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Smart City AI & Applications

AI Video Analysis and Object Retrieval

Intelligence Applications Division
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Smart Streetlight Image Control System

Smart Streetlight Image Control System

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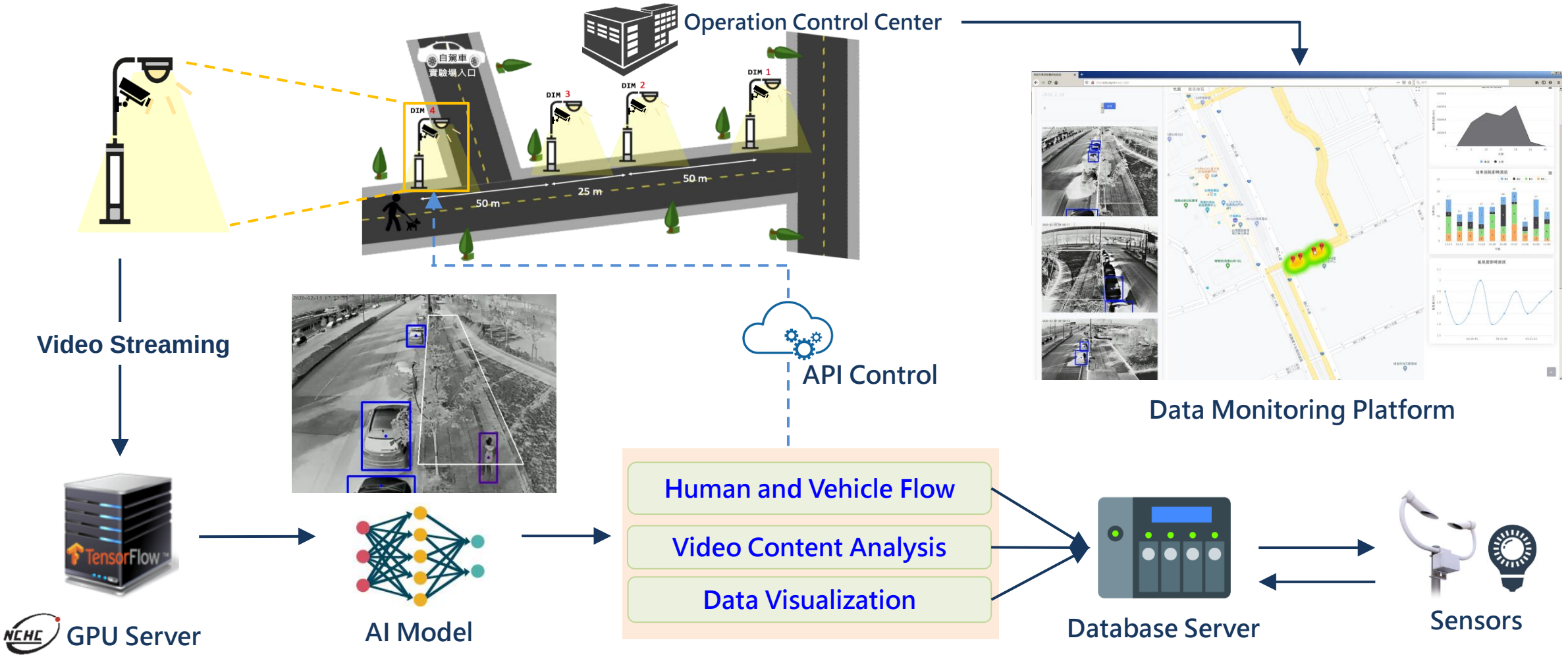
- Kernel technology
  - AI image sensing and recognition
  - Video analysis and API control module
  - AIOT monitoring platform



Smart Streetlight Application

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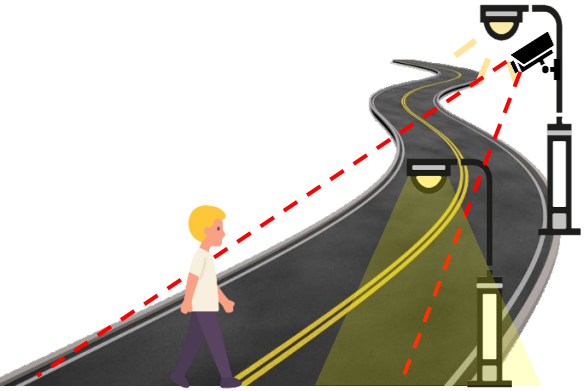
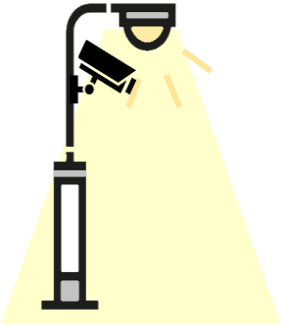


