1. Surveillance video analysis and compression based on edge computing

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Authors: Li, Yue (1); Mu, Xiaofang (1); Qi, Hui (1); Shi, Hong (1); Liu, Jiaji (1)
Author affiliation: (1) Taiyuan Normal University, Department of Computer Science, Taiyuan, China
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Abstract: Directly uploading monitoring video data to cloud servers can cause network congestion, reduce server computing efficiency, and waste storage space. This paper proposes a lossy compression model suitable for edge computing. The distributed processing method is used to extract high-density data from the edge-device video stream so as to reduce the network transmission pressure, relieve the processing burden placed on the central server, and minimize the processing delay of video surveillance data. A momentum change analysis algorithm is deployed in the preprocessing stage, then an optimized lightweight neural network is used to detect objects at the edge for analysis and compression of the video stream content Experimental results show that the proposed method can extract valuable objects from 98% or more of a given scene. The execution effect on the edge device is equivalent to the video time, thus allowing for fast analysis and compression of video stream content. © 2022 IEEE.
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