SOLUTION BRIEF

Network Analytics

DeepSight AI Labs Provides Contextualized AI-based CCTV Analytics

DeepSight's SuperSecure+ is a retrofit CCTV analytics solution that provides real-time threat and tamper detection. The solution utilizes Intel® Xeon® Platinum processor-based edge servers, OpenNESS and Intel® Distribution of OpenVINO™ toolkit.

Businesses and government agencies depend on digital closed circuit television (CCTV) for improved safety and security. But many CCTVs just record these events, making this record available for examination after the event. New analytics capabilities, utilizing artificial intelligence (AI), can provide ongoing monitoring in real time to improve fast detection and response to criminal activity. What's needed is a retrofit solution that can provide these analytics to already-installed CCTVs.

Millions of CCTVs, but No Analytics

Worldwide, there are millions of CCTV cameras put in place to help ensure public safety and to improve response to crime and terrorism. These CCTVs are recording petabytes of potentially actionable digital video for apprehending criminals, preventing or minimizing crime or terrorism damage, and solving crimes. But most CCTVs do not have the analytics required to allow for a real-time response. Most CCTV cameras have only the ability for basic motion detection, and they require post-event human intervention for any additional analysis.

But CCTV cameras are evolving in a way that makes advanced, real-time analytics possible. First-generation CCTV cameras captured analog video and stored it as tapes and then DVDs. Analyzing this footage could only be done with human intervention. Current generation CCTVs support digital video that can be stored on a hard drive and can be analyzed using software and AI. The last evolution required for actionable analytics is the emergence of high-resolution (1-20 megapixel) CCTVs, which facilitates advanced capabilities such as face recognition, object recognition, crossing of security perimeters, crowd management, and more.

Coinciding with the evolution of CCTV cameras has been the emergence of AI technology for use in video analytics. AI improves processing by analyzing a large amount of data in order to discern patterns that can enhance the video information, analyze actions, and explain or predict actions and then trigger an alert to a human for response.

Intel® Network Builders ecosystem partner DeepSight AI Labs has launched its SuperSecure+ as a retrofit analytics solution that enables advanced video analytics for the entire installed base of digital CCTV cameras, enabling them to provide real-time insights for government agencies, utilities, banks, retail locations, entertainment parks, stadiums, and others.

SuperSecure+ Brings AI Analytics to Installed CCTV Cameras

With a deep understanding of video analytics and computer vision, DeepSight has developed SuperSecure, a computer vision platform using contextualized AI, deep learning, and proprietary algorithms. On top of that foundation, the company develops customized solutions. One of its first applications is SuperSecure+.

SuperSecure+ software combines AI algorithms with advanced proprietary image processing techniques to analyze CCTV live feeds or recorded video streams in real time for object detection and behavior analytics, which offer threat and tamper detection.

Threat detection can include intrusion or crossing safety boundaries, people with helmets or masks, crowd management and counting, gun or machete detection, automatic number (license) plate recognition (ANPR), face recognition, fire detection, fighting detection, and others. Tamper detection can help protect the camera system from being blocked (by spray painting, or obstruction), from disconnection, defocusing, flashing bright light, or a changed direction.

SuperSecure+ can analyze multiple live/recorded video feeds from stationary CCTVs or from drones. DeepSight develops custom object detection to suit specific requirements. The software is a universally compatible retrofit platform that works with any CCTV camera of any resolution.

Once a potential threat or incident is detected, SuperSecure+ can send alerts via a pop-up on the security monitor, or send an SMS or email with incident related image attached. The system also triggers interactive voice response (IVR) calls to registered security personnel or business owners for fast response to help minimize damages or save lives.

Mobile Network Operator Deployments

While SuperSecure+ can be deployed in the cloud or on premises by an organization, it can also be deployed by mobile network operators (MNOs) using public and private 5G networks. These networks are an emerging way to wirelessly connect security cameras in smart city, retail, and banking applications. With built-in support for 5G networks, MNOs have a new service offering.

The hardware platform for the SuperSecure+ system includes edge servers powered by the Intel® Xeon® Platinum processor. This processor family offers workload-optimized performance for mission-critical, real-time analytics, machine learning, and artificial intelligence workloads, either at the network edge or in hybrid-cloud deployments.

Simplifying Edge Deployments with OpenNESS

SuperSecure+'s edge analytics and placement of AI applications on edge servers are orchestrated using Open Network Edge Services Software (OpenNESS), an open source software initiative from Intel. OpenNESS is a software toolkit that makes network platforms cloud native and edge ready (across any type of network) with hardware/software optimizations to meet edge network key performance indicators (KPIs).

OpenNESS is a fully cloud native and microservices-based architecture that is multi-access, multi-platform, and multi-cloud. It exposes a comprehensive set of APIs and services to reduce network complexity and accelerate the deployment of edge solutions. The use of OpenNESS lets SuperSecure+ be easily deployed across multiple servers across the network.

SuperSecure+ raises alerts in real time. Its ability to do this depends on guaranteed bit rate at the network layer, steering 5G data traffic intended for the edge at 5G latencies, and also providing connectors to analytics and cloud service providers. OpenNESS helps with these requirements by simplifying complex networking technology. OpenNESS exposes standards-based APIs to control the network resources required by SuperSecure+, and it helps secure the connection by assuring the quality of service (QOS) parameter for each stream from multiple cameras.

To boost performance of the video processing, SuperSecure+ leverages the Intel® Distribution of OpenVINO™ toolkit. In addition to speeding up computer vision workloads, this toolkit streamlines deep learning inference and deployments, and it enables easy, heterogeneous execution from edge to cloud. The OpenVINO toolkit comes with pre-trained models and support for open source and custom models. It helps increase performance for AI and computer vision workloads with heterogeneous processing and asynchronous execution across CPUs, CPUs with integrated graphics, FPGAs, and vision processing units (VPUs).

Conclusion

The millions of digital CCTVs installed could provide better protection and security with analytics that alert officials to problems in real time. DeepSight's SuperSecure+ is based on AI algorithms that provide a wide range of threat and tamper detection utilizing the performance of Intel Xeon Platinum processors, OpenNESS, and OpenVINO toolkit technologies.

About DeepSight AI Labs

DeepSight AI Labs is an AI-based computer vision startup that offers customized solutions to surveillance, retail, healthcare, manufacturing, and entertainment industries. The startup received recognition for developing "SuperSecure+" – a computer vision platform employing advanced AI, Deep Learning and proprietary algorithms, detection of objects/anomalies from multiple video streams and trigger instant multi-channel alerts. This helps in preventing incidents to save precious human lives and protect valuable assets. To learn more about DeepSight AI Labs visit: http://deepsightlabs.com

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About Intel® Network Builders

Intel Network Builders is an ecosystem of infrastructure, software, and technology vendors coming together with communications service providers and end users to accelerate the adoption of solutions based on network functions virtualization (NFV) and software defined networking (SDN) in telecommunications and data center networks. The program offers technical support, matchmaking, and co-marketing opportunities to help facilitate joint collaboration through to the trial and deployment.

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