Customer Application

- Factory regional surveillance
- Traffic intersection surveillance
- Security / manufacturing industry



Edge Computing

- Key image and object detection

Smart Image Analysis

- Object feature attributes and association analysis

Control Mode

- Environmental sensing and control

IOT Control

- Multi-sensor networks

AI Video Analysis and Retrieval

Video Analysis and Retrieval Service

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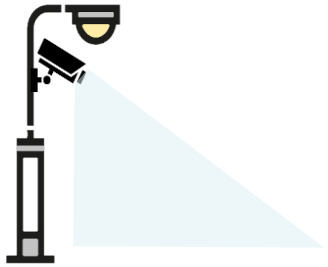


Traffic CCTV Camera

WOWZA Streaming Engine

- Real-time streaming engine
- Cloud service

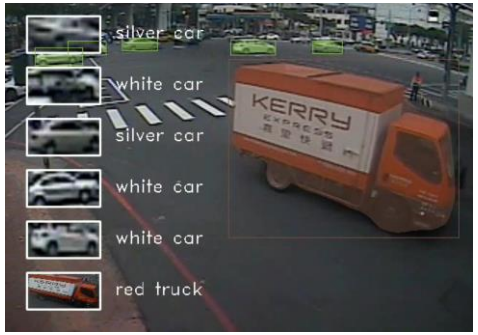
Smart Video Analysis

- Object Detection and Recognition
- Video/Image Semantic Analysis
- Attribute Analysis and Recognition
- Spatio-Temporal Data Association

Application service

Key Message/Query Image

Truck? Red?



- Establish object association data
- Video object extraction and retrieval
- Quick search platform

Video Surveillances → Video Streaming → Video Content Analysis → DB Storage → Video Retrieval

AI Video Content Analysis

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Traffic CCTV Camera

WOWZA Streaming Engine

Real-time Streaming Cloud Service

Image Pre-Processing

- Image Enhancemen
- Scaling /Normalizing
- Data Augmentation
- Data Cleaning and Labeling

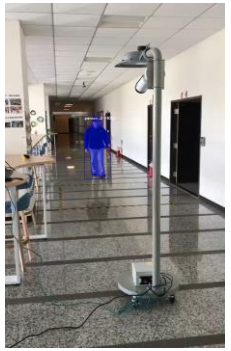

Image Semantic Model

Attribute Analysis Model

Clothing Type:
- Shirt/Pants

Clothing Attributes:
- Color: Black/ Brown
- Pattern: Striped

Spatial–Temporal:
- 2020/02/12, 14:30
- Cam. #1

JPG

js

json

Feature Representation Information

Query : Image or Keywords
Clothing? Color? Time?....

Image Retrieval Server

Search Engine

- Establish object feature attributes and association analysis
- AI semantic analysis structure
- Feature retrieval model expandability

