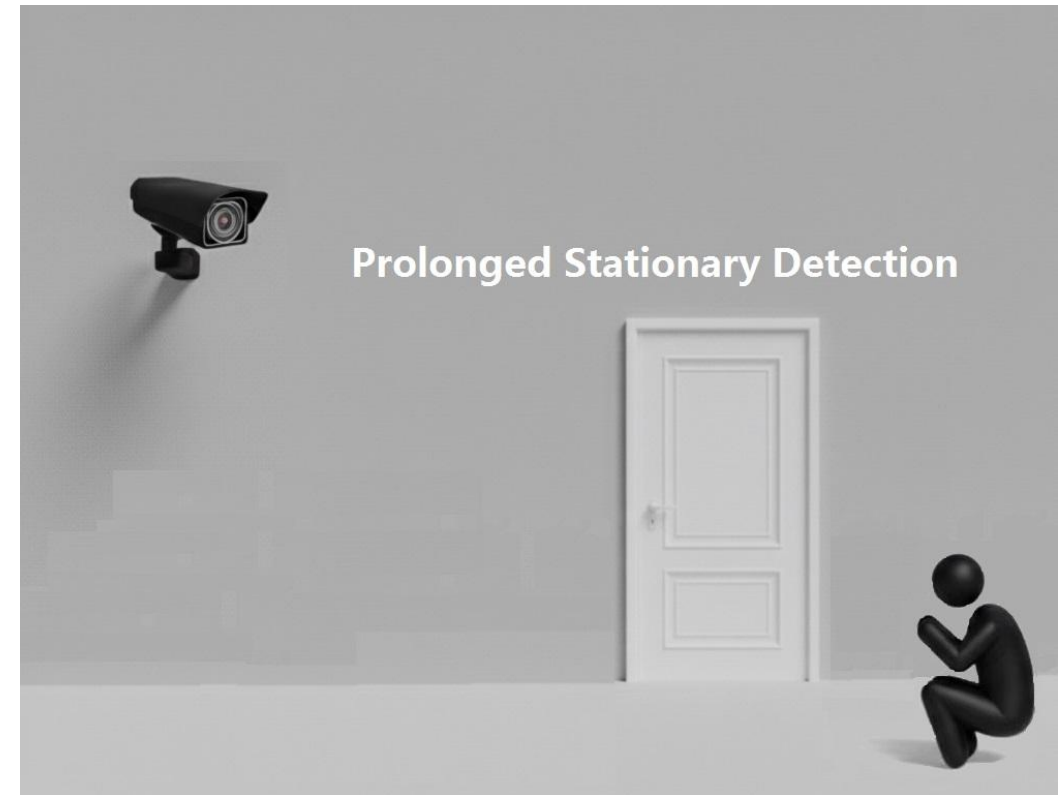
- The system provides four rule options: 1 minute, 5 minutes, 10 minutes, and 30 minutes, and allows setting the armed time period and area.

Action Characteristics

- The rules for prolonged stationary and loitering are the same, but the system's timing standard is longer.

Recognition Speed

- Analysis and screen pop-up can be completed within 3 seconds from the action generation to the system alert.



Behavior Recognition Function

High Climbing Detection

Action Definition

- The appearance of a person's head within the height range set by the system is defined as high climbing.

Application Scenarios

- Scenarios in public areas where climbing is possible.

