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Video analytics on TI's DaVinci™ digital media processors

The basics of video analytics with DaVinci™ digital media processors



What are "video analytics?"

Video analytics are functions typically used in video surveillance applications that automatically analyze live video streams to detect moments in time that are not based on a single image. They can be easily compared to an automated, artificial intelligence visual cortex of the brain – the part that assesses visual images.

State-of-the-art video analytics algorithms, or complex math functions made possible through a digital signal processor in a video camera, to detect, track and map the positions of people, vehicles and other objects as they move and interact in the camera's field of view. Video analytics are commonly used in video security applications for retail stores, community venues and transportation points. Video analytics can also be used in entertainment and health care applications.

How are video analytics possible on DaVinci™ digital media processors?

The DaVinci digital media processors containing a digital signal processor (DSP), along with the video processing subsystem, enable complex algorithms and signal processing. These algorithms and signal processing functions are implemented via software programming on the DSP in the DaVinci digital media processors. To make this development easy, TI has an extensive vision library that contains various video analytics algorithms for developers to utilize as a starting point to save time when programming the DSP for their specific video analytics.

What are some examples of video analytics?

- **Motion detection** is used to determine the presence of motion in an area being observed by a video camera or motion detector. Motion detection is a common feature in video security alarm systems.
- **Object detection** determines the presence of people or objects being captured through video and relays what type of objects they are real-time. This type of video analytics can include fire and smoke detection.
- **Face recognition** can capture and possibly identify people, which is helpful for video airport security for terrorism or criminal detection. The same type of analytics can be used for automatic license plate recognition.
- **Tamper detection** enables an alarm to alert the proper entity when a camera or output signal has been compromised. Tamper detection is a popular feature in video security systems for retail stores.
- **Video tracking** determines the location of people or objects captured in a video signal and locates them on an external reference grid to find them.

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