

It is hard to tell which aspects of a surveillance system in the urban environment are necessary and how visual surveillance systems are important to us at all, when you have never been a victim of crime. But people less likely to commit crimes when they know they are being watched. However, people are not satisfied with the traditional surveillance systems. The first is that the surveillance recorded by most systems is often not clear enough to help criminal investigations. The second point that we will discuss here is that of privacy concerns as current systems are always on recording everything. This makes people feel uncomfortable and even violated with respect to their right to privacy. Hence, we do need advanced computer vision techniques to improve the existing visual surveillance system.

First, most videos from traditional visual surveillance systems are not clear enough to help criminal investigations, while helping in criminal investigations are the main function of the systems. So what's the point we need a surveillance system that is not working when we need it? In order to address this problem, advanced computer vision techniques are the necessary feature to the visual surveillance systems. In fact, only with advanced intelligent computer vision features, the urban environment surveillance system can help us. For example, current super-pixel technique would help to enhance some images in poor quality to help policemen to find the bank robber face. We can see, without the enhancement technique, the videos recorded by the surveillance system cannot help a lot in criminal investigation.

Second and what's more important, advanced computer vision research would also help to address the privacy issue in visual surveillance system. For example, face detection technique would blind people's face in the terminal to protect people's privacy. It is not only in urban environment surveillance system, nowadays, face detection also helps to blur the faces in Google street view with face detection techniques. Besides, other technique such as crowd estimation technique can tell the population density numbers we want while prevent irrelevant images comes to the security people. It is even better if we could recognize the action in the videos, then we could accurately give warning to the security when the emergency happens. In a long term, the more reliable computer vision technique we have, the less privacy concerns we would have for visual surveillance system.

The main purposes of developing and setting up visual surveillance systems are to help criminal investigations and prevent criminals. But without advanced computer vision techniques, existing visual surveillance systems are not effective in criminal investigations while they create a lot of privacy concerns such that people can follow others as long as they can access the surveillance systems. It is time to think about how we can address these problems with computer vision research.