Configuration Rules

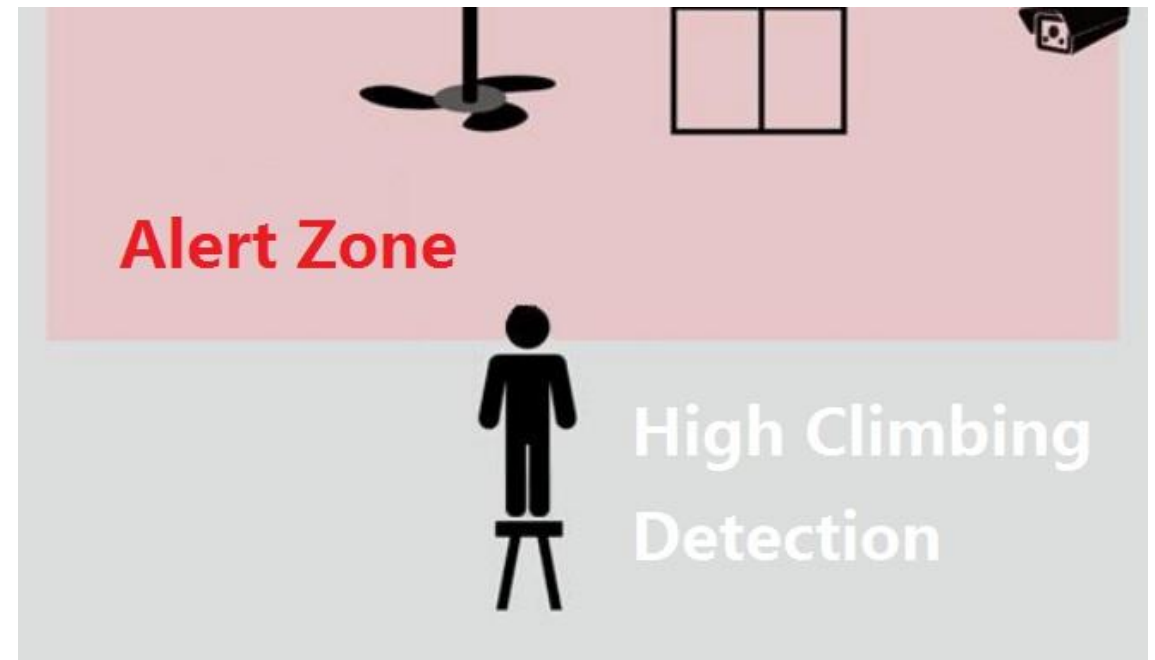
- Generally, set an alert zone at a height exceeding a person's normal state.

Action Characteristics

- The high climbing event belongs to skeleton feature recognition, and detecting a person's head skeleton within the alert zone triggers a system alert.

Recognition Speed

- Analysis and screen pop-up can be completed within 3 seconds from the action generation to the system alert.



Behavior Recognition Function

Perimeter Area - Climbing Detection

Action Definition

- An event where both feet leave the ground and the person climbs upwards is defined as a climbing event.

Application Scenarios

- Perimeter fences, exterior walls of buildings.

Configuration Rules

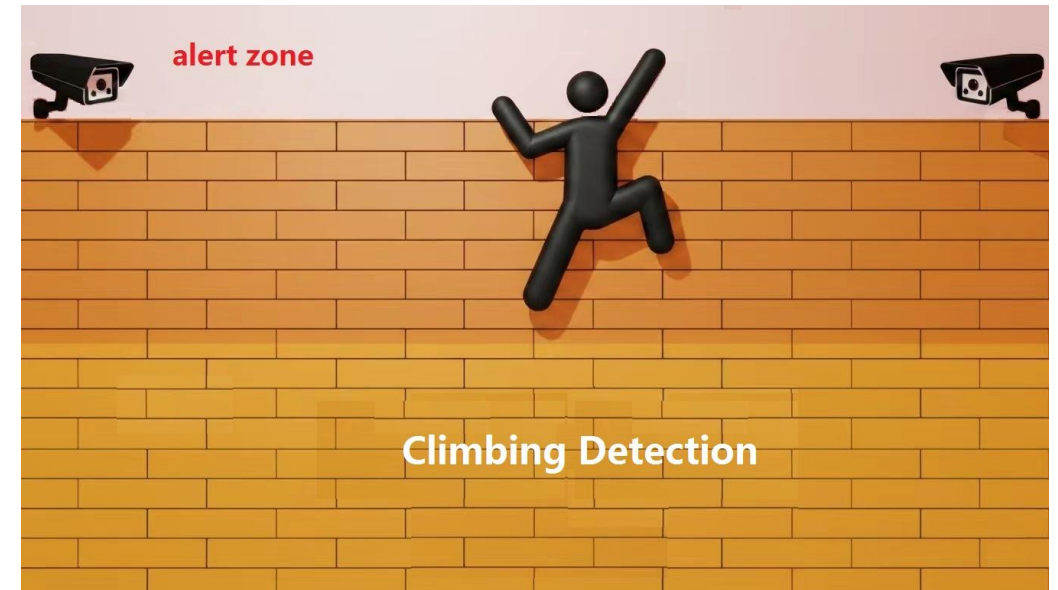
- Set an alert zone from a height of approximately 1 meter on the fence up to the top, including both the inside and outside of the fence, and set the exterior walls of buildings in the same manner.