CCTV Application

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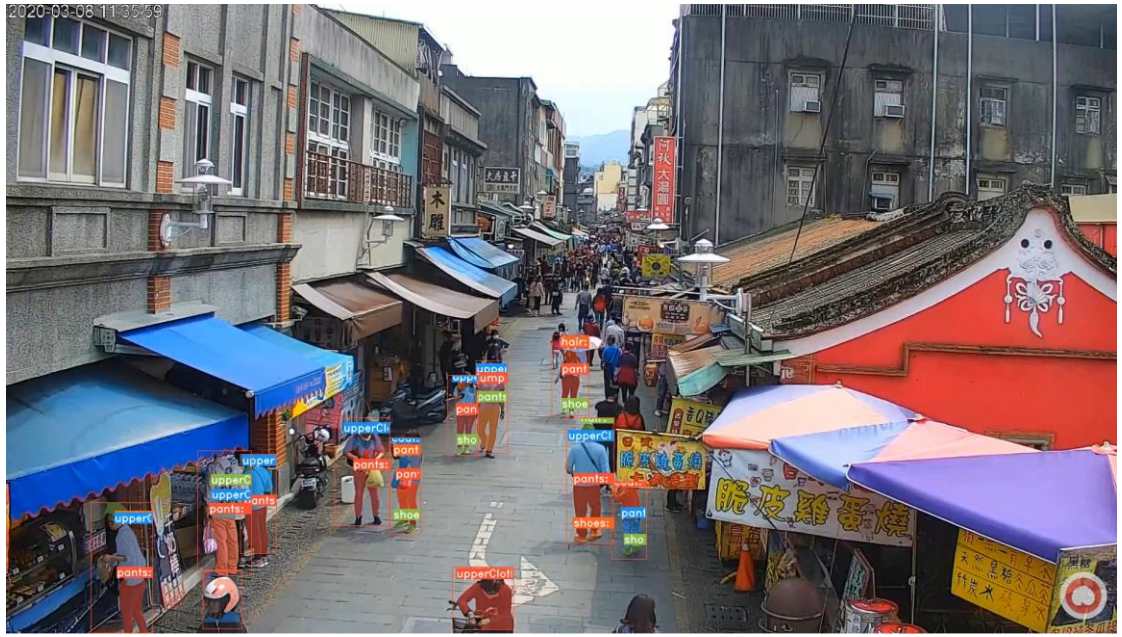
- AI Video Retrieval and Feature Recognition
  - Data source : Daxi Old Street, Taoyuan City, Taiwan

CCTV camera



AI Video Analysis

CCTV Application

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- AI Video Retrieval and Feature Recognition
  - Data source : Taiwan Boulevard, Taichung City, Taiwan

CCTV camera

AI Video Analysis

Multi-Camera Analysis and Image Abstraction

AI Video Analysis and Image Abstraction

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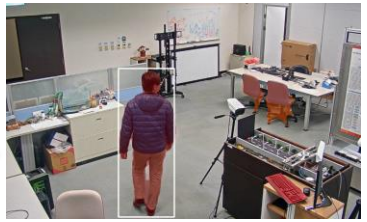
Object Recognition

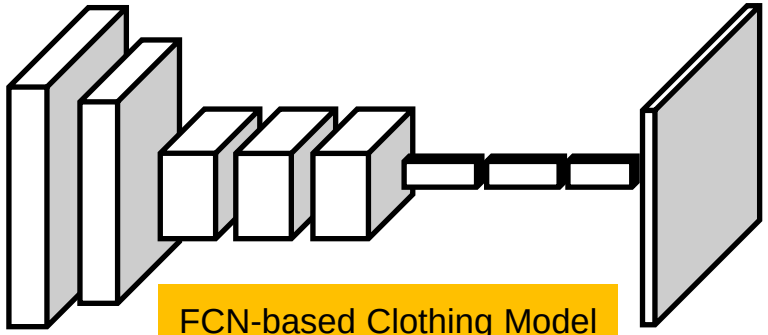
Multi-Camera Surveillance System

AI Video Analysis

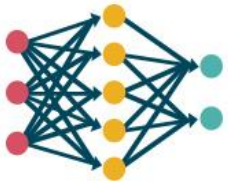


Human Recognition and Segmentation

Attribute Analysis



FCN-based Clothing Model



CNN-based Color Model

Black hair

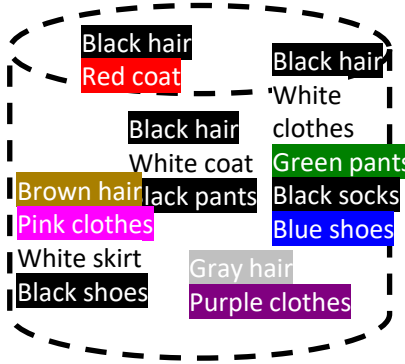
Blue coat

Brown pants

Black shoes

Image Summarization

Query image



Feature Representation Database

Multi-Camera Image Abstraction

Multi-Camera Application

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AI Video Analysis

Query image

Multi-Camera Image Abstraction

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Thank you

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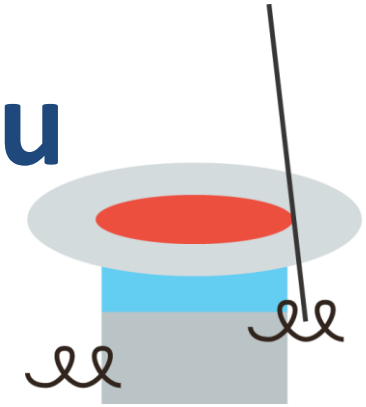

Feel free to contact us -

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