TECH OFFER

Ai Driven Detection Of Human Skeletons For Video Analytics

KEY INFORMATION

TECHNOLOGY CATEGORY:

Infocomm - Artificial Intelligence

Infocomm - Video/Image Analysis & Computer Vision

Infocomm - Video/Image Processing

TECHNOLOGY READINESS LEVEL (TRL): TRL7

COUNTRY: HONG KONG

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OVERVIEW

By leveraging Artificial Intelligence, this invention can detect human skeletons in a video and quickly analyse that information for posture and movement. This allows the solution to identify abnormal behaviour and other situations more precisely and effectively. In the context of a long video, this invention can capture the context information and focus on specific portions to detect multiple anomalous scenarios in real-time. This includes scenarios such as abuse, drowning, safety incidents, traffic accidents, fighting and criminal behaviour.

TECHNOLOGY FEATURES & SPECIFICATIONS

The technology allows kinematic pose estimation without the use of physical markers making it ideal for use cases involving public safety and security. The technology utilizes artificial intelligence for accomplishing this. This contrasts with traditional

methods involving a sliding window for object pose and orientation detection or the use of physical markers on the object or person of interest for a skeleton detection.

The technology also offers the option of detecting anomalous behaviour in long surveillance videos. Baseline behaviour, facilitated by the skeleton and pose detection capability, is first established by analysing the whole sequence in the video. In the next pass, this baseline is used to detect anomalous behaviour

POTENTIAL APPLICATIONS

The invention can be applied in children's centres, swimming pools, public transport and exhibition centres for public safety and security.

MARKET TRENDS & OPPORTUNITIES

Use of CCTV camera for surveillance and security is on an uptrend as more and more government and commercial establishments adopt their use. The growth, particularly in the APAC region, is attributed to the growing use of AI powered physical systems.

The technology presented here allows AI based posture and pose detection and can be used to develop systems for diverse scenarios. It can be used in swimming pools to immediately alert the lifeguard in the event of someone drowning. It can also be used to provide 24/7 surveillance of schools and homes immediately alerting the supervisor in case of an abnormal situation. For traffic monitoring, the system can also be used to analyse pedestrian posture, movement, speed, and abnormal conditions to improve road safety.

UNIQUE VALUE PROPOSITION

The technology offers multiple unique benefits. Some of these are listed below:

1. Detection of human skeleton and pose without physical markers.
   - The solution detects key points of human movement to determine the posture, and this could be used to analyse the action being performed instead of just presence and absence.
2. Ability to use thermal images to provide a balance between safety and privacy.
   - The solution works well with standard RGB cameras as well as thermal cameras. This allows the use of the technology in situations where privacy might be a concern.
3. Unique network topology to establish behaviour baseline and identify abnormal behaviour in long surveillance videos.
   - The solution can analyse long video sequences to automatically determine a baseline behaviour and context. This allows it to detect anomalous behaviour in the video essentially mimicking a human vision like behaviour of glancing at a scene and focusing only on the items of interest.