Action Characteristics

- The climbing event is a comprehensive recognition based on skeleton features and human posture features; it is similar to the previous high climbing detection, but the detection rules are slightly different.

Recognition Speed

- Analysis and screen pop-up can be completed within 3 seconds from the action generation to the system alert.



Typical Application Scenarios

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Typical application scenarios

Prison Management

- Key Pain Points :
 - Preventing Unnatural Deaths
 - Preventing Prison Breaks
 - Preventing Assaults on Officers
- Algorithm Functions :
 - Fight Detection
 - Quilt-over-Head Detection
 - Solitude Detection
 - Unauthorized Absence/Sleep on Post Detection
 - Climbing Detection
 - Personnel Presence/Restricted Area Intrusion
 - Loitering/Prolonged Stationary Detection
 - Missed Patrol Check Detection
 - Distraction Detection
 - Smoke and Fire Detection



Typical application scenarios

Nursing Management

- Key Pain Points :
 - Service Quality Enhancement
 - Timely Emergency Response
 - Monitoring Health Status Changes
 - Operation Optimization
- Algorithm Functions :
 - Fall Detection
 - Prolonged Inactivity Detection
 - Fire Detection
 - Smoke Detection
 - Emergency Call Recognition
 - Abnormal Door/Window Opening Detection
 - Activity Pattern Analysis
 - Daily Activity Behavior Statistics
 - Unauthorized Intruder Detection
 - Domestic/ Caregiver Supervision



Typical application scenarios

Factory Management

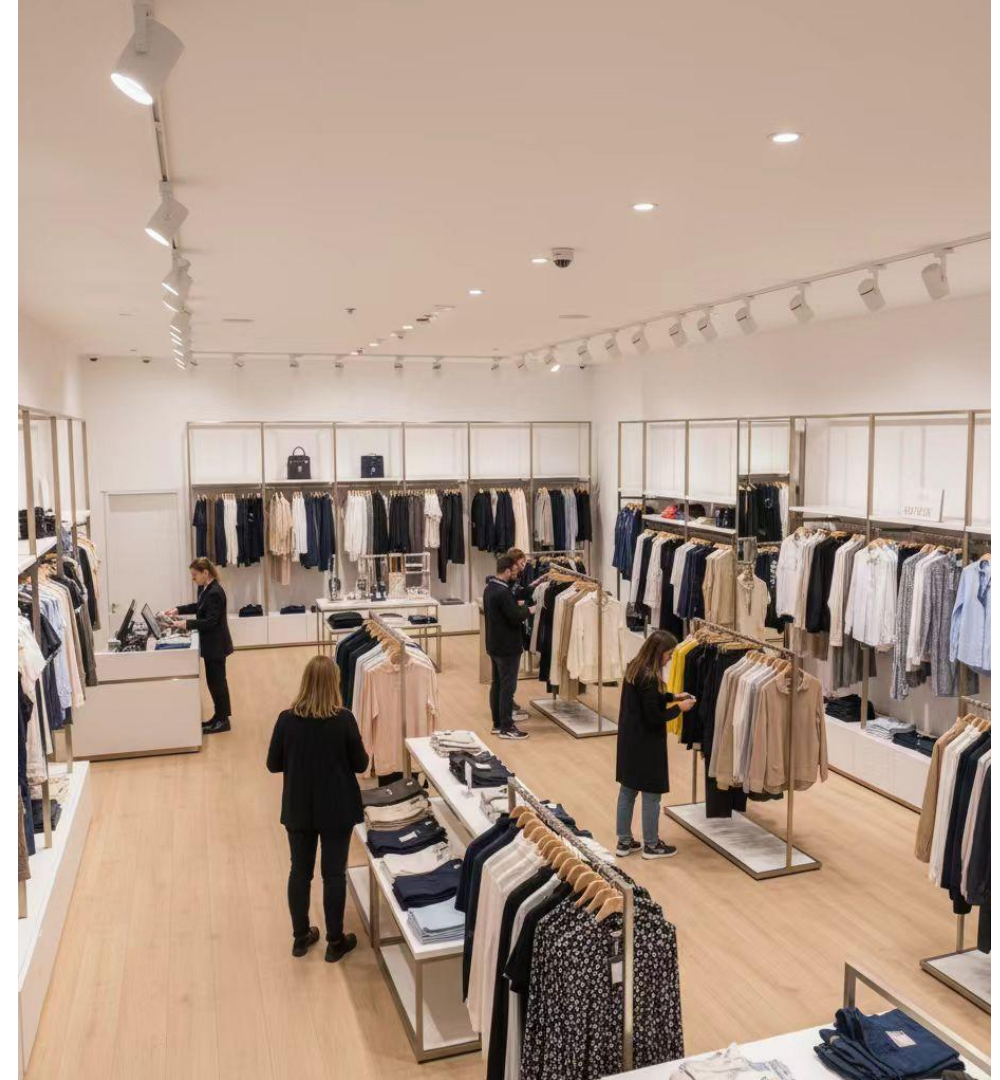
- Key Pain Points :
 - Preventing Safety Accidents
 - Improving Operational Efficiency
 - Ensuring Safety Compliance
 - Preventing Unauthorized Access
- Algorithm Functions :
 - Helmet Detection
 - Uniform Detection
 - Fire Detection
 - Smoke Detection
 - Bending and Lifting Goods Detection
 - Restricted Area Intrusion Detection
 - Unauthorized Absence Detection
 - Phone Call Detection
 - Smoking Detection
 - Truck Illegal Parking Detection
 - Wrong-Way Movement Detection
 - Lack of PPE Detection



Typical application scenarios

Store Management

- Key Pain Points :
 - Missing operational analysis
 - Ensure service quality
- Algorithm Functions :
 - Passenger Counting and Statistics
 - Stop time analysis
 - Customer movement/heat map
 - Queue detection and early warning
 - Abnormal behavior identification
 - Pick/place detection
 - Area intrusion/boundary crossing detection
 - Detection of leftovers/removed items
 - Employee on-duty/off-duty monitoring
 - Service specification testing
 - Work uniform/workwear wearing inspection



Typical application scenarios

Religious Site Management

- Key Pain Points :
 - Fire and electrical hazards
 - Heavy flow of people during the events
 - Cultural relics protection
 - Data statistics
- Algorithm Functions :
 - Pose/Action Compliance Detection
 - Pyrotechnic detection
 - Smoking detection
 - People flow statistics
 - Crowd gathering detection
 - Fall detection
 - Wandering detection
 - Intrusion detection
 - Detection of leftovers/removed items
 - Occlusion/destruction detection



Typical application scenarios

School Management

- Key Pain Points :
 - Preventing School Bullying
 - Preventing Unnatural Deaths
 - Visitor and Access Control
 - Student Behavior Management
 - Fire and Emergency Access Management
- Algorithm Functions :
 - Fight Detection
 - Area Intrusion Detection
 - Abnormal Student Behavior Detection
 - Smoking Detection
 - Wandering Detection
 - Dangerous Object Detection
 - Student Climbing Detection
 - Crowd Density Analysis
 - Fire Exit Blockage Detection
 - Classroom Behavior Analysis



Ushering in a New Era of Intelligent Security

Contact us for customized solutions

- Address : No.64-1, Hengzhigang, Yuexiu, Guangzhou, Guangdong, China
- Tel : (+86)13726721949
- Email : eddy.yu@stardrv.com

